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Title	Revision 6
1-179	Revision 6

1.0 PURPOSE

The LP&L Pump and Valve Inservice Test Plan provides a description of the inservice testing plan for Waterford-3 Steam Electric Station for Safety-related ASME Boiler and Pressure Vessel Code Class 1, 2, and 3 pumps and valves in accordance with the requirements of subsections IWP and IWV of the ASME Boiler and Pressure Vessel Code Section XI, 1980 Edition through the Winter 1981 Addenda (Reference 2.1).

2.0 REFERENCES

2.1 ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition Through Winter; 1981 Addenda, Subsections IWP and IWV.

2.2 Waterford 3 FSAR Section 3.9.6, Inservice Testing of Pumps and Valves

2.3 Waterford 3 Technical Specifications 4.0.5

2.4 10CFR50.55.a (g), Code of Federal Regulations

2.5 Draft Regulatory Guide Task MS-901-4, Identification of Valves for Inclusion in Inservice Testing Programs, Nov. 1981

2.6 Regulatory Guide 1.26, Revision 3

2.7 Waterford 3 POM Procedure, UNT-07-020, Administrative Procedure, Pump and Valve Inservice Testing

3.0 DEFINITIONS

None

4.0 RESPONSIBILITIES

4.1 The Plant Manager-Nuclear is responsible for the approval of the test plan and any revisions made to it.

4.2 The Shift Technical Advisor (STA) Department is responsible for ensuring the proper development, assessment and improvements of this plan and for overseeing its implementation as follows:

4.2.1 Defining which pumps and valves are within Section XI jurisdiction per Reference 2.1, 2.3 and 2.5.

4.2.2 Preparation of relief requests for components which cannot be tested in accordance with Reference 2.1.

4.2.3 Ensuring that all implementing procedures are in accordance with this test plan.

4.2.4 Making changes to this plan to improve testing or incorporate station modifications.

4.3 The Operational Licensing Unit is responsible for transmitting Relief Requests and Plan revisions to the NRC.

5.0 TEST PLAN

5.1 GENERAL

5.1.1 This Test Plan is written in accordance with Reference 2.4. References 2.5 and 2.6 were used for guidance in preparation of this plan. The Waterford 3 FSAR (Reference 2.2) and Plant Technical Specification 4.0.5 (Reference 2.3) reference this plan.

5.1.2 This document shall go into effect beginning with baseline testing to establish reference data and shall then remain in effect through the first 120 month interval of commercial operation.

5.1.3 As a minimum, this plan will be reviewed and revised as necessary for compliance with the ASME Code in effect 12 months prior to the end of the first 120 months of commerical operation. Similarly, this plan will be reviewed and revised for each subsequent 120 month interval. Louisiana Power and Light Company reserves the right to submit plan revisions which may enhance or improve this pump and valve testing plan at any time within the effective period. Guidelines for revising the plan are contained in Reference 2.7.

5.2 INSERVICE TESTING OF PUMPS

Attachment 6.1 contains the table entitled "Pumps for Inservice Testing" which describes the inservice testing plan for pumps subject to the requirements of subsection IWP of Reference 2.1. It provides identification of the pumps to be tested, the ASME Section III Code classes, drawing references, parameters to be measured and test intervals. Attachment 6.2 contains the hydraulic circuit used for the testing of each pump and the location and type of measurement for each of the required test quantities. Relief from the testing requirements of Section XI is requested from the NRC where full compliance with the requirement of the Code is not practical. In such cases, specific information is provided in Attachment 6.3 which identifies the applicable code requirements, justification for the relief request, and the testing to be used as an alternate. When the code-required testing is performed in an unusual or complicated manner, clarifications are included in Attachment 6.4 in order to explain how the requirements of Section XI are fulfilled.

5.3 INSERVICE TESTING OF VALVES

5.3.1 Attachment 6.5 contains the table entitled "Valves for Inservice Testing" which describes the inservice testing plan for valves subject to the requirements of subsection IWV of Reference 2.1. It provides the identification of the valves to be tested by system, valve code classes, drawing references, test categories, size, types, positions, stroke time limits, function, test requirements, and any alternate testing necessary. A legend of symbols is also provided in Attachment 6.5. Relief from the testing requirements of Section XI is requested where full compliance with the requirements of the Code is not practical. In such cases, the table refers to a specific relief request number in Attachment 6.6 for the appropriate valves. The relief request provides specific information which identifies the applicable code requirements, justification for the relief request, and the testing to be used as an alternate. The design of Waterford 3 does not include any valves which would be classified as ASME Section XI Category D valves. When the code-required testing is performed in an unusual or complicated manner, clarifications are included in Attachment 6.7 in order to explain how the requirements of Section XI are fulfilled.

5.3.2 Some valves in this Test Plan have a fail-safe position. Both their normal and failure positions are tabulated. Valves with failure positions that are either closed or open are tested to those positions during the exercising tests.

5.3.3 Valve testing is divided into two categories. The first category includes valves that can be tested without major impact to plant operations. The second category includes valves that must be tested during Cold Shutdown conditions. Cold Shutdown testing will commence no later than 48 hours after entering Cold Shutdown and continue until completed or until the plant is ready to return to power. Completion of all valve testing is not a prerequisite to return to power except as required by Plant Technical Specification. Any testing not completed at one Cold Shutdown interval will be performed during the subsequent Cold Shutdown interval. In the case of frequent Cold Shutdowns, valve testing will not be performed more often than once every three (3) months.

> NOTE
>
> Most valve numbers have only three numerical digits with a few valves having four. Typically, the four digit valves were added after the valves in that system had been given Unique Identification (UNID) numbers by LP&L. Since valves are numbered according to their relative location in the flow path, a newly-added valve is given a fourth digit which maintains the unique numbering system and also reflects relative flow path position. As an example, RC-3183 is situated between RC-318 and RC-3184.

6.0 ATTACHMENTS

6.1 Pumps for Inservice Testing
6.2 Pump Testing Flow Path
6.3 Requests for Relief from ASME Section XI Pump Testing Requirements
6.4 Clarification of Pump Testing Methods
6.5 Valves for Inservice Testing
6.6 Request for Relief from ASME Section XI Valve Testing Requirements
6.7 Clarification of Valve Testing Methods.

PUMPS FOR INSERVICE TESTING

WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI- FICATIONS	REMARKS
Containment Spray A	2	LOU-1564-G-163	RAB,El-35.0' LOU-1564 G-137, E-10	1. Inlet Pressure (Pi)	Quarterly	2.1.3	
				2. Outlet Pressure (Po)	Quarterly	2.1.3	
Containment Spray B	2	G-163	RAB,El-35.0' LOU-1564 G-137, D-10	3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.3,2.1.4	
				4. Flow Rate	Quarterly	2.1.3,2.1.4	
				5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

Attachment 6.1 (1 of 9)

PUMPS FOR INSERVICE TESTING

WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI- FICATIONS	REMARKS
High-Pressure Safety Injection A	2	LOU-1564- G-167 Sheet 1	RAB,El-35.0' Lou-1564 G-137, E-10	1. Inlet Pressure (Pi)	Quarterly	2.1.3	
High-Pressure Safety Injection B	2	G-167 Sheet 1	RAB,El-35.0' Lou-1564 G-137, D-10	2. Outlet Pressure (Po)	Quarterly	2.1.3	
High-Pressure Safety Injection A/B	2	G-167 Sheet 1	RAB,El-35.0' Lou-1564 G-137, E-8	3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.3,2.1.4	
				4. Flow Rate	Quarterly	2.1.3,2.1.4	
				5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

PUMPS FOR INSERVICE TESTING
WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Low-Pressure Safety Injection A	2	LOU-1564-G-167 Sheet 1	RAB,El-35.0' Lou-1564 G-137, E-11	1. Inlet Pressure (Pi)	Quarterly	2.1.3	
Low-Pressure Safety Injection B	2	G-167 Sheet 1	RAB,El-35.0' Lou-1564 G-137, D-11	2. Outlet Pressure (Po)	Quarterly	2.1.3	
				3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.3,2.1.4	
				4. Flow Rate	Quarterly	2.1.3,2.1.4	
				5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

PUMPS FOR INSERVICE TESTING

WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Component Cooling Water A	3	LOU-1564-G-160 Sheet 2	RAB,El+21.0' Lou-1564 G-135, C-6	1. Inlet Pressure (Pi)	Quarterly	-	
				2. Outlet Pressure (Po)	Quarterly	-	
Component Cooling Water B	3	G-160 Sheet 2	RAB,El+21.0' LOU-1564 G-135, C-9	3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.4	
				4. Flow Rate	Quarterly	2.1.4	
Component Cooling Water A/B	3	G-160 Sheet 2	RAB,El+21.0' LOU-1564 G-135, C-8	5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

PUMPS FOR INSERVICE TESTING

WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Auxiliary Component Cooling Water A	3	LOU-1564-G-160 Sheet 2	RAB,El-35.0' LOU-1564 G-145, H-3	1. Inlet Pressure (Pi)	Quarterly	-	
Auxiliary Component Cooling Water B	3	G-160 Sheet 2	RAB,El-35.0' LOU-1564 G-145, H-15	2. Outlet Pressure (Po)	Quarterly	-	
				3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.4	
				4. Flow Rate	Quarterly	2.1.4	
				5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

Attachment 6.1 (5 of 9)

PUMPS FOR INSERVICE TESTING
WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Emergency Feedwater A (Motor-Driven)	3	LOU-1564-G-153 Sheet 4	RAB,El-35.0' LOU-1564 G-137, F-7	1. Inlet Pressure (Pi)	Quarterly	2.1.3	
				2. Outlet Pressure (Po)	Quarterly	2.1.3	
Emergency Feedwater B (Motor-Driven)	3	G-153 Sheet 4	RAB,El-35.0' LOU-1564 G-137, E-7	3. Differential Pressure ($\Delta P = Po - Pi$)	Quarterly	2.1.3,2.1.4	
				4. Flow Rate	Quarterly	2.1.3,2.1.4	
Emergency Feedwater A/B (Turbine Driven)	3	G-15 3 Sheet 4	RAB, El-35.0' LOU-1564 G-137, C5	5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Quarterly A/B Pump Only	-	

PUMPS FOR INSERVICE TESTING
WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Charging A	2	LOU-1564-G-168 Sheet 2	RAB,El-30.0' LOU-1564 G-137, F-1	1. Inlet Pressure (Pi)	Quarterly	2.1.1	
				2. Outlet Pressure (Po)	Quarterly	2.1.1	
Charging B	2	G-168 Sheet 2	RAB,El-30.0' LOU-1564 G-137, F-4	3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.1	
				4. Flow Rate	Quarterly	2.1.2, 2.1.1	
Charging A/B	2	G-168 Sheet 2	RAB,El-30.0' LOU-1564 G-137, F-3	5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

PUMPS FOR INSERVICE TESTING
WATERFORD 3 S.E.S.

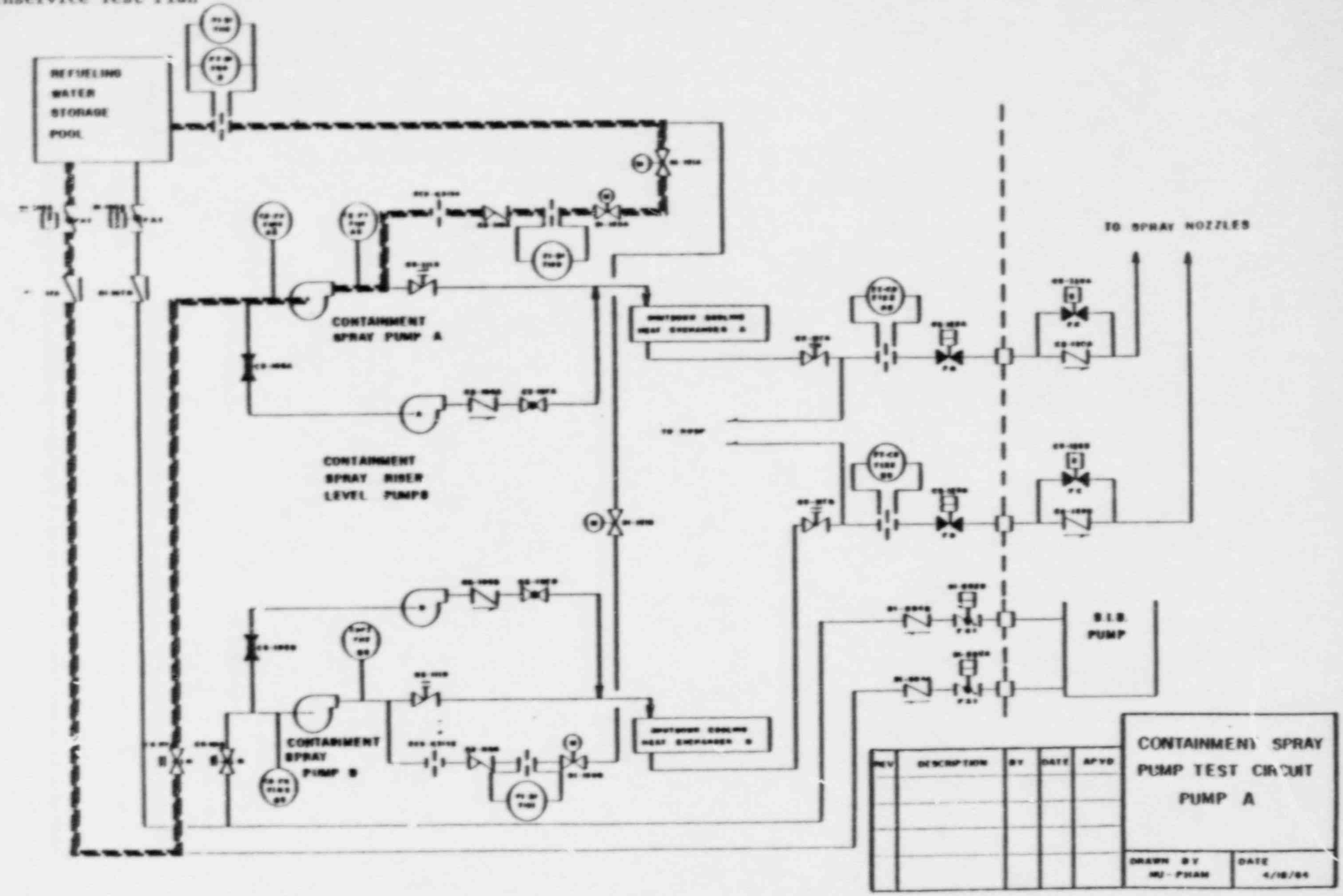
PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Boric Acid A	3	LOU-1564-G-168 Sheet 2	RAB,El-35.0' LOU-1564 G-137, H-6	1. Inlet Pressure (Pi)	Quarterly	2.1.3	
				2. Outlet Pressure (Po)	Quarterly	2.1.3	
Boric Acid B	3	G-168 Sheet 2	RAB,El-35.0' LOU-1564 G-137, H-6	3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.3,2.1.4	
				4. Flow Rate	Quarterly	2.1.3,2.1.4	
				5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

PUMPS FOR INSERVICE TESTING

WATERFORD 3 S.E.S.

PUMP IDENTIFICATION	ASME CODE CLASS	FLOW DIAGRAM/ SHEET NUMBER	LOCATION ON GENERAL ARRANGEMENT	MEASURED PARAMETERS	TEST INTERVAL	RELIEF REQUESTS/ CLARI-FICATIONS	REMARKS
Chilled Water A	3	LOU-1564-G-853 S03	RAB,El+46.0' LOU-1564 G-134, E-3	1. Inlet Pressure (Pi)	Quarterly	-	
				2. Outlet Pressure (Po)	Quarterly	-	
Chilled Water B	3	G-853 S03	RAB,El+46.0' LOU-1564 G-134, D-3	3. Differential Pressure (ΔP = Po - Pi)	Quarterly	2.1.4	
				4. Flow Rate	Quarterly	2.1.4	
Chilled Water A/B	3	G-853 S03	RAB,El+46.0' LOU-1564 G-134, E-2	5. Vibration Amplitude	Quarterly	-	
				6. Bearing Temperature	Annually	2.1.5	
				7. Lubricant Level or Pressure	Observe Quarterly	-	
				8. Speed	Not Applicable	-	

Attachment 6.1 (9 of 9)



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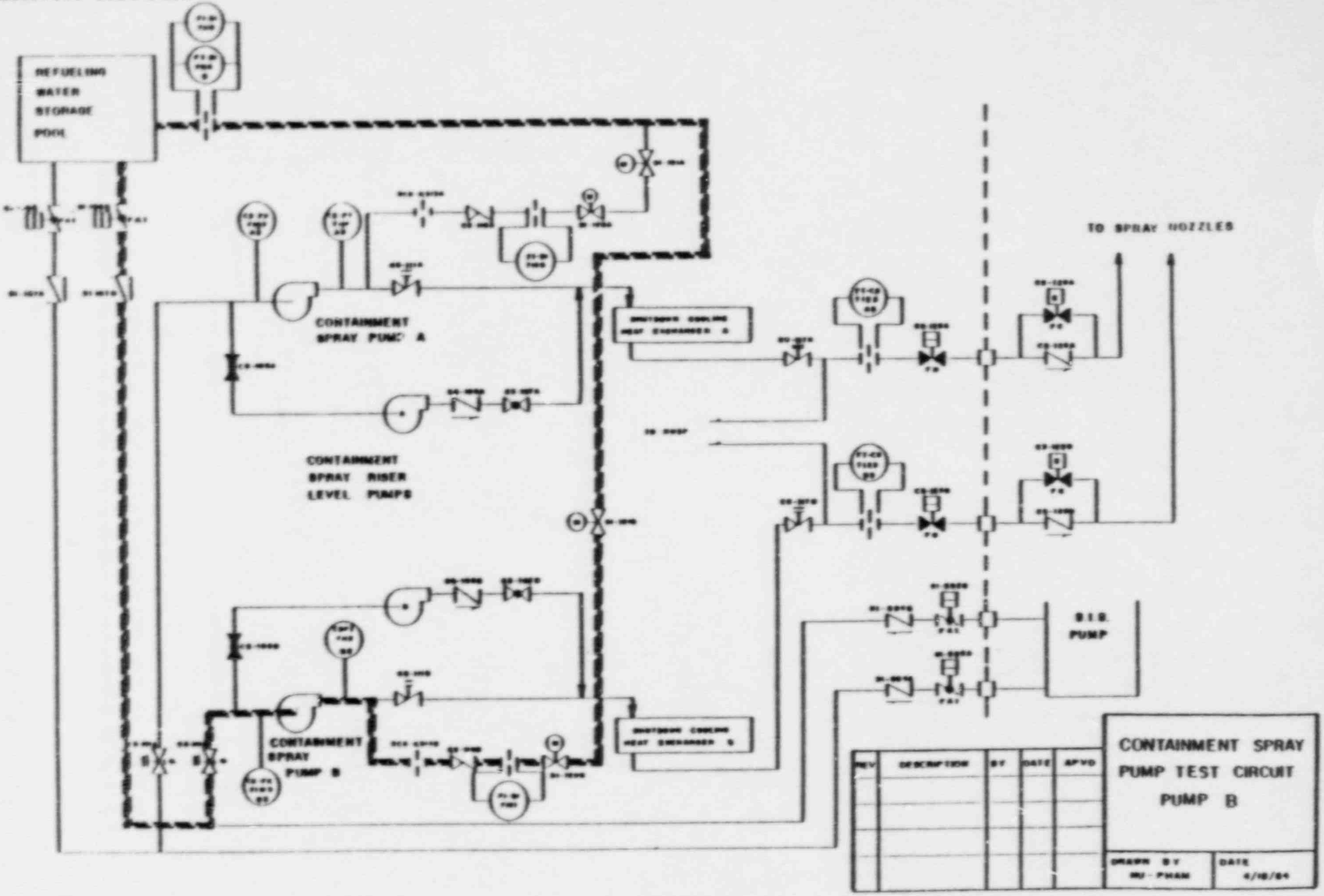
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TO SPRAY NOZZLES
S.I.S.
PUMP
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DESCRIPTION
BY
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APVD
DRAWN BY
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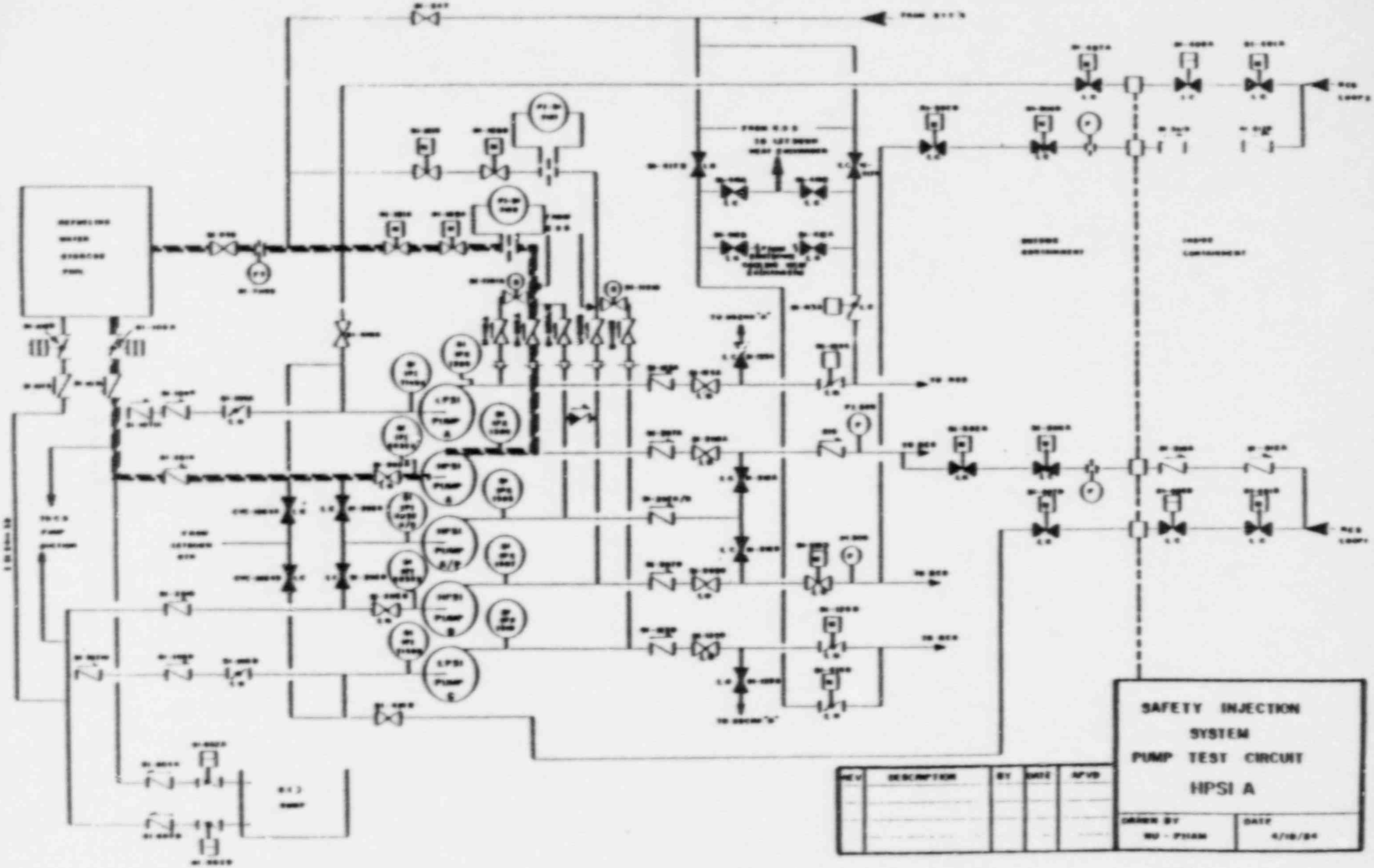

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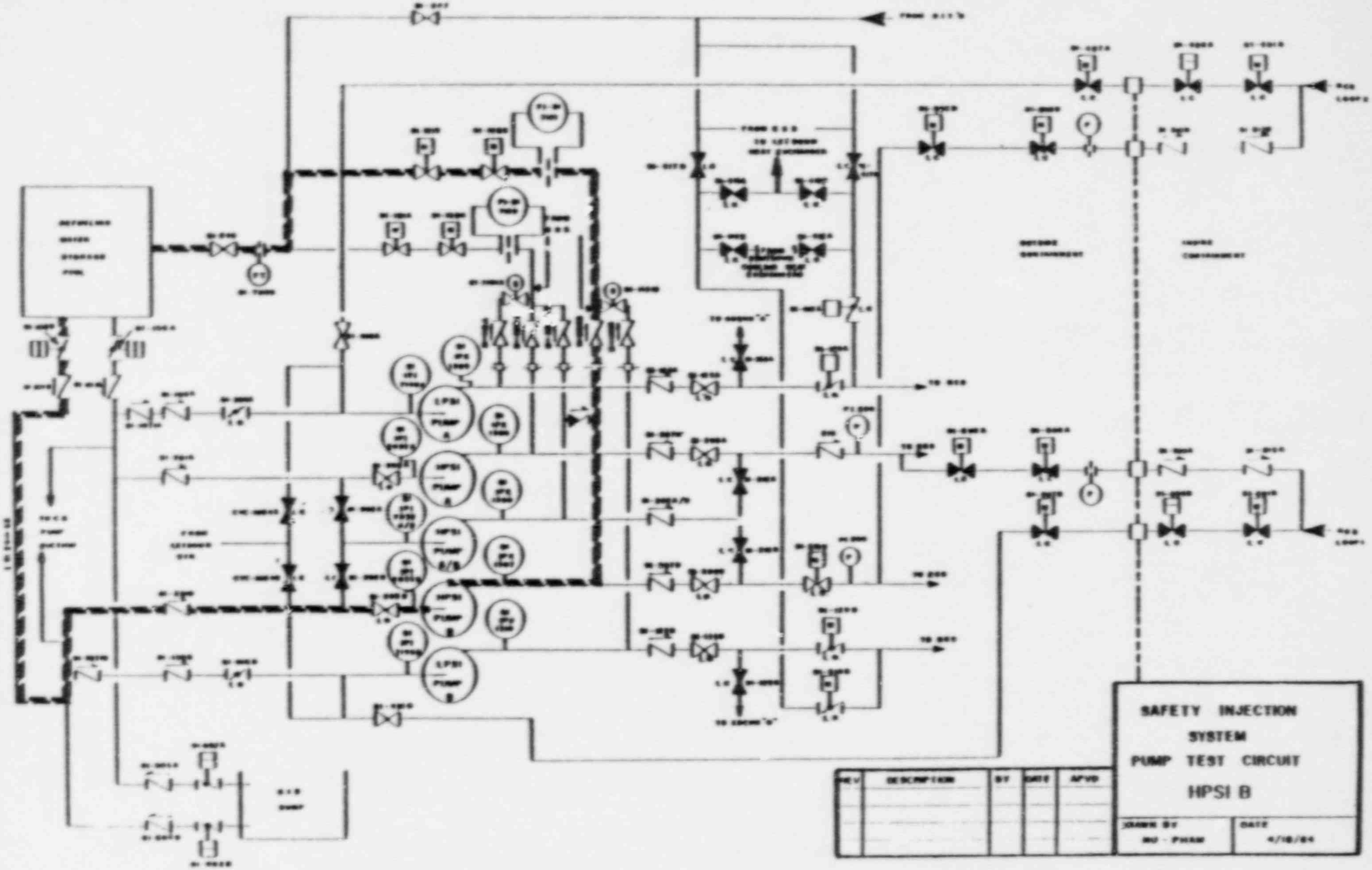

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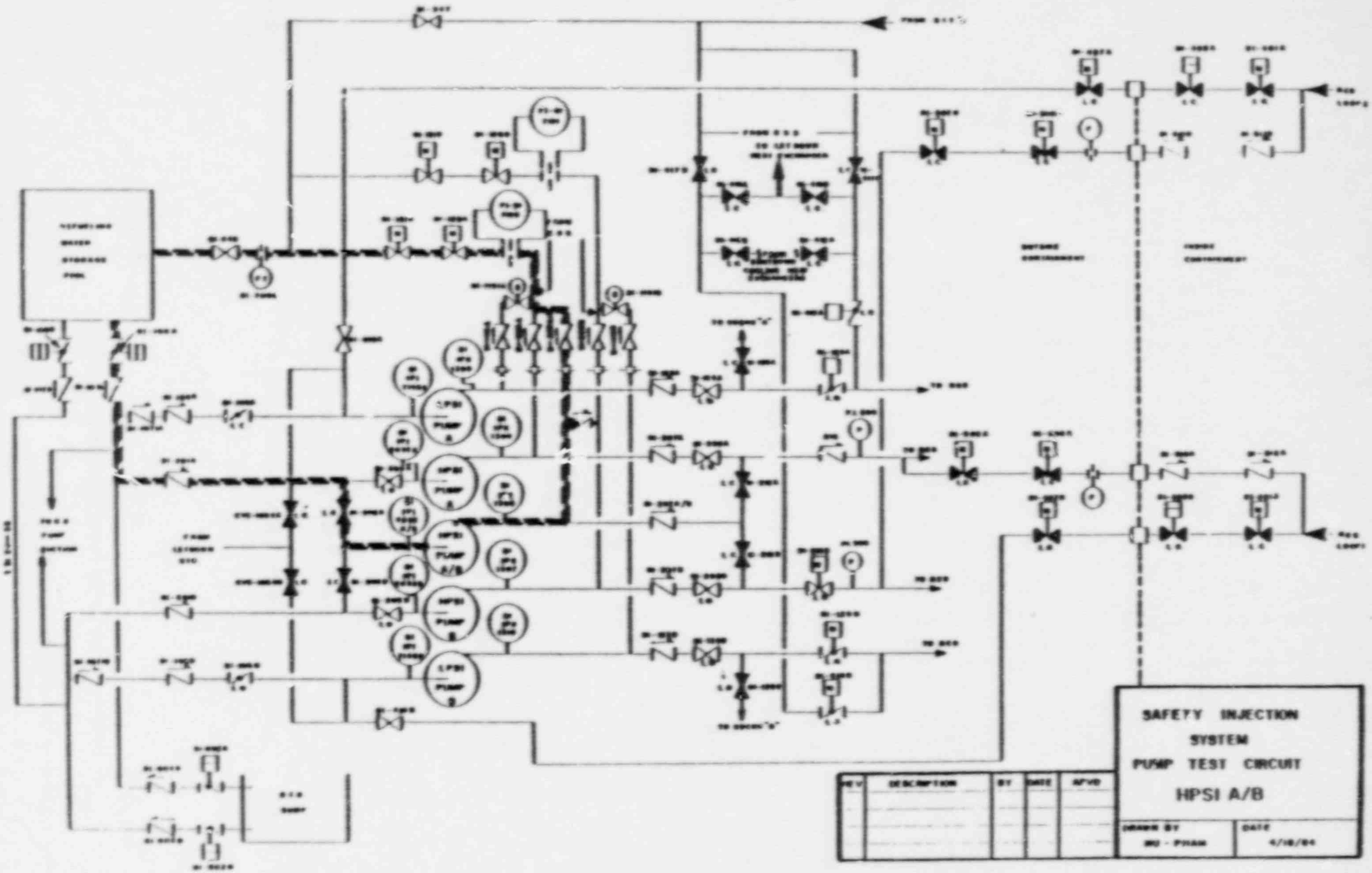
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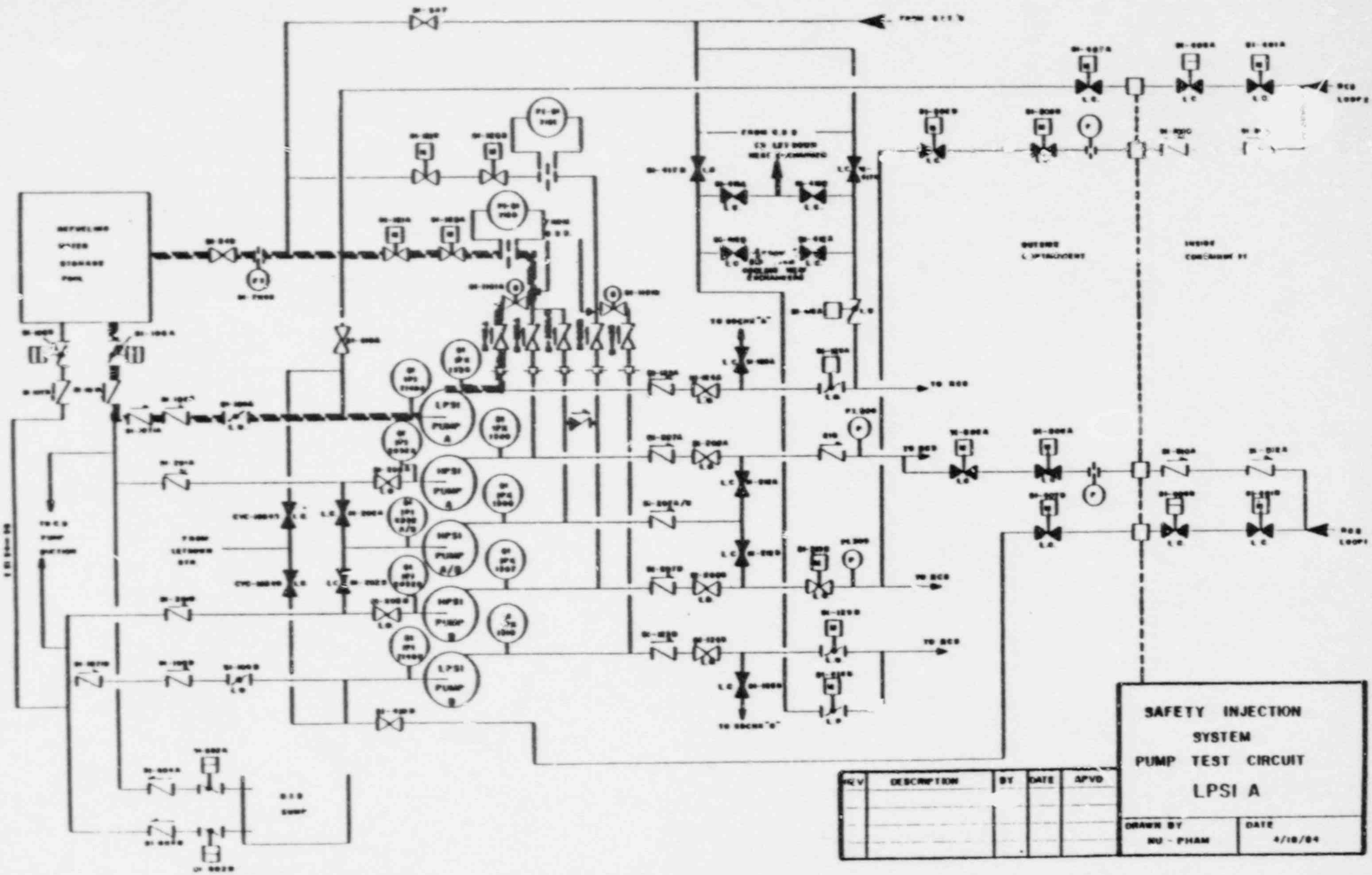
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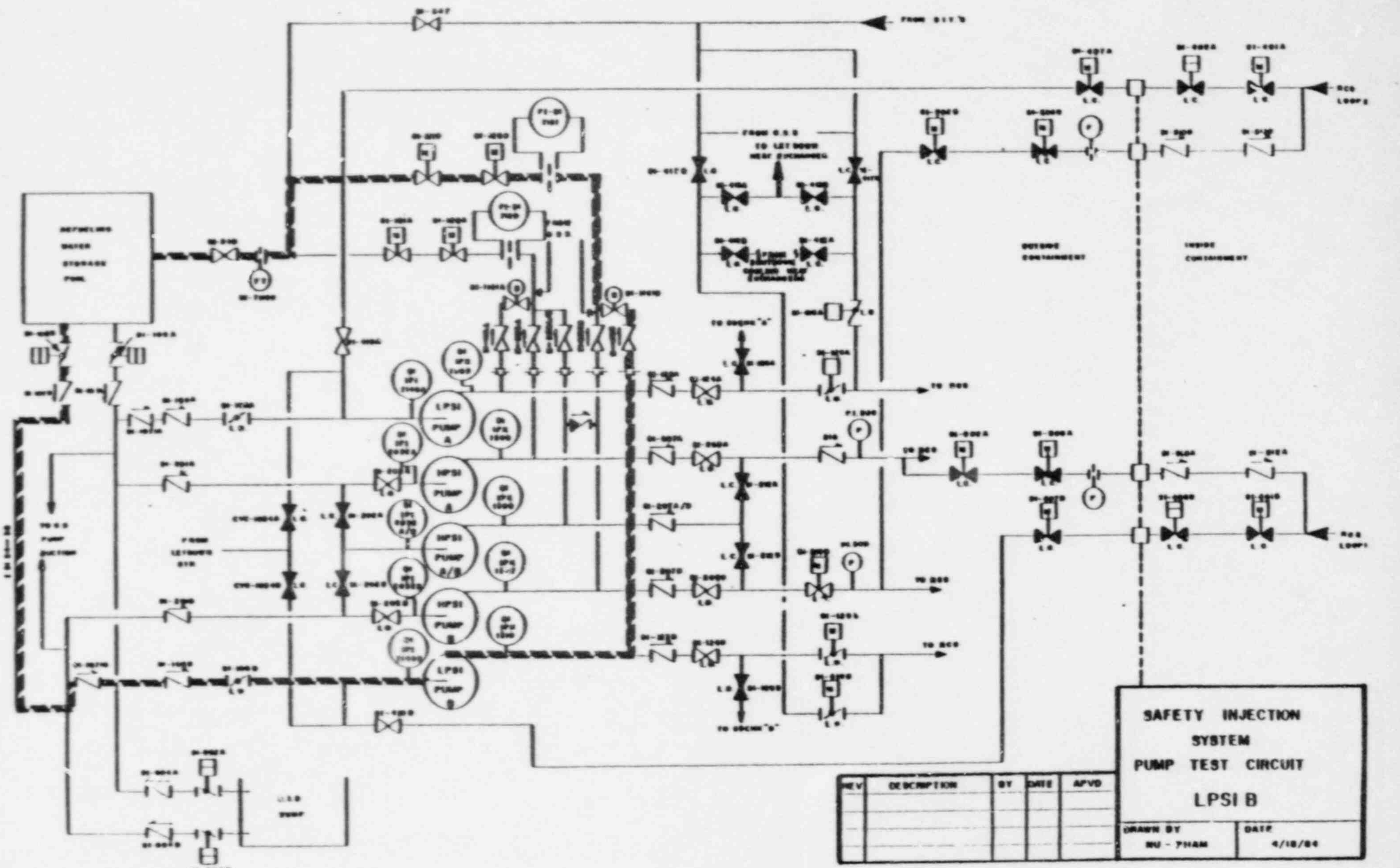
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DESCRIPTION
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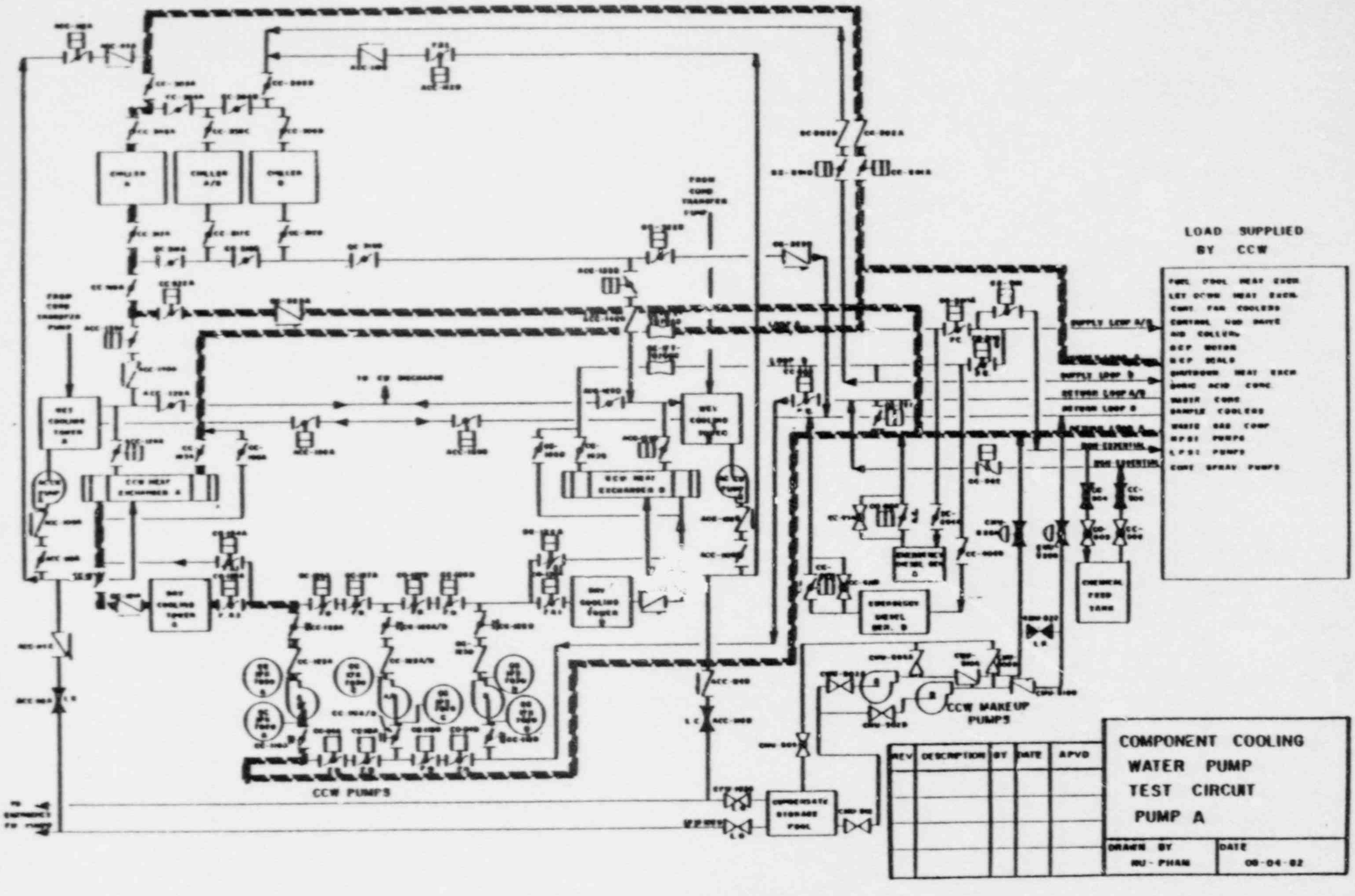
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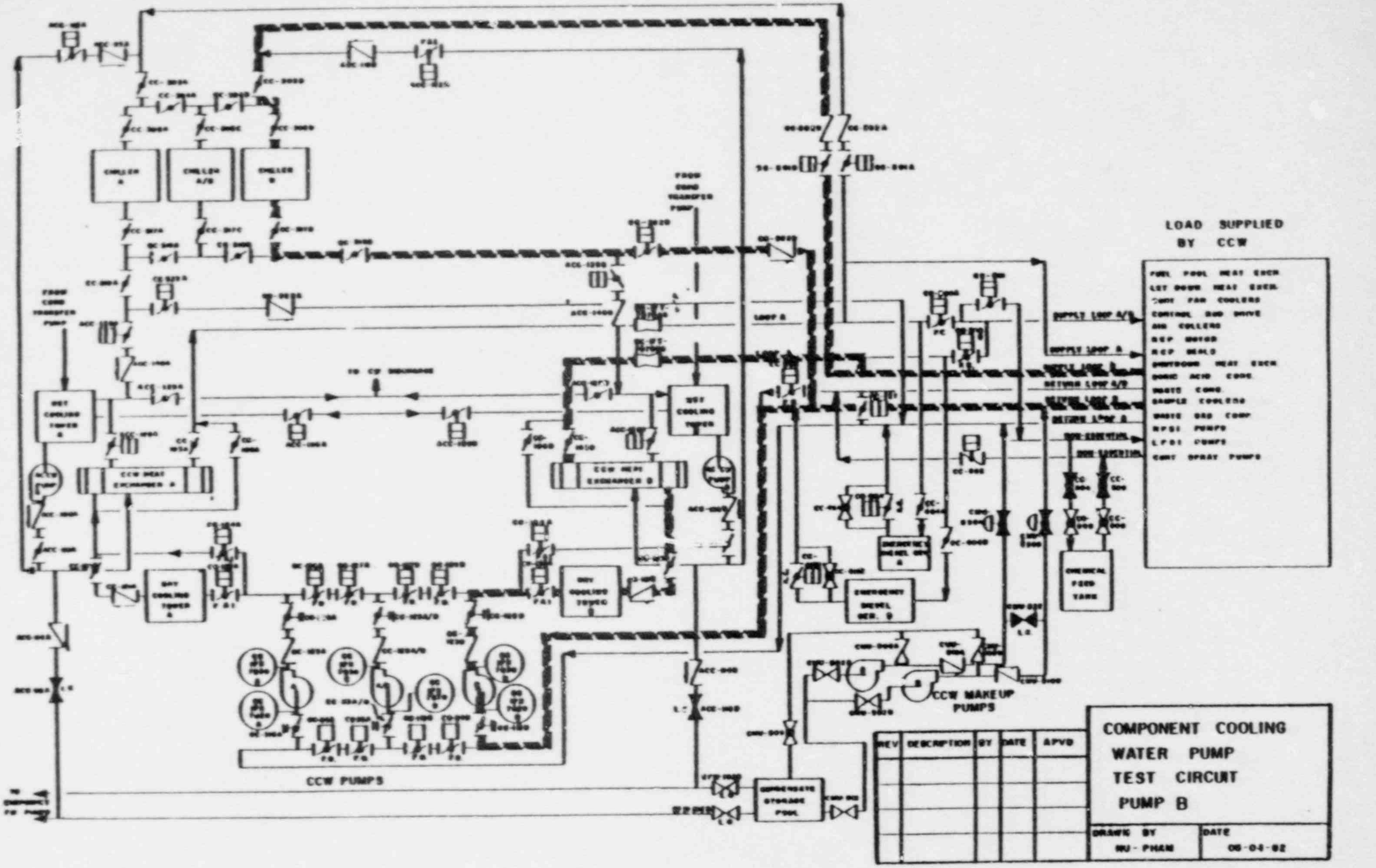
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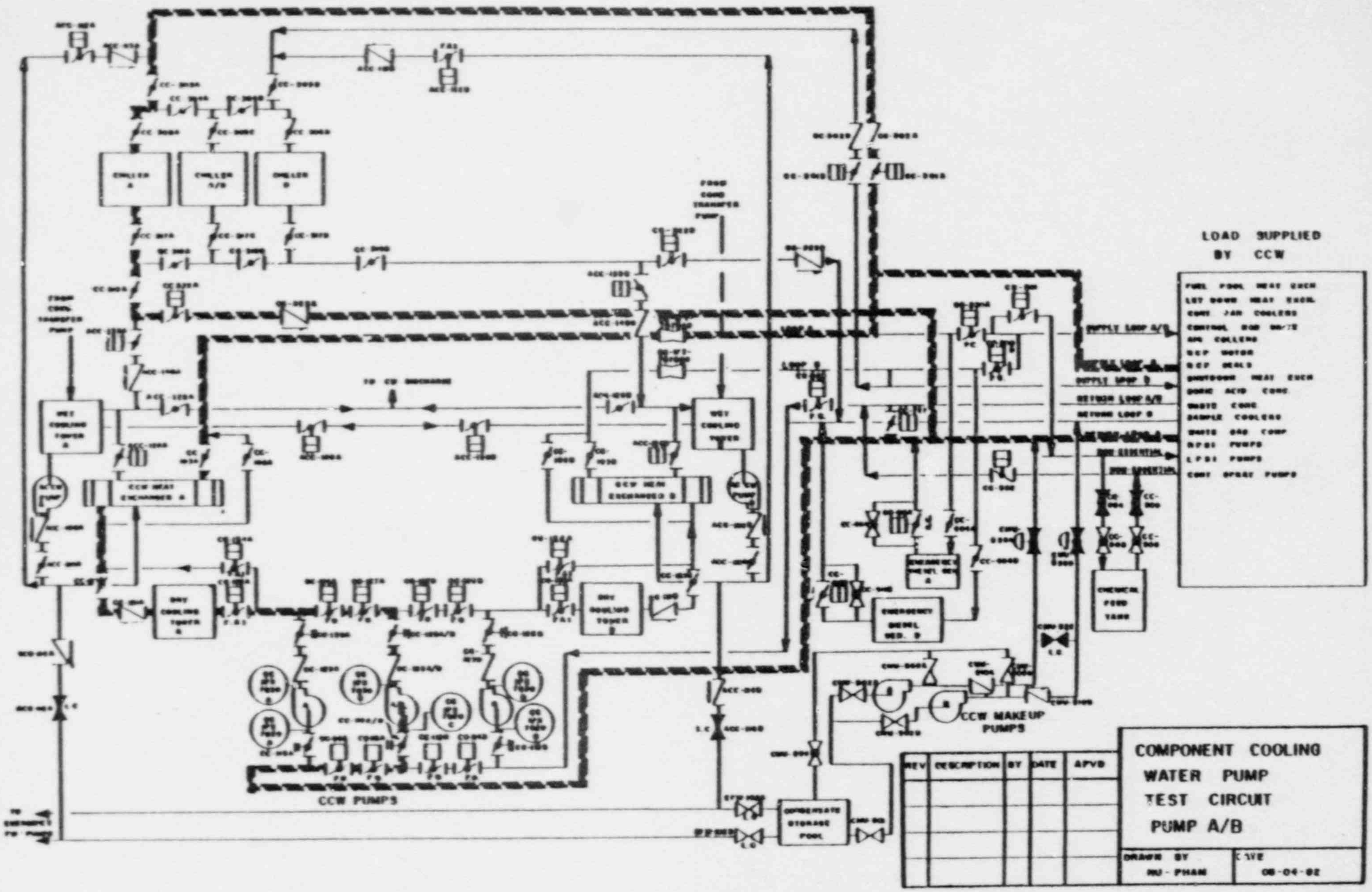
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COMPONENT COOLING
WATER PUMP
TEST CIRCUIT
PUMP A/B
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DESCRIPTION
BY
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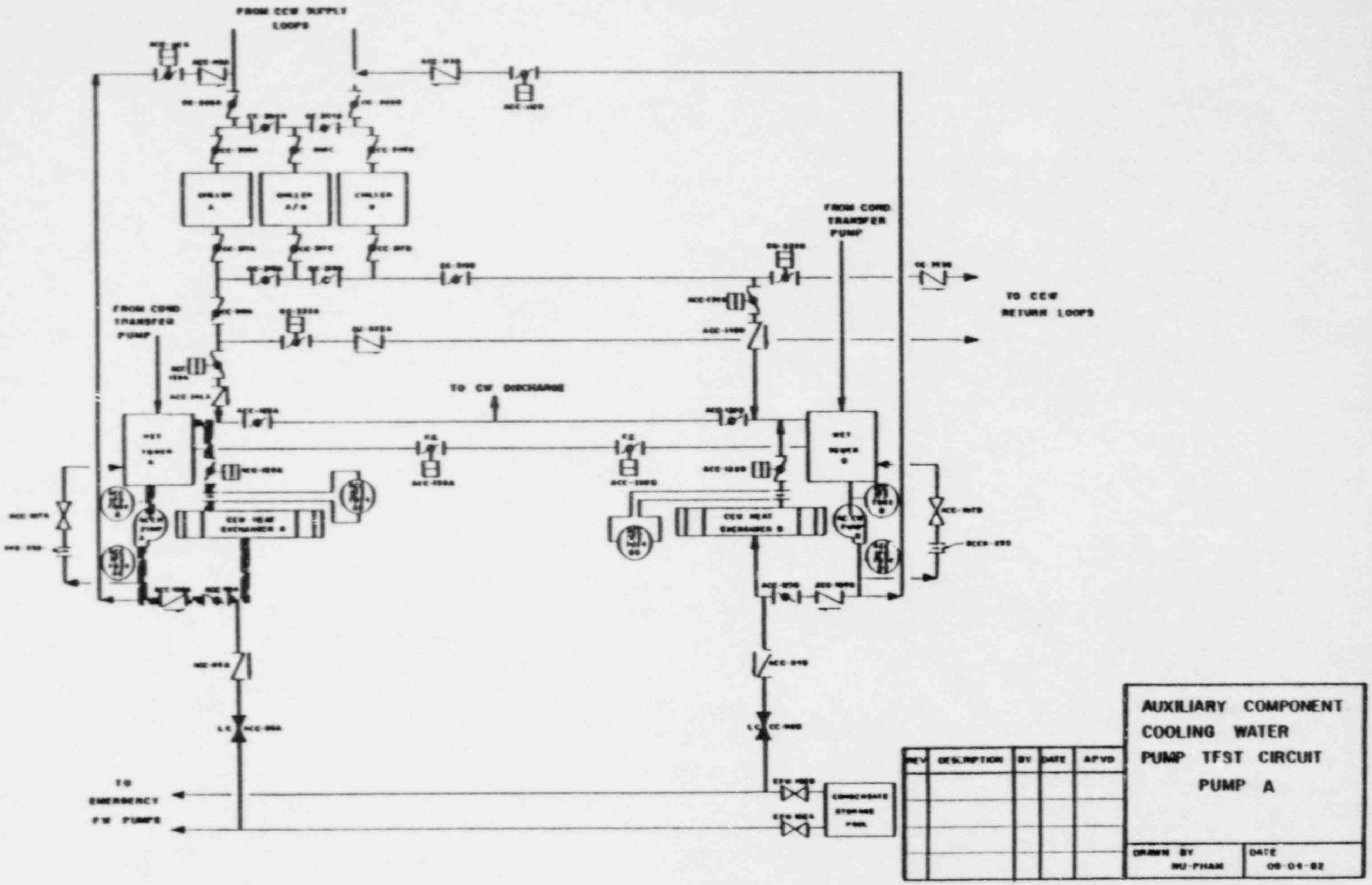
APVD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FROM COND TRANSFER PUMP
TO CCW RETURN LOOPS
TO CW DISCHARGE
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TO EMERGENCY FW PUMPS
CONDENSATE STORAGE POOL
REV
DESCRIPTION
BY
DATE
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PUMP A
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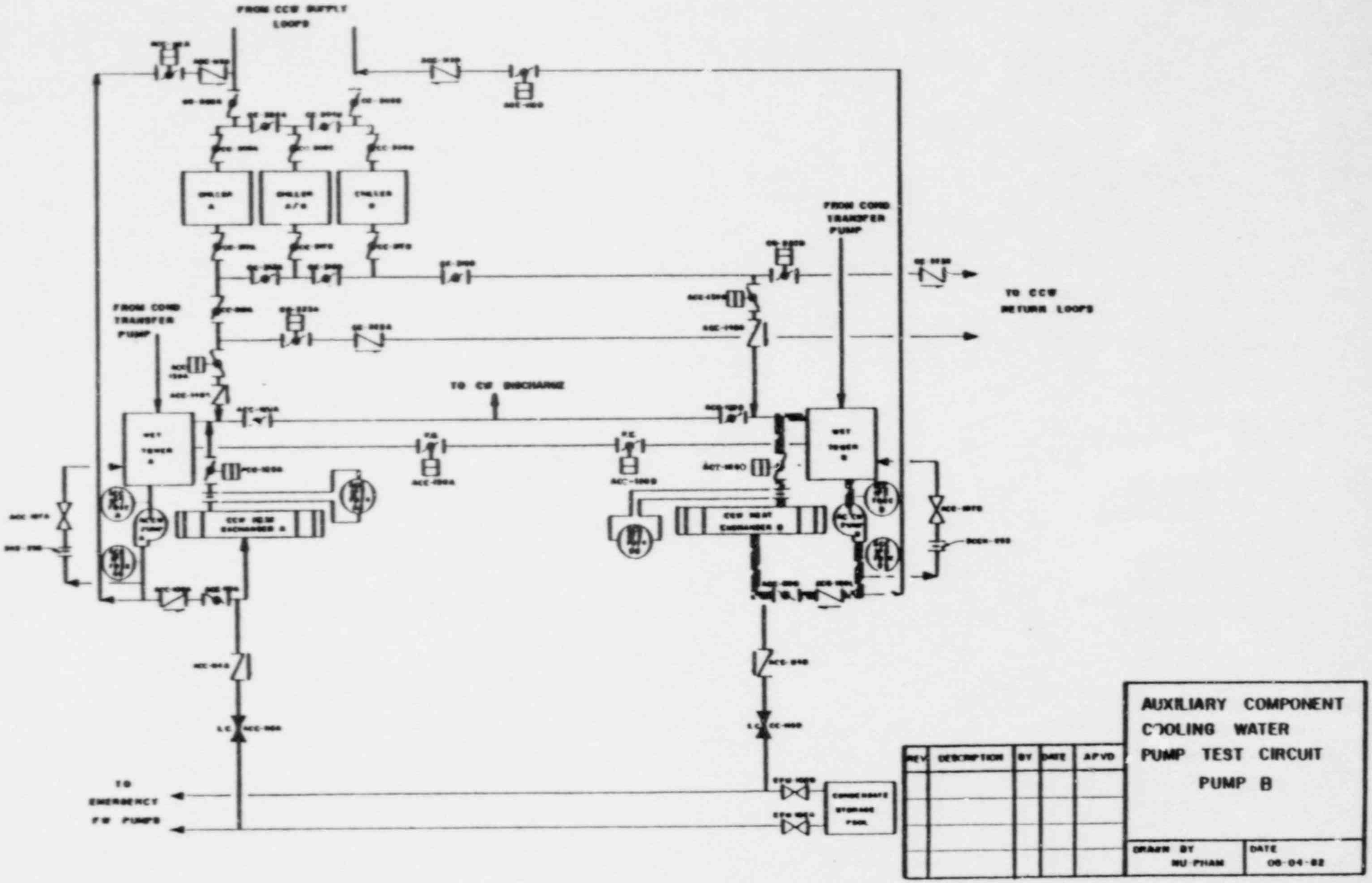
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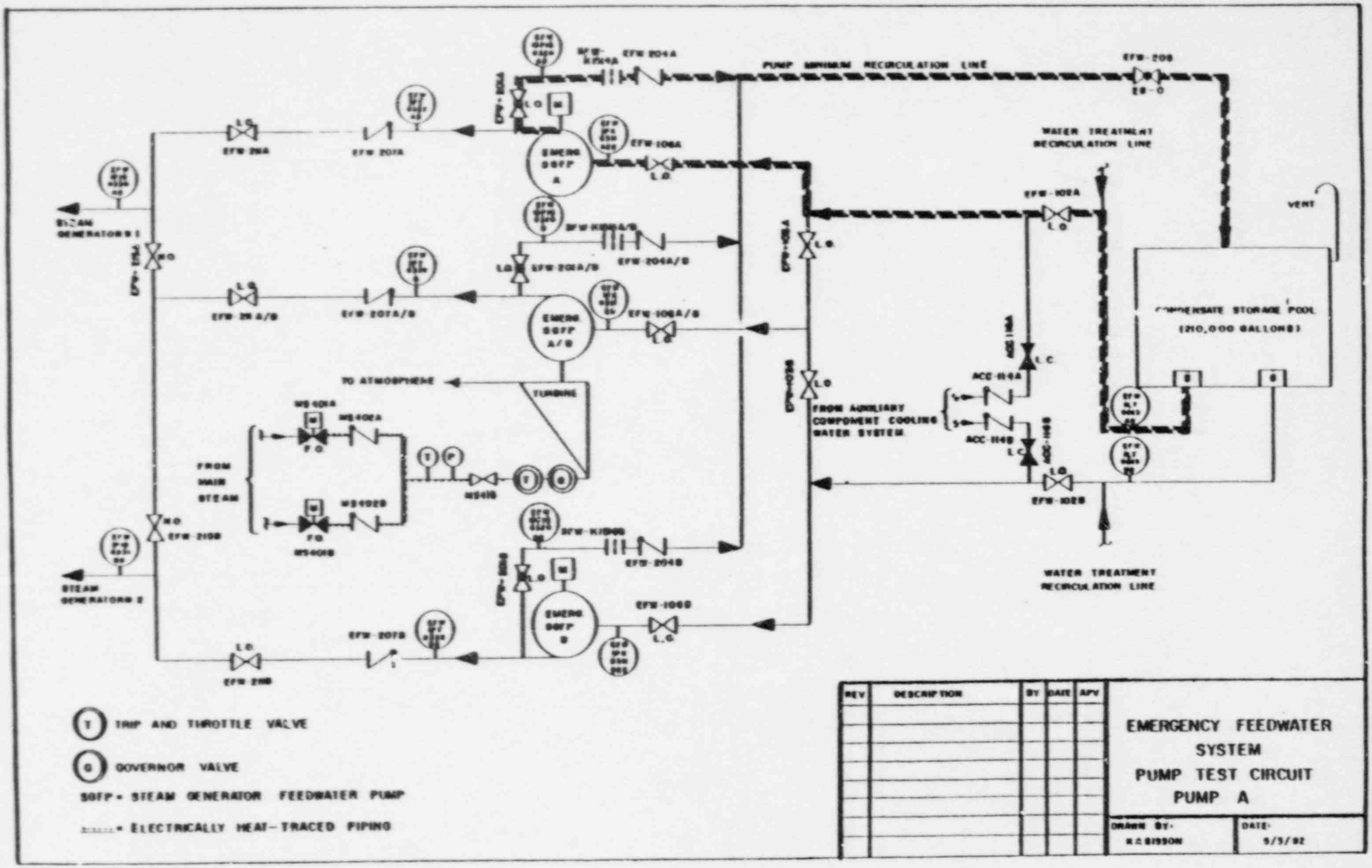
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EFW-208
EFW-204A
EFW-201A
EFW-106A
EFW-102A
EFW-106A/B
EFW-106B
EFW-204A/B
EFW-201A/B
EFW-207A/B
EFW-204B
EFW-207B
EFW-102B
EFW-215B
EMERG SGFP A
EMERG SGFP A/B
EMERG SGFP B
STEAM GENERATOR 1
STEAM GENERATOR 2
TO ATMOSPHERE
TURBINE
FROM MAIN STEAM
MS401A
MS401B
MS402A
MS402B
MS410
WATER TREATMENT RECIRCULATION LINE
VENT
CONDENSATE STORAGE POOL (210,000 GALLONS)
FROM AUXILIARY COMPONENT COOLING WATER SYSTEM
ACC-114A
ACC-114B
ACC-116A
ACC-116B
T TRIP AND THROTTLE VALVE
G GOVERNOR VALVE
SGFP = STEAM GENERATOR FEEDWATER PUMP
= ELECTRICALLY HEAT-TRACED PIPING
REV
DESCRIPTION
BY
DATE
APV
EMERGENCY FEEDWATER SYSTEM
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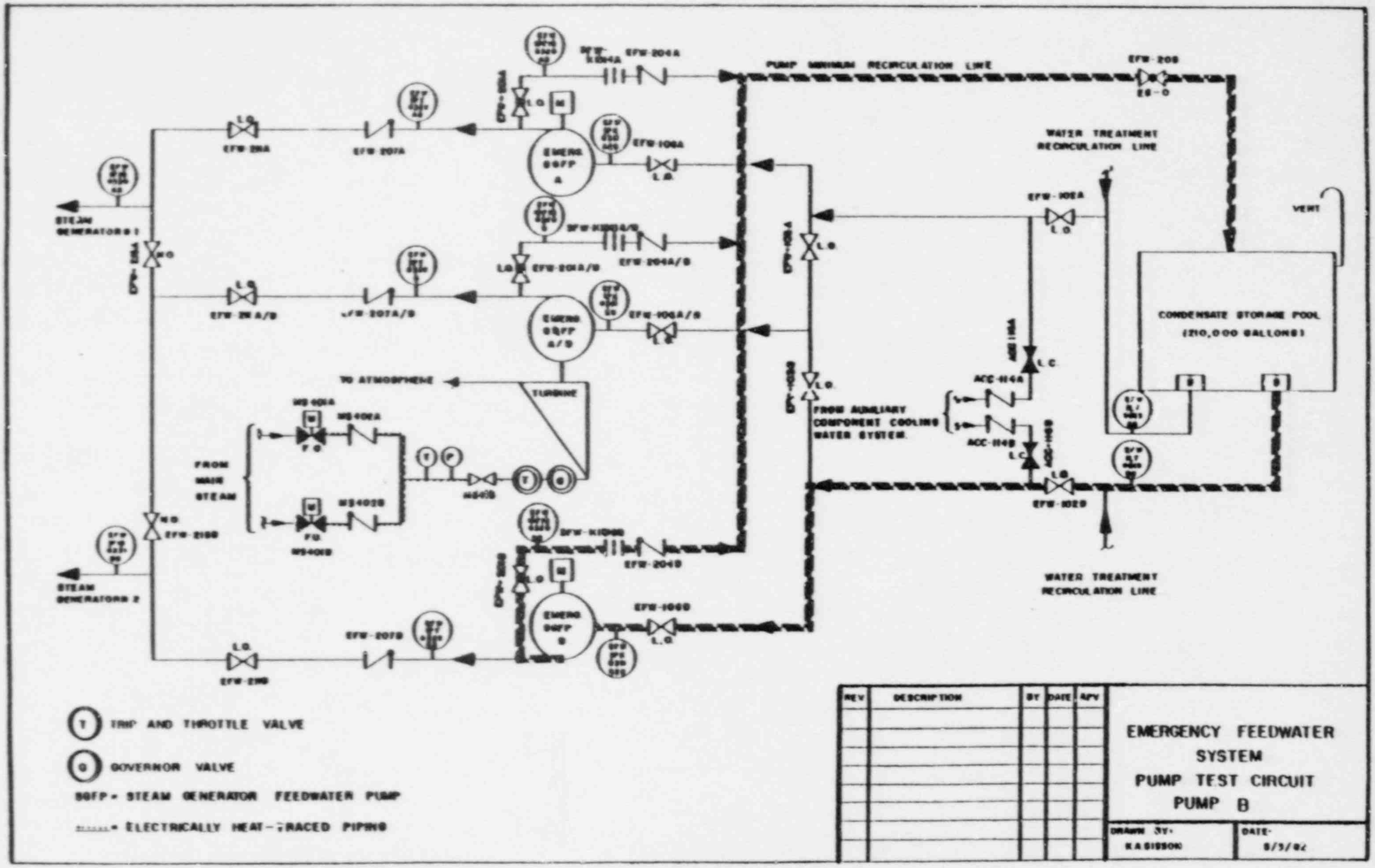
PUMP MINIMUM RECIRCULATION LINE
WATER TREATMENT RECIRCULATION LINE
VENT
CONDENSATE STORAGE POOL
(210,000 GALLONS)
FROM AUXILIARY COMPONENT COOLING WATER SYSTEM
WATER TREATMENT RECIRCULATION LINE
TO ATMOSPHERE
TURBINE
FROM MAIN STEAM
STEAM GENERATOR # 1
STEAM GENERATOR # 2
EMERG SGFP A
EMERG SGFP A/B
EMERG SGFP B
T TRIP AND THROTTLE VALVE
G GOVERNOR VALVE
SGFP = STEAM GENERATOR FEEDWATER PUMP
= ELECTRICALLY HEAT-TRACED PIPING
REV
DESCRIPTION
BY
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EMERGENCY FEEDWATER SYSTEM
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PUMP B
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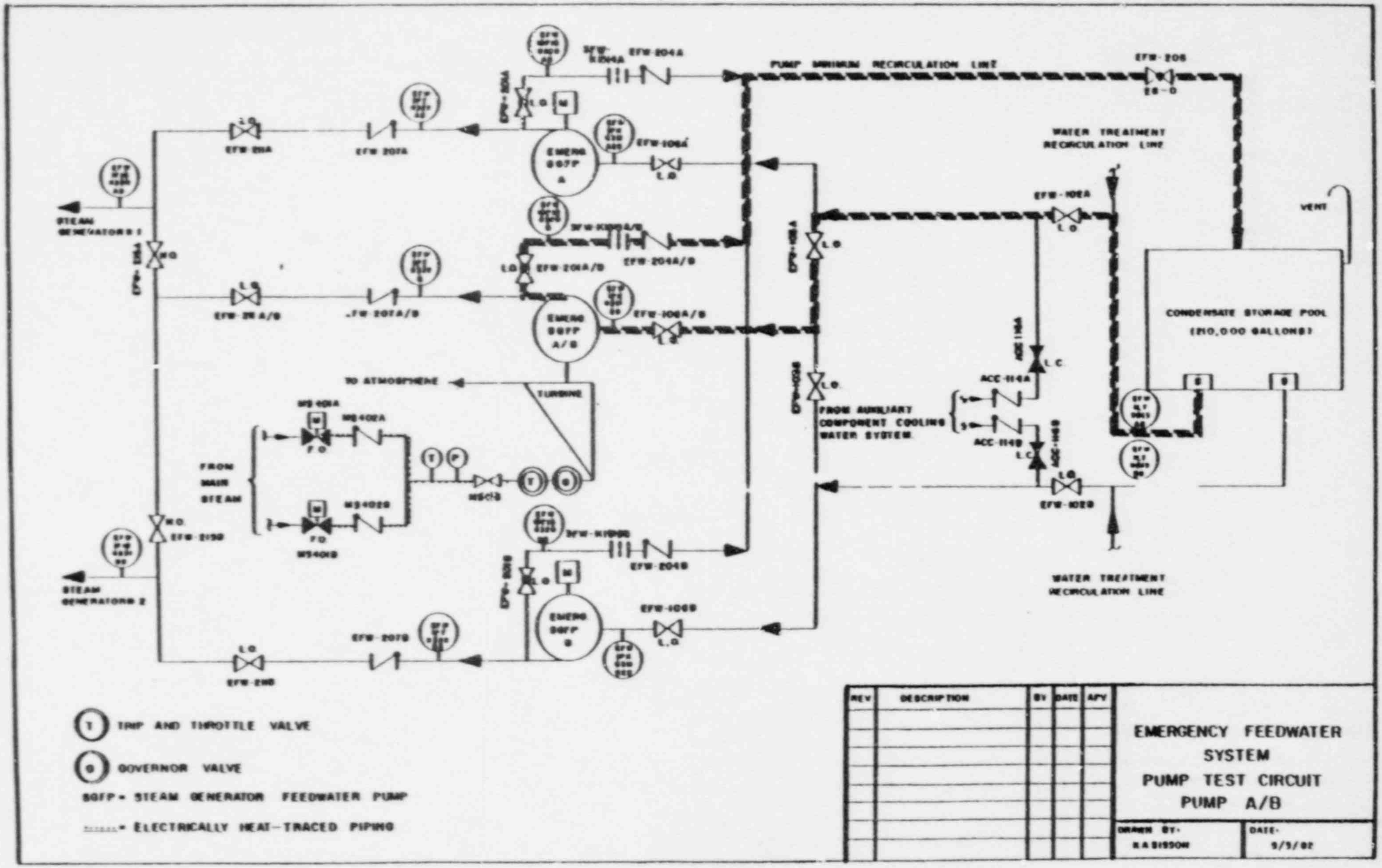
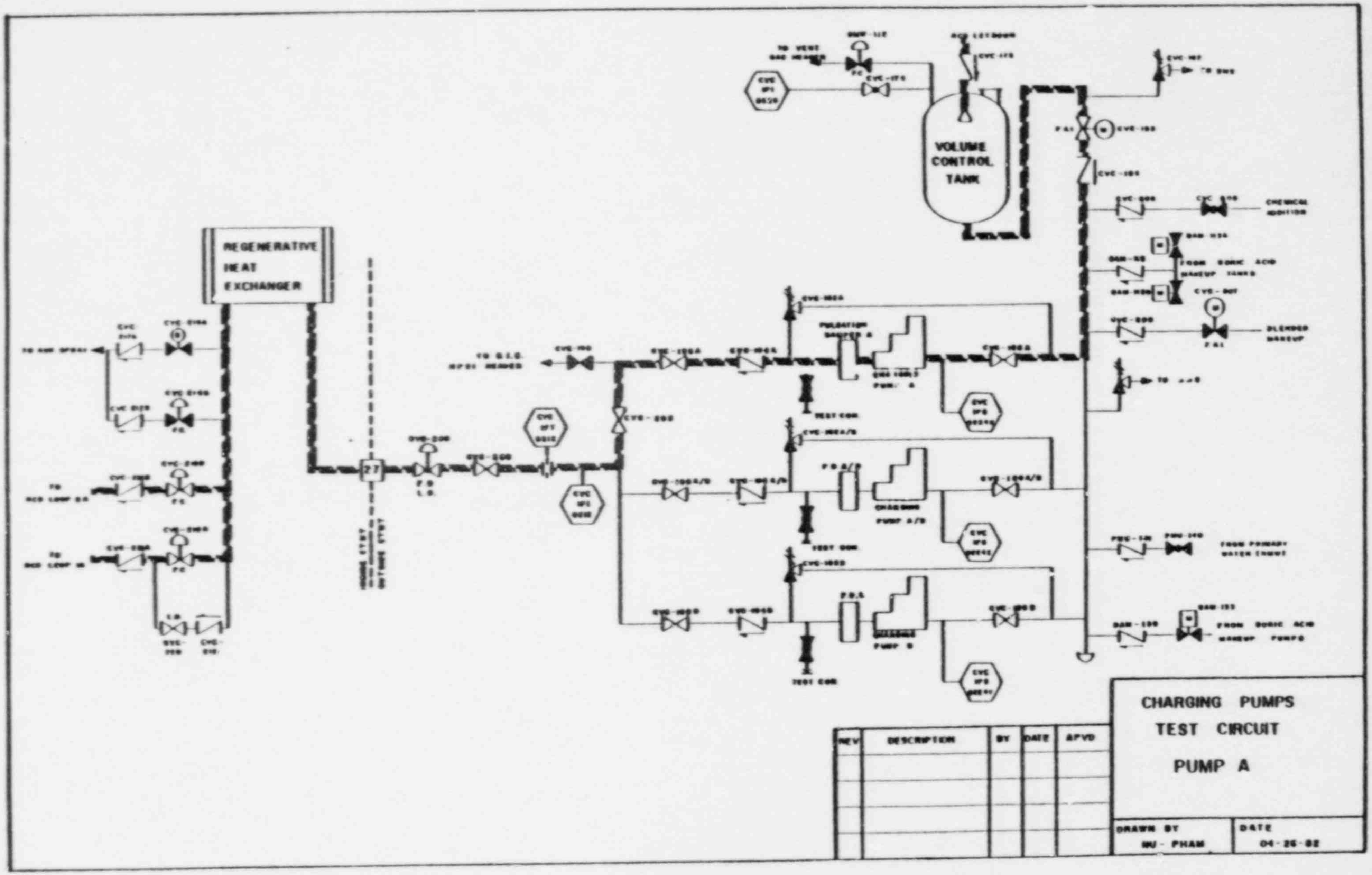

PUMP MINIMUM RECIRCULATION LINE
WATER TREATMENT RECIRCULATION LINE
CONDENSATE STORAGE POOL (210,000 GALLONS)
VENT
STEAM GENERATOR 1
STEAM GENERATOR 2
EMERG SGFP A
EMERG SGFP A/B
EMERG SGFP B
TURBINE
TO ATMOSPHERE
FROM MAIN STEAM
FROM AUXILIARY COMPONENT COOLING WATER SYSTEM
TRIP AND THROTTLE VALVE
GOVERNOR VALVE
SGFP = STEAM GENERATOR FEEDWATER PUMP
= ELECTRICALLY HEAT-TRACED PIPING
REV
DESCRIPTION
BY
DATE
APV
EMERGENCY FEEDWATER SYSTEM
PUMP TEST CIRCUIT
PUMP A/B
DRAWN BY:
DATE: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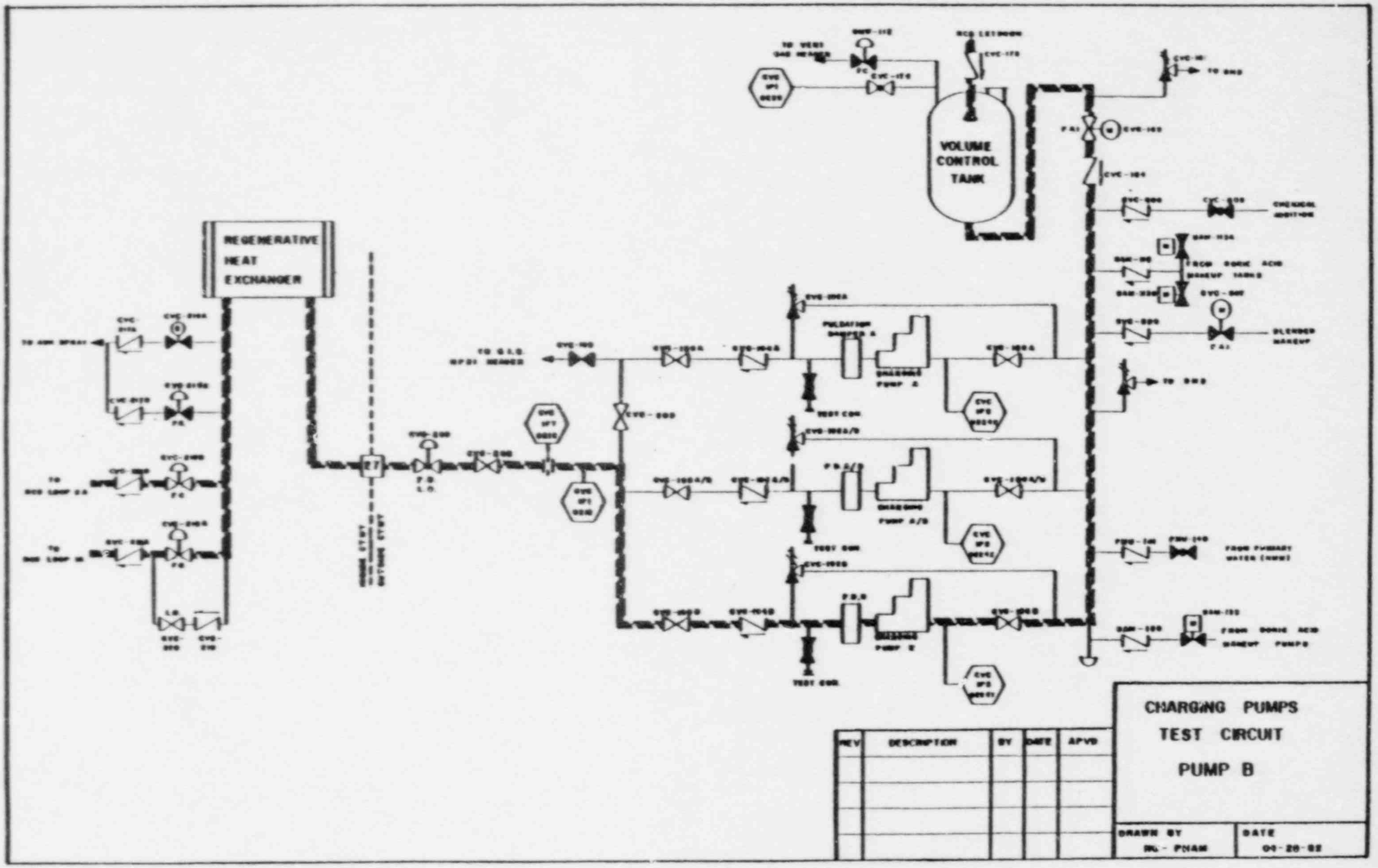
REGENERATIVE HEAT EXCHANGER
CHARGING PUMPS
TEST CIRCUIT
PUMP A
REV
DESCRIPTION
BY
DATE
APVD
DRAWN BY
NU - PHAM
DATE
04-26-82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TANK
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TEST CIRCUIT
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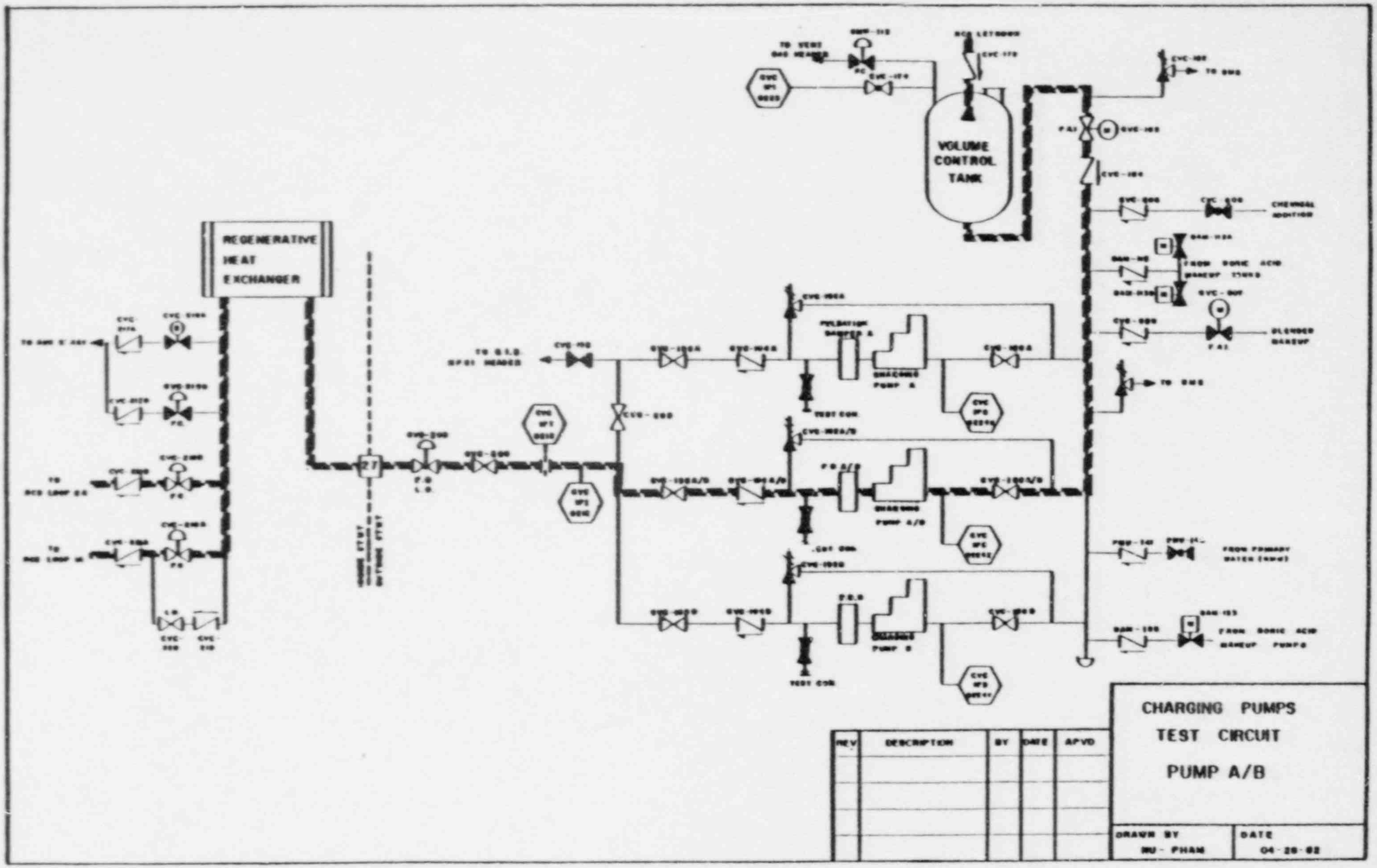
DESCRIPTION
BY
DATE
APVD
DRAWN BY
DATE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CONTROL
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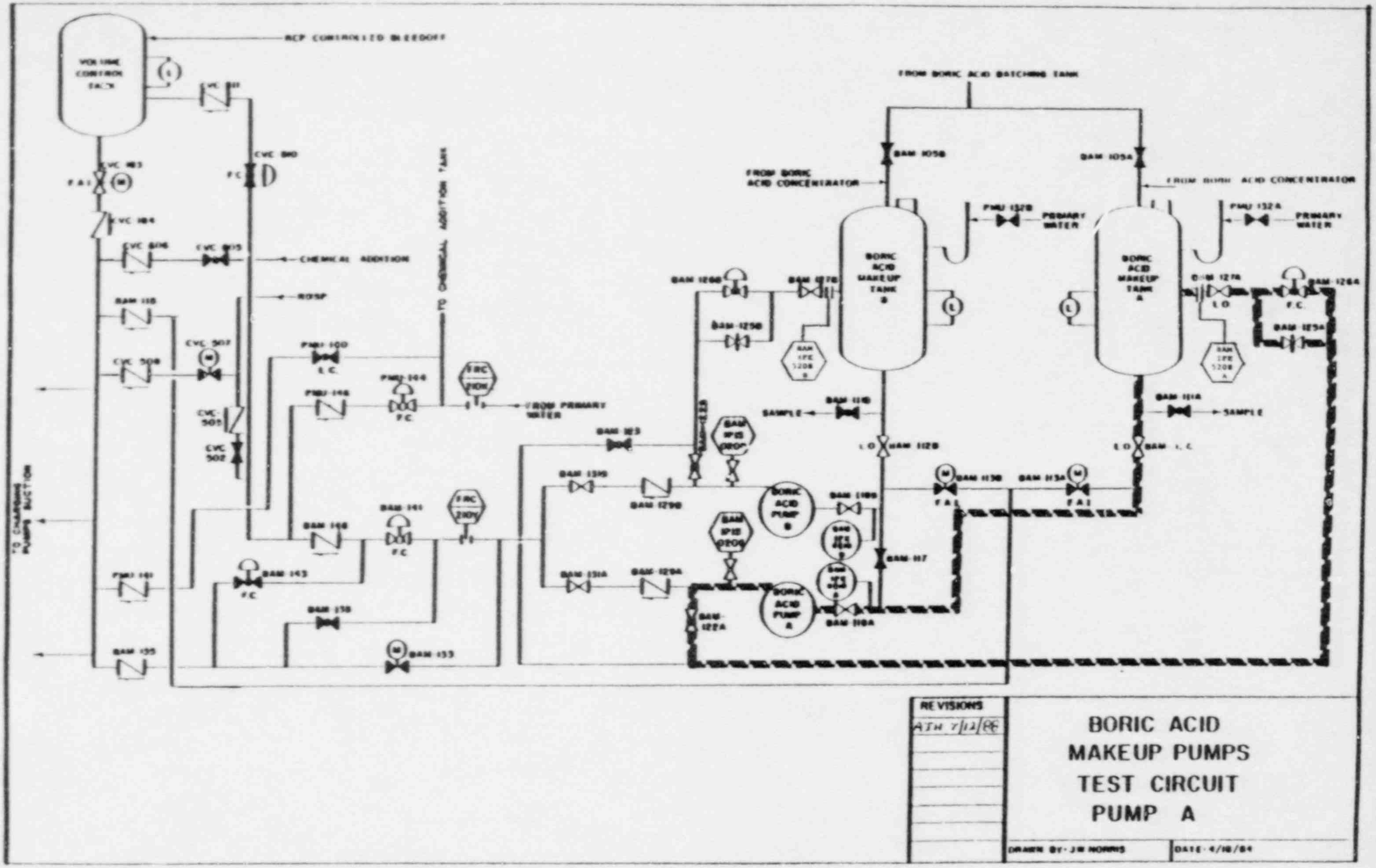
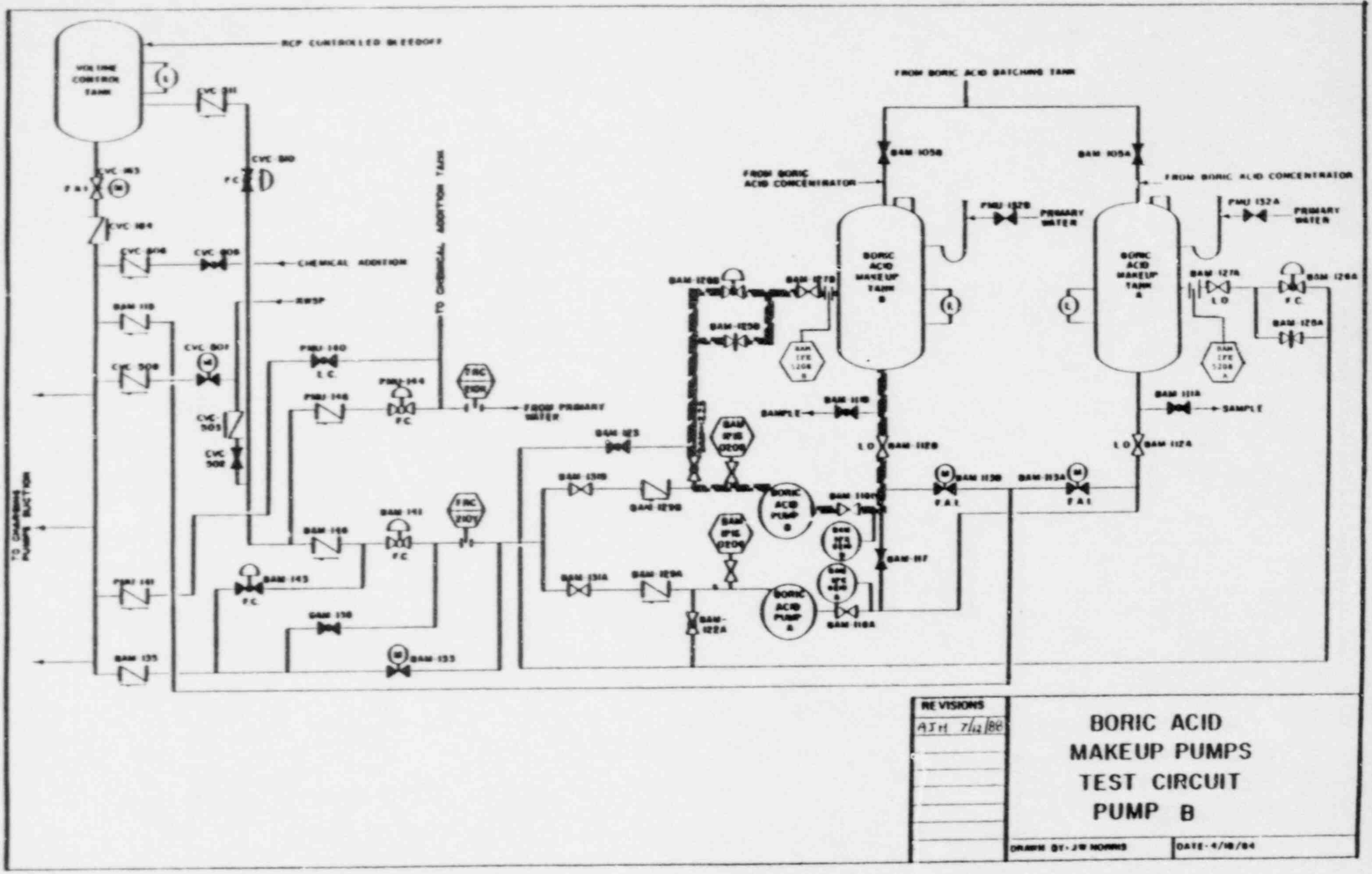
REV
DESCRIPTION
BY
DATE
APVD
DRAWN BY
NU - PHAN
DATE
04-28-82


BORIC ACID
MAKEUP PUMPS
TEST CIRCUIT
PUMP A
REVISIONS
ATH 7/12/86
DRAWN BY: J.W NORRIS
DATE: 4/18/84
FROM BORIC ACID BATCHING TANK
FROM BORIC ACID CONCENTRATOR
PRIMARY WATER
BORIC ACID MAKEUP TANK B
BORIC ACID MAKEUP TANK A
BORIC ACID PUMP B
BORIC ACID PUMP A
SAMPLE
FROM PRIMARY WATER
CHEMICAL ADDITION
TO CHEMICAL ADDITION TANK
TO CHARGING PUMPS SUCTION

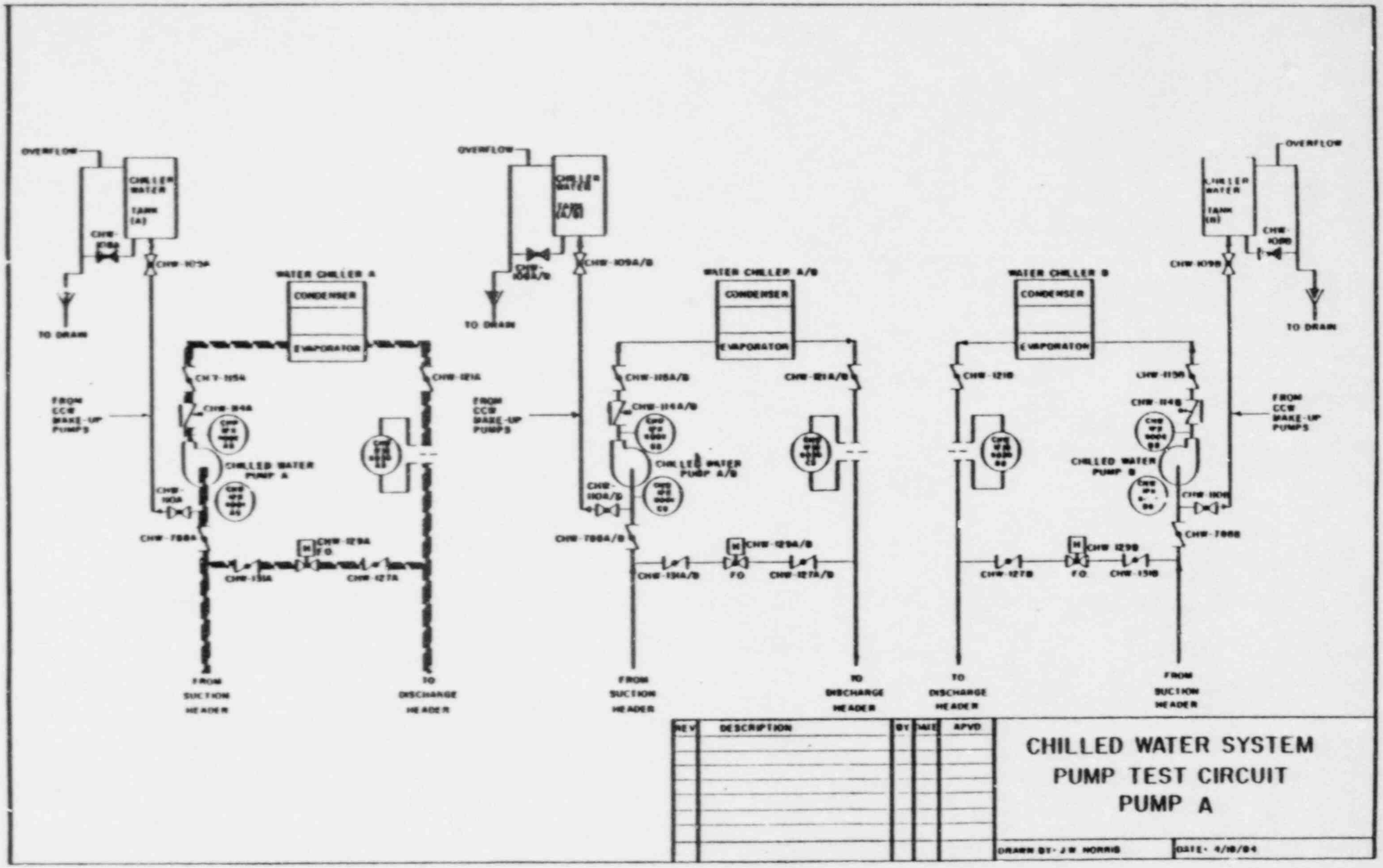


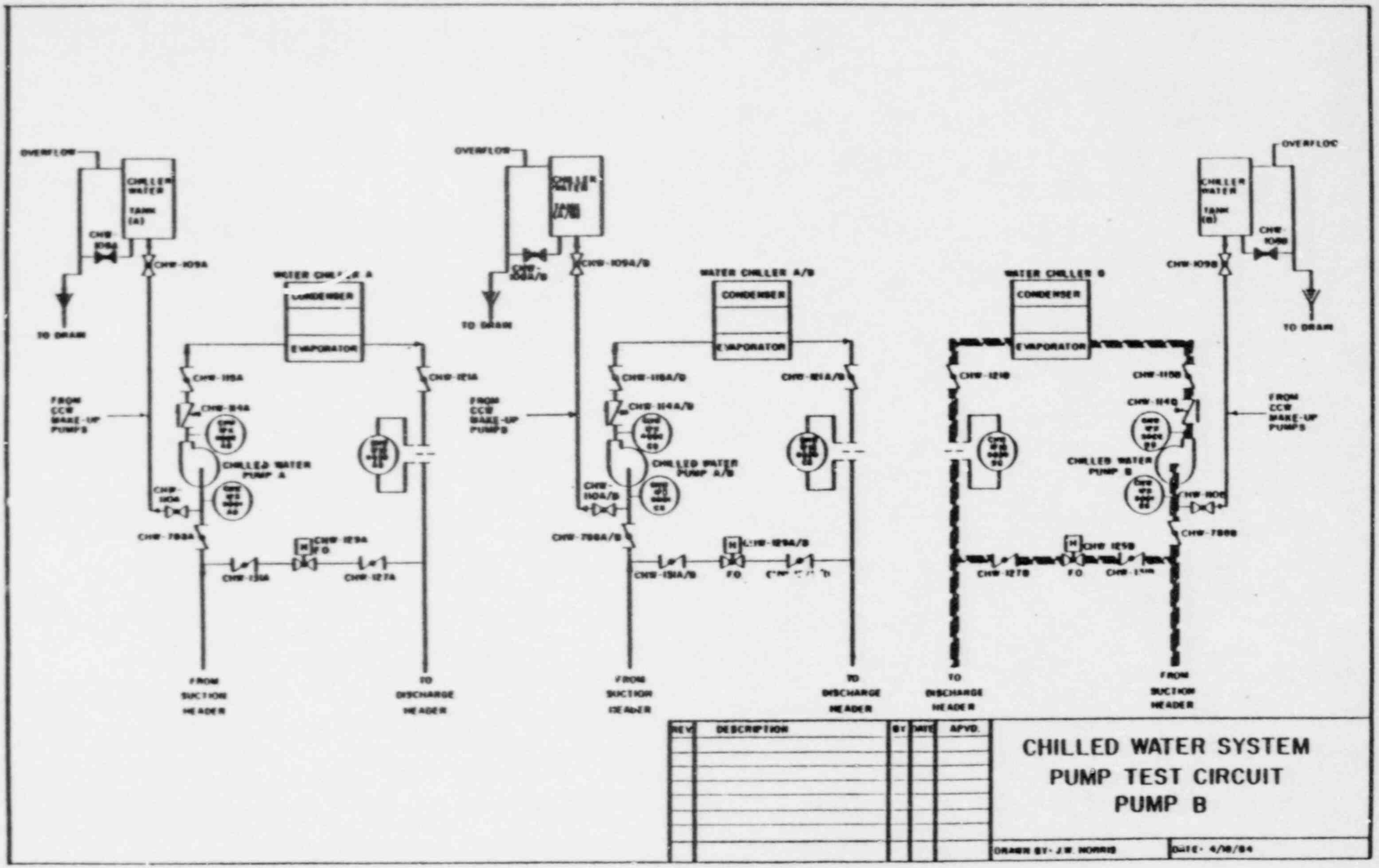
REVISIONS
AJH 7/14/88

BORIC ACID MAKEUP PUMPS TEST CIRCUIT PUMP B

DRAWN BY: J.W NORRIS | DATE: 4/18/84

Attachment 6.2 (20 of 23)


OVERFLOW
CHILLER WATER TANK (A)
TO DRAIN
WATER CHILLER A
CONDENSER
EVAPORATOR
CHW-121A
FROM CCW MAKE-UP PUMPS
CHILLED WATER PUMP A
CHW-129A
FO
CHW-127A
FROM SUCTION HEADER
TO DISCHARGE HEADER
WATER CHILLER A/B
CHW-121A/B
CHW-129A/B
CHW-127A/B
WATER CHILLER B
CHW-121B
CHW-127B
CHW-129B
TO DRAIN
FROM CCW MAKE-UP PUMPS
CHILLED WATER PUMP B
REV
DESCRIPTION
BY
DATE
APVD
CHILLED WATER SYSTEM
PUMP TEST CIRCUIT
PUMP A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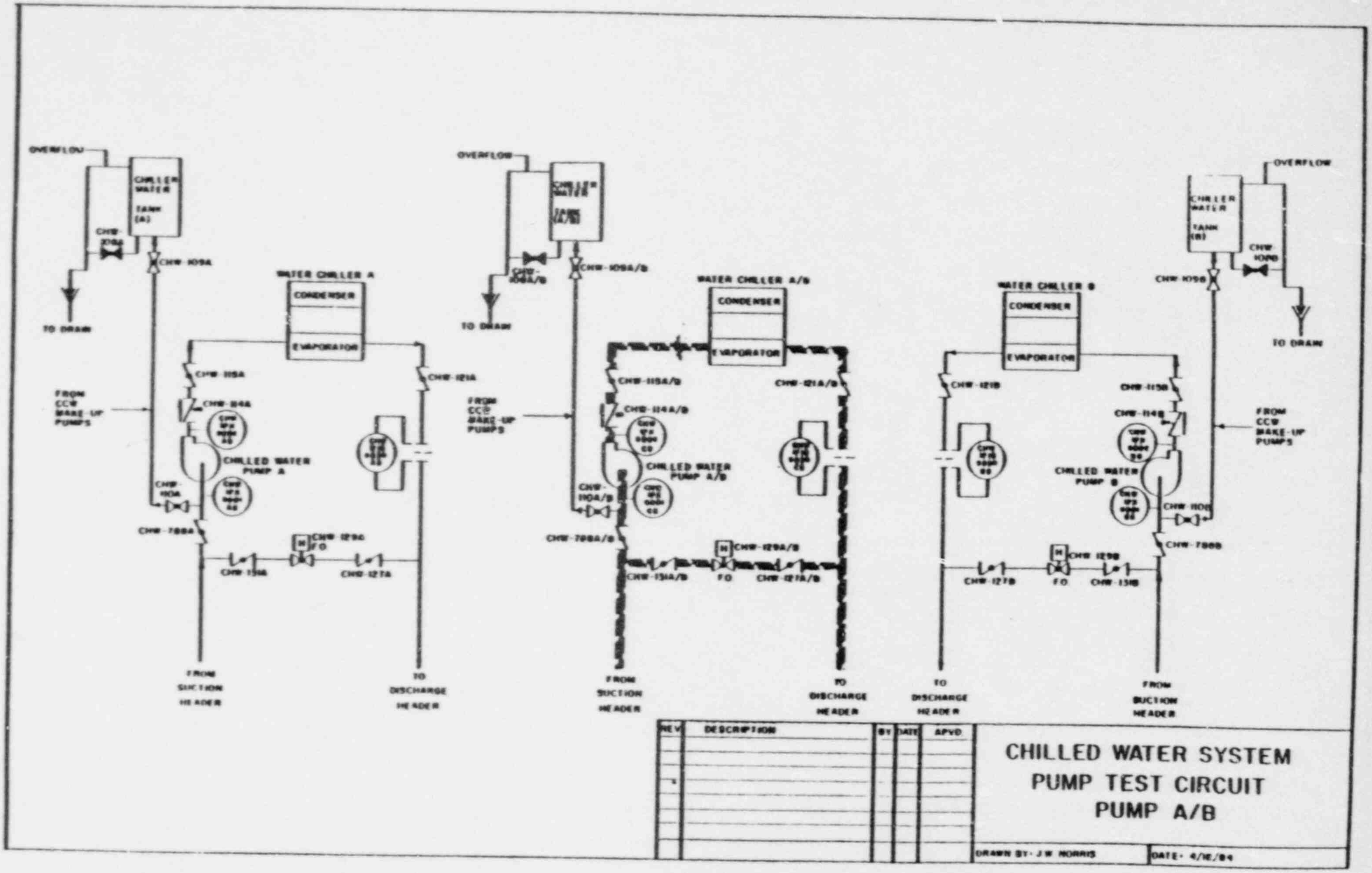
CHILLED WATER TANK (A)
TO DRAIN
WATER CHILLER A
CONDENSER
EVAPORATOR
FROM CCW MAKE-UP PUMPS
CHILLED WATER PUMP A
FROM SUCTION HEADER
TO DISCHARGE HEADER
WATER CHILLER A/B
CHILLED WATER PUMP A/B
WATER CHILLER B
CHILLED WATER TANK (B)
CHILLED WATER PUMP B
FO
REV
DESCRIPTION
BY
DATE
APVD.
CHILLED WATER SYSTEM
PUMP TEST CIRCUIT
PUMP B


OVERFLOW
CHILLED WATER TANK (A)
CHW-109A
TO DRAIN
WATER CHILLER A
CONDENSER
EVAPORATOR
CHW-115A
CHW-114A
FROM CCW MAKE-UP PUMPS
CHILLED WATER PUMP A
CHW-110A
CHW-788A
CHW-129A FO
CHW-131A
CHW-127A
CHW-121A
FROM SUCTION HEADER
TO DISCHARGE HEADER
CHW-109A/B
CHW-108A/B
WATER CHILLER A/B
CHW-115A/B
CHW-114A/B
CHILLED WATER PUMP A/B
CHW-110A/B
CHW-788A/B
CHW-129A/B
CHW-131A/B
FO
CHW-127A/B
CHW-121A/B
CHILLED WATER TANK (B)
CHW-109B
CHW-108B
WATER CHILLER B
CHW-121B
CHW-115B
CHW-114B
CHILLED WATER PUMP B
CHW-110B
CHW-788B
CHW-129B
CHW-127B
CHW-131B
REV
DESCRIPTION
BY
DATE
APVD
CHILLED WATER SYSTEM
PUMP TEST CIRCUIT
PUMP A/B
DRAWN BY: J W NORRIS
DATE: 4/16/84

2.1 Requests for Relief from ASME Boiler and Pressure Vessel Code Section XI Pump Testing Requirements

2.1.1 Test Requirement

Measure inlet pressure before pump startup and during the inservice test.

Basis for Relief

The Charging Pumps are positive displacement type pumps and do not have a performance curve like centrifugal pumps. Variations in inlet and differential pressure do not effect pump flow as long as the Net Positive Suction Head (NPSH) requirements of the pumps are fulfilled. Each pump inlet has a pressure switch which will not allow the pump to start if NPSH requirements are not met.

Alternate Testing

Inlet pressure of the Charging Pumps will not be measured. Since inlet pressure is not measured, differential pressure cannot be measured. As an alternate test, discharge pressure will be used for determining pump operability. If the discharge pressure is greater than or equal to RCS pressure, and measured flow is greater than or equal to 0.90 times the reference flow, the pumps are operable.

2.1.2 Test Requirement

IWP-4120 requires that the full-scale range of each instrument shall be three times the reference value or less.

Basis for Relief

The Charging Pumps' discharge flow indicator does not comply with this requirement. Each of the three pumps produces a flow of 44 gpm. The flow gauge has a full-scale range of 150 gpm in order to accommodate three-pump flow, such as during safety injection operations. The full-scale range is 3.4 times the reference value. The small difference between the code requirement and the range of this flow gauge is minor.

Alternate Testing

The existing, installed flow indicator will be used for quarterly pump operability testing. The accuracy of the installed flow indicator is within Section XI requirements.

2.1.3 Test Requirement

IWP-3100 requires that the resistance of the system shall be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value.

Basis for Relief

These systems have recirculation flow paths that contain either a restricting orifice or, in the case of the Boric Acid Pumps, a fully-open globe valve. The pumps that have a restricting orifice are as follows: Containment Spray, High Pressure Safety Injection, Low Pressure Safety Injection, and Emergency Feedwater. The orifice limits flow through the recirculation line to a specific amount. The flow rate is therefore fixed and cannot be adjusted. The Boric Acid Pumps do not have a restricting orifice but do have a throttled and locked needle valve in parallel with a globe valve which can be positioned only in the fully-open or fully-closed position. The recirculation flow rate is therefore fixed. When these pumps are tested using these fixed-resistance flow paths, the flow rates will be approximately the same each time the tests are conducted.

Alternate Testing

Pump testing will be performed using fixed-resistance flow paths. The measured differential pressure will be compared to the allowable ranges given in Table IWP-3100-2 in order to determine pump operability.

2.1.4 Test Requirement

Table IWP-3100-2 lists Acceptable, Alert and Required Action ranges for pump corrective action criteria.

Basis for Relief

The high value range for differential pressure and flow are much more restrictive than the low value ranges and are more dependent on instrument accuracy and meter readability than on pump degradation. This causes unnecessary maintenance on pumps which operate satisfactorily.

Alternate Testing

For pump flow and differential pressure, use 1.04 to 1.05 times the reference value for High Value Alert Range and greater than 1.05 times the reference value for High Value Required Action Range.

2.1.5 Test Requirement

Measure bearing temperature annually.

Basis for Relief

Annual bearing temperature measurements are an inefficient means of detecting actual or imminent bearing failure due to the rapid progression of the event.

Alternate Testing

The required vibration measurements taken during each test are used to detect bearing degradation and failure.

2.1.6 Test Requirement

IWP-4120 requires that the full scale range of each instrument shall be three times the reference value or less. Subsection IWP-4110 sets the acceptable accuracy of pressure instruments at ± 2% full scale.

Basis for Relief

The +2% full scale accuracy requirement in conjunction with the allowable full scale range of three times the reference value permits a reading that is off by up to 6% to be valid. The Acceptable range for a given parameter can be exceeded solely due to allowable instrument accuracy, resulting in unnecessary maintenance and additional testing. It is desirable to use more accurate instruments when available to improve performance monitoring. Higher scale, more accurate instruments can be used to improve data acquisition and repeatability.

Alternate Testing

To meet the intent of ASME Section XI and allow more flexible use of available gages, the pressure instrumentation used will provide an indicated accuracy of ± 6% or better as determined by:

$$6\% \geq \frac{(\text{Full scale Accuracy})(\text{Full scale Range})}{(\text{Reference Value})}$$

In no case will the range of a pressure instrument exceed 5 times the reference value.

2.2 Clarifications of Pump Testing Methods

2.2.1 This clarification deleted. Not necessary.

VALVES FOR INSERVICE TESTING

SYSTEMS BY SECTION

LEGEND OF SYMBOLS

Legend for Valve Type

BL - Ball
B - Butterfly
CK - Check
D - Diaphragm
GA - Gate
GL - Globe
N - Needle
PR - Pressure Relief or Safety
ANG - Angle

Legend for Actuator Type

AO - Air Operated
M - Manual
MO - Motor Operated
SA - System Actuated
SO - Solenoid Operated
HO - Hydraulic Operated
HP - Hydraulic/Pneumatic Operated

Legend for Valve Testing Requirements

Q - Exercise valves (full stroke) for operability at least once every three (3) months. If one train of a redundant system is inoperable, then valves in the remaining train should not be cycled since their failure would cause a loss of total system function.

* - Remote valve position indicators are used to verify valve stem position.

CV - Exercise check valves to the position required to fulfill their function at least once every three (3) months.

CC - Exercise valve (full stroke) for operability during each cold shutdown as allowed in Section XI, Article IWV-3522.

MT - Stroke time measurements are taken and compared to the stroke time limiting value per Section XI Article IWV-3410. Trending of valve stroke times is performed per IWV-3417 for valves with stroke time limits greater than two (2) seconds.

SRV - Safety and relief valves are tested per Section XI Article IWV-3510.

LT - Valves are leak tested per Appendix J to 10CFR50 at each refueling outage.

LTP - Containment Purge valves are leak tested per plant Technical Specifications.

PIV - Reactor Coolant System Pressure Isolation valves are leak tested per plant Technical Specifications.

LTO - Per IWV-3421, operational observations are used to demonstrate satisfactory performance of valves.

Legend for Alternate Valve Testing

CS - Exercise valve (full stroke) for operability during each cold shutdown and at each refueling outage.

CSP - Exercise valve (partial stroke) for operability at least once every three (3) months and exercise valve (full stroke) at each cold shutdown.

CSR - Exercise check valve (partial stroke) at each cold shutdown and full stroke at each reactor refueling outage.

CSD - Exercise valve (full stroke) for operability during each cold shutdown _if_ the system is depressurized.

RR - Exercise valve for operability at each reactor refueling outage.

PRR - Exercise check valve (partial stroke) quarterly, and full stroke at each reactor refueling outage.

NT - No testing required.

NST - No stroke time measurements are taken.

NPO - Seat leak tightness is demonstrated during normal plant operation.

TNT - Stroke times of these "rapid acting" valves are not trended due to very short stroke times (less than or equal to 2 seconds).

ME - Valves are manually exercised quarterly.

DRR - Valves are disassembled and stroked during reactor refueling outages on a sampling basis.

VALVES FOR INSERVICE TESTING

SYSTEMS BY SECTION

VALVES FOR INSERVICE TESTING

System: Reactor Coolant (RC)

Drawing Number: LOU-1564-G-172

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
RC-1014	2	E-7	B	1	GL	SO	C	C	Q* MT	CSD TNT	3.1.42 3.1.1	- 2	Reactor Pressure Vessel Head Vent	
RC-1015	2	F-7	B	1	GL	SO	C	C	Q* MT	CSD TNT	3.1.42 2.1.1	- 2	Reactor Pressure Vessel Head Vent	
RC-1017	2	E-8	B	1	GL	SO	C	C	Q* MT	CSD TNT	3.1.42 3.1.1	- 2	Pressurizer and Reactor Vessel Head Vent to Quench Tank	
RC-317A	1	H-6	C	6x8	PR	SA	C	-	SRV	-	-	-	Pressurizer Safety	
RC-317B	1	H-6	C	6x8	PR	SA	C	-	SRV	-	-	-	Pressurizer Safety	
RC-3183	2	H-7	B	1	GL	SO	C	C	Q* MT	CSD TNT	3.1.42 3.1.1	- 2	Pressurizer Head Vent	
RC-3184	2	G-7	B	1	GL	SO	C	C	Q* MT	CSD TNT	3.1.42 3.1.1	- 2	Pressurizer Head Vent	
RC-3186	2	F-8	B	1	GL	SO	C	C	Q* MT	CSD TNT	3.1.42 3.1.1	- 2	Pressurizer and Reactor Vessel Head Vent to Quench Tank	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Reactor Coolant (RC)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
RC-606	2	SH 2 H-6	A	2	GL	AO	O	C	Q* MT LT	CS	3.1.2 3.1.3 3.1.4 - -	- 10	Seal Water from RC Pumps to Volume Control Tank	CTMT Isolation CIAS closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Boric Acid Makeup (BAM)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
BAM-113A	3	SH 2 B-7	B	3	GA	MO	C	AI	Q* MT	CS -	3.1.3 3.1.4 3.1.5 -	- 10	Gravity Feed Discharge from Boric Acid Makeup Tank A to Charging Pumps Suction	
BAM-113B	3	SH 2 B-6	B	3	GA	MO	C	AI	Q* MT	CS -	3.1.3 3.1.4 3.1.5 -	- 10	Gravity Feed Discharge from Boric Acid Makeup Tank B to Charging Pumps Suction	
BAM-115	2	SH 2 E-6	C	3	CK	SA	C	-	CV	CS	3.1.6 3.1.3	-	Gravity Feed Discharge from Boric Acid Makeup Tanks to Charging Pumps Suction	
BAM-125A	3	SH 2 D-8	B	3/4	N	M	O	O	None	-	-	-	Boric Acid Pump A Minimum Flow Recirculation Line	Passive
BAM-125B	3	SH 2 D-5	B	3/4	N	M	O	O	None	-	-	-	Boric Acid Pump B Minimum Flow Recirculation Line	Passive

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Boric Acid Makeup (BAM)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
BAM-126A	3	SH 2 D-8	B	1	GL	AO	O	C	Q* MT	- -	- 3.1.56	- 5	Boric Acid Pump A Recirculation Line	Tested with BAM Pump A
BAM-126B	3	SH 2 D-5	B	1	GL	AO	O	C	Q* MT	- -	- 3.1.56	- 5	Boric Acid Pump B Recirculation Line	Tested with BAM Pump B
BAM-129A	3	SH 2 B-5	C	3	CK	SA	C	-	CV	CS	3.1.40 3.1.3	-	Boric Acid Pump A Discharge Check Valve	
BAM-129B	3	SH 2 B-5	C	3	CK	SA	C	-	CV	CS	3.1.40 3.1.3	-	Boric Acid Pump B Discharge Check Valve	
BAM-133	3	SH 2 C-4	B	3	GA	MO	C	AI	Q* MT	CS -	3.1.5 3.1.3 3.1.4 -	- 10	Boric Acid Pumps Discharge to Charging Pumps Suction	
BAM-135	2	SH 2 E-4	C	3	CK	SA	C	-	CV	CS	3.1.6 3.1.3	- -	Boric Acid Pumps Discharge to Charging Pumps Suction	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Chemical And Volume Control System (CVC)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CVC-101	1	SH 1 D-7	B	2	GA	AO	O	C	Q* MT	CS -	3.1.7 3.1.3 3.1.4 3.1.56	- 5	Letdown from RCS Loop 2B to Regenerative Heater Exchanger	SIAS closes, but has override.
CVC-103	1	SH 1 D-7	A	2	GL	AO	O	C	Q* MT LT	CS - -	3.1.7 3.1.3 3.1.4 - -	- 10 -	Letdown from RCS Loop 2B to Regenerative Heater Exchanger	CTMT Isolation CIAS & SIAS close, but has override.
CVC-109	2	SH 1 E-7	A	2	GA	AO	O	C	Q* MT LT	CS - -	3.1.7 3.1.3 3.1.4 3.1.56 -	- 10 -	Letdown from Regenerative Heat Exchanger to Letdown Heat Exchanger	CTMT Isolation CIAS closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING
System: Chemical And Volume Control System (CVC)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CVC-183	2	SH 2 F-7	B	4	GA	MO	O	AI	Q*	CS	3.1.7 3.1.3 3.1.4	-	Discharge from Volume Control Tank to Charging Pumps Suction	SIAS closes.
									MT	-	-	10		
CVC-194A	2	SH 2 G-3	C	2	CK	SA	C	-	CV	-	3.2.2	-	Charging Pump A Discharge Check	
CVC-194B	2	SH 2 E-3	C	2	CK	SA	C	-	CV	-	3.2.2	-	Charging Pump B Discharge Check	
CVC-194A/B	2	SH 2 F-3	C	2	CK	SA	C	-	CV	-	3.2.2	-	Charging Pump A/B Discharge Check	
CVC-216A	1	SH 1 C-7	B	2	GL	SO	C	C	Q*	CS	3.1.8 3.1.3 3.1.4	-	Auxiliary Pressurizer Spray Isolation	
									MT	TNT	3.1.9	2		
CVC-216B	1	SH 1 C-7	B	2	GL	SO	C	C	Q*	CS	3.1.8 3.1.3 3.1.4	-	Auxiliary Pressurizer Spray Isolation	
									MT	TNT	3.1.9	2		

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Chemical And Volume Control System (CVC)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CVC-217A	1	SH 1 C-8	C	2	CK	SA	C	-	CV	CS	3.1.10 3.1.3	-	Auxiliary Pressurizer Spray Check	
CVC-217B	1	SH 1 C-8	C	2	CK	SA	C	-	CV	CS	3.1.10 3.1.3	-	Auxiliary Pressurizer Spray Check	
CVC-218A	1	SH 1 B-7	B	2	GL	SO	O	C	Q* MT	- -	- 3.1.56	- 4	Normal Charging Isolation	
CVC-218B	1	SH 1 B-7	B	2	GL	SO	O	C	Q* MT	- -	- 3.1.56	- 4	Normal Charging Isolation	
CVC-219	1	SH 1 A-7	C	2	CK	SA	C	-	CV	CS	3.1.41 3.1.3	-	Normal Charging Bypass Check	
CVC-221A	1	SH 1 B-8	C	2	CK	SA	O	-	CC	-	-	-	Normal Charging Check	
CVC-221B	1	SH 1 B-8	C	2	CK	SA	O	-	CC	-	-	-	Normal Charging Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Chemical And Volume Control System (CVC)

Drawing Number: LOU-1564-G-168

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CVC-401	2	SH 2 H-7	A	3/4	GL	AO	O	C	Q* MT LT	CS - -	3.1.2 3.1.3 3.1.4 - -	- 10 -	Reactor Coolant Pump Seal Leak-Off Return to Volume Control Tank	CTMT Isolation CIAS closes, but has override.
CVC-507	3	SH 2 E-4	B	3	GA	MO	C	AI	Q* MT	CS -	3.1.5 3.1.3 3.1.4 -	- 10	RWSP to Charging Pump Suction	
CVC-508	2	SH 2 E-4	C	3	CK	SA	C	-	CV	CS	3.1.6 3.1.3	- -	RWSP to Charging Pump Suction	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-106A	2	SH 1 H-7	B	24	B	AO	O	AI	Q* MT	- -	- 3.1.55	- 20	RWSP Discharge Isolation	
SI-106B	2	SH 1 H-7	B	24	B	AO	O	AI	Q* MT	- -	- 3.1.55	- 20	RWSP Discharge Isolation	
SI-107A	2	SH 1 G-7	C	24	CK	SA	O	-	CV	PRR	3.1.12	-	RWSP Discharge Check	
SI-107B	2	SH 1 G-7	C	24	CK	SA	O	-	CV	PRR	3.1.12	-	RWSP Discharge Check	
SI-1071A	2	SH 1 F-8	C	20	CK	SA	C	-	CV	PRR	3.1.12	-	LPSI Pump A Suction Check	
SI-1071B	2	SH 1 D-8	C	20	CK	SA	C	-	CV	PRR	3.1.12	-	LPSI Pump B Suction Check	
SI-108A	2	SH 1 F-7	C	20	CK	SA	C	-	CV	PRR	3.1.12	-	LPSI Pump A Suction Check	
SI-108B	2	SH 1 D-7	C	20	CK	SA	C	-	CV	PRR	3.1.12	-	LPSI Pump B Suction Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-116A	2	SH 1 E-6	C	2	CK	SA	C	-	CV	-	3.2.3	-	LPSI Pump A Minimum Flow Check	
SI-116B	2	SH 1 E-5	C	2	CK	SA	C	-	CV	-	3.2.3	-	LPSI Pump B Minimum Flow Check	
SI-1161A	2	SH 1 E-6	B	2	GA	SO	O	C	Q* MT	- TNT	- 3.1.1	- 2	LPSI Pump A Minimum Flow Isolation	
SI-1161B	2	SH 1 F-5	B	2	GA	SO	O	O	Q* MT	- TNT	- 3.1.1	- 2	LPSI Pump B Minimum Flow Isolation	
SI-120A	2	SH 1 G-6	B	4	GA	MO	O	AI	Q* MT	- -	- 3.1.55	- 30	LPSI Pump A, HPSI Pumps A and A/B and CS Pump A Minimum Flow Isolation	
SI-120B	2	SH 1 G-5	B	4	GA	MO	O	AI	Q* MT	- -	- 3.1.55	- 30	LPSI Pump B, HPSI Pump B and CS Pump B Minimum Flow Isolation	
SI-121A	2	SH 1 H-6	B	4	GA	MO	O	AI	Q* MT	- -	- 3.1.55	- 30	LPSI Pump A, HPSI Pumps A and A/B and CS Pump A Minumum Flow Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-121B	2	SH 1 H-5	B	4	GA	MO	O	AI	Q* MT	- -	- 3.1.55	- 30	LPSI Pump B, HPSI Pump B and CS Pump B Minimum Flow Isolation	
SI-122A	2	SH 1 F-5	C	8	CK	SA	C	-	CV	PRR	3.1.24	-	LPSI Pump A Discharge Check	
SI-122B	2	SH 1 E-5	C	8	CK	SA	C	-	CV	PRR	3.1.24	-	LPSI Pump B Discharge Check	
SI-125A	2	SH 1 F-5	B	10	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	LPSI Pump A Discharge to Shutdown Cooling Heat Exchanger A	
SI-125B	2	SH 1 E-5	B	10	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	LPSI Pump B Discharge to Shutdown Cooling Heat Exchanger B	
SI-129A	2	SH 1 F-4	B	10	B	AO	O	O	Q* MT	- -	3.1.56 3.1.55	- 15	Shutdown Cooling Heat Exchanger A Bypass	
SI-129B	2	SH 1 F-4	B	10	B	AO	O	O	Q* MT	- -	3.1.56 3.1.55	- 15	Shutdown Cooling Heat Exchanger B Bypass	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-135A	2	SH 2 E-6	B	8	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	LPSI Pump A Recirculation	
SI-135B	2	SH 2 E-7	B	8	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	LPSI Pump B Recirculation	
SI-138A	2	SH 2 B-7	B	6	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	LPSI Header Discharge	SIAS Opens.
SI-138B	2	SH 2 F-7	B	6	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	LPSI Header Discharge	SIAS Opens.
SI-139A	2	SH 2 D-7	B	6	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	LPSI Header Discharge	SIAS Opens.
SI-139B	2	SH 2 H-7	B	6	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	LPSI Header Discharge	SIAS Opens.
SI-142A	1	SH 2 B-6	AC	8	CK	SA	C	-	CV PIV	CSR -	3.1.13 3.1.3 -	- -	LPSI Header Discharge	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-142B	1	SH 2 F-6	AC	8	CK	SA	C	-	CV PIV	CSR -	3.1.13 3.1.3 -	- -	LPSI Header Discharge	
SI-143A	1	SH 2 D-6	AC	8	CK	SA	C	-	CV PIV	CSR -	3.1.13 3.1.3 -	- -	LPSI Header Discharge	
SI-143B	1	SH 2 H-6	AC	8	CK	SA	C	-	CV PIV	CSR -	3.1.13 3.1.3 -	- -	LPSI Header Discharge	
SI-201A	2	SH 1 D-7	C	10	CK	SA	C	-	CV	PRR	3.1.12	-	HPSI Pump A Suction Check	
SI-201B	2	SH 1 B-8	C	10	CK	SA	C	-	CV	PRR	3.1.12	-	HPSI Pump B Suction Check	
SI-205A	2	SH 1 D-5	C	2	CK	SA	C	-	CV	-	3.2.3	-	HPSI Pump A Minimum Flow Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-205B	2	SH 1 C-5	C	2	CK	SA	C	-	CV	-	3.2.3	-	HPSI Pump B Minimum Flow Check	
SI-205A/B	2	SH 1 D-5	C	2	CK	SA	C	-	CV	-	3.2.3	-	HPSI Pump A/B Minimum Flow Check	
SI-207A	2	SH 1 D-5	C	4	CK	SA	C	-	CV	RR	3.1.14	-	HPSI Pump A Discharge Check	
SI-207B	2	SH 1 B-5	C	4	CK	SA	C	-	CV	RR	3.1.14	-	HPSI Pump B Discharge Check	
SI-207A/B	2	SH 1 C-5	C	4	CK	SA	C	-	CV	RR	3.1.14	-	HPSI Pump A/B Discharge Check	
SI-216	2	SH 1 C-4	C	4	CK	SA	C	-	CV	RR	3.1.14	-	HPSI Pumps A and A/B Discharge Check	
SI-219A	2	SH 1 C-4	B	4	GA	MO	O	AI	Q* MT	- -	- 3.1.55	- 30	HPSI Pump A and A/B Discharge to HPSI Header A	
SI-219B	2	SH 1 B-4	B	4	GA	MO	O	AI	Q* MT	- -	- 3.1.55	- 30	HPSI Pump B Discharge to HPSI Header B	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-225A	2	SH 2 G-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header A Discharge	SIAS Opens.
SI-225B	2	SH 2 G-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header B Discharge	SIAS Opens.
SI-226A	2	SH 2 E-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header A Discharge	SIAS Opens.
SI-226B	2	SH 2 E-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header B Discharge	SIAS Opens.
SI-227A	2	SH 2 C-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header A Discharge	SIAS Opens.
SI-227B	2	SH 2 C-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header B Discharge	SIAS Opens.
SI-228A	2	SH 2 A-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header A Discharge	SIAS Opens.
SI-228B	2	SH 2 B-7	B	2	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 12	HPSI Header B Discharge	SIAS Opens.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-241	1	SH 2 G-6	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.14 -	- -	HPSI Header Discharge Check	
SI-242	1	SH 2 E-6	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.14 -	- -	HPSI Header Discharge Check	
SI-243	1	SH 2 C-6	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.14 -	- -	HPSI Header Discharge Check	
SI-244	1	SH 2 A-6	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.14 -	- -	HPSI Header Discharge Check	
SI-245	2	SH 1 D-5	C	2	CK	SA	C	-	CV	-	3.2.3	-	HPSI Pump A/B Minimum Flow Check	
SI-301	1	SH 2 H-5	B	2	GA	AO	C	C	None	-	-	-	Drain	Passive
SI-302	1	SH 2 A-6	B	2	GA	AO	C	C	None	-	-	-	Drain	Passive
SI-303A	1	SH 2 F-5	B	1	GL	AO	C	C	None	-	-	-	Drain	Passive

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-303B	1	SH 2 F-3	B	1	GL	AO	C	C	None	-	-	-	Drain	Passive
SI-304A	1	SH 2 B-5	B	1	GL	AO	C	C	None	-	-	-	Drain	Passive
SI-304B	1	SH 2 B-3	B	1	GL	AO	C	C	None	-	-	-	Drain	Passive
SI-323A	2	SH 2 H-4	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 1A Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		
SI-323B	2	SH 2 H-2	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 1B Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		
SI-324A	2	SH 2 D-4	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 2A Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-324B	2	SH 2 D-2	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 2B Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		
SI-325A	2	SH 2 H-4	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 1A Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		
SI-325B	2	SH 2 H-2	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 1B Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		
SI-326A	2	SH 2 D-4	A	1	GL	SO	C	C	Q*	CS	3.1.15 3.1.3 3.1.4	-	Safety Injection Tank 2A Vent	
									MT	TNT	3.1.9	2		
									LTO	NPO	3.2.5	-		

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-326B	2	SH 2 D-2	A	1	GL	SO	C	C	Q* MT LTO	CS TNT NPO	3.1.15 3.1.3 3.1.4 3.1.9 3.2.5	- 2 -	Safety Injection Tank 2B Vent	
SI-329A	1	SH 2 F-5	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.16 -	- -	Safety Injection Tank 1A Discharge Check	
SI-329B	1	SH 2 F-2	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.16 -	- -	Safety Injection Tank 1B Discharge Check	
SI-330A	1	SH 2 B-5	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.16 -	- -	Safety Injection Tank 2A Discharge Check	
SI-330B	1	SH 2 B-2	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.16 -	- -	Safety Injection Tank 2B Discharge Check	
SI-335A	1	SH 2 F-4	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.18 3.1.3 -	- -	LPSI, HPSI, and SIT Injection Check	
SI-335B	1	SH 2 E-2	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.18 3.1.3 -	- -	LPSI, HPSI, and SIT Injection Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-336A	1	SH 2 B-4	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.18 3.1.3 -	- -	LPSI, HPSI, and SIT Injection Check	
SI-336B	1	SH 2 B-2	AC	12	CK	SA	C	-	CV PIV	DRR -	3.1.18 3.1.3 -	- -	LPSI, HPSI, and SIT Injection Check	
SI-343	2	SH 2 E-6	A	2	GA	AO	C	C	Q* MT LT	- -	- 3.1.56 -	- 10 -	SIT Drain to RWSP	CTMT Isolation
SI-344	2	SH 1 H-3	A	2	GL	M	LC	-	Q LT	NT -	3.1.34 -	- -	SIT Drain to RWSP	CTMT Isolation
SI-401A	1	SH 2 E-4	A	14	GA	MO	C	AI	Q* MT PIV	CS - -	3.1.19 3.1.3 3.1.4 3.1.55 -	- 90 -	Shutdown Cooling Suction from RCS	
SI-401B	1	SH 2 D-4	A	14	GA	MO	C	AI	Q* MT PIV	CS - -	3.1.19 3.1.3 3.1.4 3.1.55 -	- 90 -	Shutdown Cooling Suction from RCS	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-405A	1	SH 2 E-5	A	14	GA	HP	C	C	Q* MT PIV	CS - -	3.1.19 3.1.3 3.1.4 - -	- 10 -	Shutdown Cooling Suction from RCS	
SI-405B	1	SH 2 D-5	A	14	GA	HP	C	C	Q* MT PIV	CS - -	3.1.19 3.1.3 3.1.4 - -	- 10 -	Shutdown Cooling Suction from RCS	
SI-406A	2	SH 2 D-5	C	6x8	PR	SA	C	-	SRV	-	-	-	Shutdown Cooling Suction Relief	
SI-406B	2	SH 2 D-5	C	6x8	PR	SA	C	-	SRV	-	-	-	Shutdown Cooling Suction Relief	
SI-407A	2	SH 2 D-6	B	14	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 90	Shutdown Cooling Suction from RCS	
SI-407B	2	SH 2 D-6	B	14	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 90	Shutdown Cooling Suction from RCS	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-412A	2	SH 1 G-3	B	10	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	Shutdown Cooling Heat Exchanger A Discharge Isolation	
SI-412B	2	SH 1 G-3	B	10	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	Shutdown Cooling Heat Exchanger B Discharge Isolation	
SI-415A	2	SH 1 F-3	B	10	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 20	Shutdown Cooling Flow Control	
SI-415B	2	SH 1 D-3	B	10	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 20	Shutdown Cooling Flow Control	
SI-502A	2	SH 1 D-4	B	3	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 35	HPSI Discharge to RCS Hot Leg Isolation	
SI-502B	2	SH 1 B-4	B	3	GA	MO	C	AI	Q* MT	- -	- 3.1.55	- 35	HPSI Discharge to RCS Hot Leg Isolation	
SI-506A	2	SH 1 D-4	B	3	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	HPSI Discharge to RCS Hot Leg Flow Control	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-506B	2	SH 1 B-4	B	3	GL	MO	C	AI	Q* MT	- -	- 3.1.55	- 60	HPSI Discharge to RCS Hot Leg Flow Control	
SI-510A	1	SH 2 H-6	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.14 -	- -	HPSI Discharge to RCS Hot Leg Check	
SI-510B	1	SH 2 A-6	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.14 -	- -	HPSI Discharge to RCS Hot Leg Check	
SI-512A	1	SH 2 H-5	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.20 -	- -	HPSI Discharge to RCS Hot Leg Check	
SI-512B	1	SH 2 A-5	AC	3	CK	SA	C	-	CV PIV	RR -	3.1.20 -	- -	HPSI Discharge to RCS Hot Leg Check	
SI-6011	2	SH 1 A-7	B	1½	GL	SO	C	O	Q* MT	- TNT	- 3.1.1	- 2	SIS Recirc. Sump Sampling Isolation	
SI-6012	2	SH 1 A-7	B	1½	GL	SO	C	O	Q* MT	- TNT	- 3.1.1	- 2	SIS Recirc. Sump Sampling Isolation	
SI-602A	2	SH 1 B-7	B	24	B	AO	C	AI	Q* MT	- -	- 3.1.55	- 15	SIS Sump Outlet Isolation	SIAS Closes. RAS Opens

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Safety Injection (SI)

Drawing Number: LOU-1564-G-167

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SI-602B	2	SH 1 A-7	B	24	B	AO	C	AI	Q* MT	- -	- 3.1.55	- 15	SIS Sump Outlet Isolation	SIAS Closes. RAS Opens
SI-604A	2	SH 1 B-8	C	24	CK	SA	C	-	CV	DRR	3.1.21	-	SIS Sump Outlet Check	
SI-604B	2	SH 1 A-8	C	24	CK	SA	C	-	CV	DRR	3.1.21	-	SIS Sump Outlet Check	
SI-717A	3	G-163 B-5	C	16	CK	SA	C	-	CV	ME	3.1.39	-	RWSP Vacuum Relief	
SI-717B	3	G-163 C-5	C	16	CK	SA	C	-	CV	ME	3.1.39	-	RWSP Vacuum Relief	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Spray (CS)

Drawing Number: LOU-1564-G-163

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CS-110A	2	I-5	C	2	CK	SA	C	-	CV	-	-	-	CS Pump A Minimum Flow Recirculation to RWSP	
CS-110B	2	[illegible]-5	C	2	CK	SA	C	-	CV	-	-	-	CS Pump B Minimum Flow Recirculation to RWSP	
CS-111A	2	J-5	C	10	CK	SA	C	-	CV	-	-	-	CS Pump A Discharge Check	
CS-111B	2	F-5	C	10	CK	SA	C	-	CV	-	-	-	CS Pump B Discharge Check	
CS-117A	2	K-9	C	10	CK	SA	C	-	CV	-	-	-	Shutdown Cooling Heat Exchanger A Discharge Check	
CS-117B	2	G-9	C	10	CK	SA	C	-	CV	-	-	-	Shutdown Cooling Heat Exchanger B Discharge Check	
CS-125A	2	H-12	B	10	GA	AO	C	O	Q* MT	- -	- -	- 10	CS Pump A Discharge to Header Isolation	CSAS Opens.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Spray (CS)

Drawing Number: LOU-1564-G-163

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CS-125B	2	G-12	B	10	GA	AO	C	O	Q* NT	- -	- -	- 10	CS Pump B Discharge to Header Isolation	CSAS Opens.
CS-128A	2	H-13	C	10	CK	SA	C	-	CV	DRR	3.1.30	-	CS Pump A Discharge to Header Check	
CS-128B	2	G-13	C	10	CK	SA	C	-	CV	DRR	3.1.30	-	CS Pump B Discharge to Header Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Emergency Feedwater (EFW)

Drawing Number: LOU-1564-G-153

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
EFW-204A	3	SH 4 L-8	C	1	CK	SA	C	-	CV	-	-	-	EFW Pump A Recirculation to CSP	
EFW-204B	3	SH 4 L-13	C	1	CK	SA	C	-	CV	-	-	-	EFW Pump B Recirculation to CSP	
EFW-204A/B	3	SH 4 L-11	C	1½	CK	SA	C	-	CV	-	-	-	EFW Pump A/B Recirculation to CSP	
EFW-207A	3	SH 4 J-7	C	6	CK	SA	C	-	CV	CS	3.1.22 3.1.3	- -	EFW Pump A Discharge Check to Steam Generators	
EFW-207B	3	SH 4 J-12	C	6	CK	SA	C	-	CV	CS	3.1.22 3.1.3	- -	EFW Pump B Discharge Check to Steam Generators	
EFW-207A/B	3	SH 4 J-9	C	6	CK	SA	C	-	CV	CS	3.1.23 3.1.3	- -	EFW Pump A/B Discharge Check to Steam Generators	
EFW-2191A	3	SH 4 G-7	C	6	CK	SA	C	-	CV	CS	3.1.22 3.1.3	- -	EFW Pump Discharge Check to Steam Generators	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Emergency Feedwater (EFW)

Dr[illegible]ng Number: LOU-1564-G-153

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
EFW-2191B	3	SH 4 G-12	C	6	CK	SA	C	-	CV	CS	3[illegible] 3.[illegible]	- -	EFW Pump Discharge Check to Steam Generators	
EFW-223A	2	SH 4 C-9	B	4	GL	AO	C	O	Q MT	- -	- 3.1.55	- 25	EFW Flow Control	MSIS Closes.
EFW-223B	2	SH 4 F-11	B	4	GL	AO	C	O	Q MT	- -	- 3.1.55	- 25	EFW Flow Control	MSIS Closes.
EFW-2[illegible]4A	2	SH 4 C-11	B	4	GL	AO	C	O	Q MT	- -	- 3.1.55	- 25	EFW Flow Control	MSIS Closes.
EFW-224B	[illegible]	SH 4 F-12	B	4	GL	AO	C	O	Q MT	- -	- 3.1.55	- 25	EFW Flow Control	MSIS Closes.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Emergency Feedwater (EFW)

Drawing Number: LOU-1564-G-153

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
EFW-228A	2	SH 4 B-11	B	4	GL	AO	C	O	Q* MT	- -	- 3.1.55	- 25	EFW Flow Isolation	EFAS Opens. MSIS Closes.
EFW-228B	2	SH 4 D-12	B	4	GL	AO	C	O	Q* MT	- -	- 3.1.55	- 25	EFW Flow Isolation	EFAS Opens. MSIS Closes.
EFW-229A	2	SH 4 B-9	B	4	GL	AO	C	O	Q* MT	- -	- 3.1.55	- 25	EFW Flow Isolation	EFAS Opens. MSIS Closes.
EFW-229B	2	SH 4 D-10	B	4	GL	AO	C	O	Q* MT	- -	- 3.1.55	- 25	EFW Flow Isolation	EFAS Opens. MSIS Closes.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Feedwater (FW)

Drawing Number: LOU-1564-G-153

VALVE NUMBER	CC	DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTER-NATES	RELIEF REQUEST/ CLARIFI-CATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
FW-166A	5	SH 4 B-5	B	6	GA	AO	O	C	Q*	CS	3.1.46 3.1.3 3.1.4	-	Main Feedwater Control Bypass	MSIS Closes. FSAR 10.4.7.2.
									MT	-	-	5		
FW-166B	5	SH 4 E-5	B	6	GA	AO	O	C	Q*	CS	3.1.46 3.1.3 3.1.4	-	Main Feedwater Control Bypass	MSIS Closes. FSAR 10.4.7.2
									MT	-	-	5		
FW-173A	5	SH 4 C-5	B	16	ANG	AO	O	C	Q*	CS	3.1.51 3.1.3 3.1.4	-	Main Feedwater Control	MSIS Closes. FSAR 10.4.7.2
									MT	-	-	3		
FW-173B	5	SH 4 G-5	B	16	ANG	AO	O	C	Q*	CS	3.1.51 3.1.3 3.1.4	-	Main Feedwater Control	MSIS Closes. FSAR 10.4.7.2
									MT	-	-	3		

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Feedwater (FW)

Drawing Number: LOU-1564-G-153

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
FW-184A	2	SH 4 A-9	B	20	GA	HP	O	AI	Q* MT	CSP -	3.1.26 3.1.3 3.1.4 -	- 3	Feedwater Isolation	Hydraulic Opens. Pneumatic Closes. MSIS Closes.
FW-184B	2	SH 4 D-10	B	20	GA	HP	O	AI	Q* MT	CSP -	3.1.26 3.1.3 3.1.4 -	- 3	Feedwater Isolation	Hydraulic Opens. Pneumatic Closes. MSIS Closes.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Main Steam (MS)

Drawing Number: LOU-1564-G-151

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
MS-106A	2	SH 1 B-3	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-106B	2	SH 1 H-3	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-108A	2	SH 1 B-4	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-108B	2	SH 1 H-4	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-110A	2	SH 1 B-5	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-110B	2	SH 1 H-5	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-112A	2	SH 1 B-5	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-112B	2	SH 1 H-5	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Main Steam (MS)

Drawing Number: LOU-1564-G-151

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
MS-113A	2	SH 1 B-6	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-113B	2	SH 1 H-6	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-114A	2	SH 1 B-7	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-114B	2	SH 1 H-7	C	8x10x 10	PR	SA	C	-	SRV	-	-	-	Main Steam Safety	
MS-116A	2	SH 1 B-8	B	8x12	ANG	AO	C	C	Q* MT	CS -	3.1.27 3.1.3 3.1.4 3.1.55	- 40	Main Steam Atmospheric Dump	Air Opens Spring Closes. Pressure Seats Plug
MS-116B	2	SH 1 H-8	B	8x12	ANG	AO	C	C	Q* MT	CS -	3.1.27 3.1.3 3.1.4 3.1.55	- 40	Main Steam Atmospheric Dump	Air Opens Spring Closes. Pressure Seats Plug

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Main Steam (MS)

Drawing Number: LOU-1564-G-165

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
MS-119A	2	SH 3 C-17	B	2	GL	MO	C	AI	Q* MT	- -	- -	- 10	Drain	CTMT Isolation
MS-119B	2	SH 3 F-18	B	2	GL	MO	C	AI	Q* MT	- -	- -	- 10	Drain	CTMT Isolation
MS-120A	2	SH 3 B-17	B	2	GL	MO	O	AI	Q* MT	- -	- -	- 10	Drain	CTMT Isolation
MS-120B	2	SH 3 E-18	B	2	GL	MO	O	AI	Q* MT	- -	- -	- 10	Drain	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Main Steam (MS)

Drawing Number: LOU-1564-G-151

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
MS-124A	2	SH 1 C-8	B	40	GA	HP	O	AI	Q* MT	CSP -	3.1.29 3.1.3 3.1.4 -	- 3	Main Steam Isolation Valve (MSIV)	MSIS Closes.
MS-124B	2	SH 1 H-8	B	40	GA	HP	O	AI	Q* MT	CSP -	3.1.29 3.1.3 3.1.4 -	- 3	Main Steam Isolation Valve (MSIV)	MSIS Closes.
MS-401A	2	SH 1 F-7	B	6	GA	MO	C	AI	Q* MT	- -	- -	- 25	Main Steam to EFW Pump A/B Turbine	EFAS Opens.
MS-401B	2	SH 1 J-7	B	6	GA	MO	C	AI	Q* MT	- -	- -	- 25	Main Steam to EFW Pump A/B Turbine	EFAS Opens.
MS-402A	3	SH 1 F-6	C	6	CK	SA	C	-	CV CV	CSP CS	3.1.44 Open 3.1.53 Closed	-	Main Steam to EFW Pump A/B Turbine	
MS-402B	3	SH 1 J-7	C	6	CK	SA	C	-	CV CV	CSP CS	3.1.44 Open 3.1.53 Closed	-	Main Steam to EFW Pump A/B Turbine	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Emergency Generator Diesel Fuel (EGF)

Drawing Number: LOU-1564-G-164

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
EGF-109A	3	SH 1 J-4	C	2	CK	SA	C	-	CV	-	-	-	Diesel Oil Transfer Pump A Discharge Check	
EGF-109B	3	SH 1 M-4	C	2	CK	SA	C	-	CV	-	-	-	Diesel Oil Transfer Pump B Discharge Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Chilled Water (CHW)

Drawing Number: LOU-1564-G-853 (S03)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CHW-114A	3	H-1	C	6	CK	SA	O	-	CV	-	-	-	Chilled Water Pump A Discharge Check	
CHW-114B	3	H-14	C	6	CK	SA	O	-	CV	-	-	-	Chilled Water Pump B Discharge Check	
CHW-114A/B	3	H-6	C	6	CK	SA	O	-	CV	-	-	-	Chilled Water Pump A/B Discharge Check	
CHW-129A	3	J-3	B	3	GL	HO	O	O	Q MT	- -	- 3.1.55	- 15	Chilled Water Pump A Bypass	
CHW-129B	3	J-12	B	3	GL	HO	O	O	Q MT	- -	- 3.1.55	- 15	Chilled Water Pump B Bypass	
CHW-129A/B	3	J-8	B	3	GL	HO	O	O	Q MT	- -	- 3.1.55	- 15	Chilled Water Pump A/B Bypass	
CHW-135A	3	L-7	B	10	B	AO	O	C	Q* MT	- -	- 3.1.55	- 15	Essential Chilled Water Train Separation	
CHW-135B	3	L-8	B	10	B	AO	O	C	Q* MT	- -	- 3.1.55	- 15	Essential Chilled Water Train Separation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Chilled Water (CHW)

Drawing Number: LOU-1564-G-853 (S03)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CHW-303	3	L-7	B	4	B	AO	O	C	Q* MT	- -	3.1.56 3.1.55	- 15	Non-Essential Chilled Water Isolation	
CHW-304	3	M-7	B	4	B	AO	O	C	Q* MT	- -	3.1.56 3.1.55	- 15	Non-Essential Chilled Water Isolation	
CHW-780	3	N-7	B	4	B	AO	O	C	Q* MT	- -	3.1.56 3.1.55	- 15	Non-Essential Chilled Water Isolation	
CHW-781	3	N-7	B	4	B	AO	O	C	Q* MT	- -	3.1.56 3.1.55	- 15	Non-Essential Chilled Water Isolation	
CHW-783A	3	M-6	B	10	B	AO	O	C	Q* MT	- -	- 3.1.55	- 15	Essential Chilled Water Train Separation	
CHW-783B	3	M-8	B	10	B	AO	O	C	Q* MT	- -	- 3.1.55	- 15	Essential Chilled Water Train Separation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)
Including Auxiliary Component Cooling Water (ACC)
Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-102	3	SH 1 G-1	C	2	CK	SA	C	-	CV	-	-	-	CCW Surge Tank Overflow Check	
CC-114A	3	SH 2 I-9	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Suction Header Isolation	
CC-114B	3	SH 2 I-10	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Suction Header Isolation	
CC-115A	3	SH 2 I-9	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Suction Header Isolation	
CC-115B	3	SH 2 I-10	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Suction Header Isolation	
CC-123A	3	SH 2 D-9	C	20	CK	SA	O	-	CV	-	-	-	CCW Pump A Discharge Check	
CC-123B	3	SH 2 D-11	C	20	CK	SA	O	-	CV	-	-	-	CCW Pump B Discharge Check	
CC-123A/B	3	SH 2 D-10	C	20	CK	SA	O	-	CV	-	-	-	CCW Pump A/B Discharge Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)
Including Auxiliary Component Cooling Water (ACC)

Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-126A	3	SH 2 B-9	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Discharge Header Isolation	
CC-126B	3	SH 2 B-10	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Discharge Header Isolation	
CC-127A	3	SH 2 B-10	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Discharge Header Isolation	
CC-127B	3	SH 2 B-10	B	20	B	AO	O	O	Q* MT	- -	- -	- 10	CCW Pumps Discharge Header Isolation	
CC-134A	3	SH 2 A-5	B	16	B	AO	C	AI	Q* MT	- -	3.2.7 -	- 5	Dry Cooling Tower A Bypass	
CC-134B	3	SH 2 A-13	B	16	B	AO	C	AI	Q* MT	- -	3.2.7 -	- 5	Dry Cooling Tower B Bypass	
CC-135A	3	SH 2 B-8	B	20	B	AO	O	AI	Q* MT	- -	3.2.7 3.1.56	- 6	Dry Cooling Tower A Inlet Isolation	
CC-135B	3	SH 2 B-11	B	20	B	AO	O	AI	Q* MT	- -	3.2.7 3.1.56	- 6	Dry Cooling Tower B Inlet Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)

Including Auxiliary Component Cooling Water (ACC)

Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-181A	3	SH 2 B-2	C	20	CK	SA	O	-	CC	-	-	-	Dry Cooling Tower A Outlet Check	
CC-181B	3	SH 2 B-18	C	20	CK	SA	O	-	CC	-	-	-	Dry Cooling Tower B Outlet Check	
CC-200A	3	SH 2 J-6	B	16	B	AO	O	C	Q* MT	- -	3.2.7 -	- 6	Non-Essential CCW Isolation and Essential CCW Train Separation	CSAS Closes.
CC-200B	3	SH 2 J-7	B	16	B	AO	O	C	Q* MT	- -	3.2.7 -	- 6	Non-Essential CCW Isolation and Essential CCW Train Separation	CSAS Closes.
CC-301A	3	SH 3 I-3	B	6	B	AO	O	AI	Q* MT	- -	- -	- 10	Chiller Inlet Isolation	
CC-301B	3	SH 3 I-5	B	6	B	AO	O	AI	Q* MT	- -	- -	- 10	Chiller Inlet Isolation	
CC-302A	3	SH 3 I-3	C	6	CK	SA	O	-	CV	-	-	-	Chiller Inlet Check	
CC-302B	3	SH 3 I-5	C	6	CK	SA	O	-	CV	-	-	-	Chiller Inlet Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)
Including Auxiliary Component Cooling Water (ACC)

Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
ACC-139A	3	SH 3 L-1	B	6	B	AO	C	AI	Q* MT	- -	- -	- 10	Chiller Discharge to Wet Tower A Isolation (Previously CC-320A)	
ACC-139B	3	SH 3 M-1	B	6	B	AO	C	AI	Q* MT	- -	- -	- 10	Chiller Discharge to Wet Tower B Isolation (Previously CC-320B)	
ACC-140A	3	SH 3 K-1	C	6	CK	SA	C	-	CV	-	-	-	Chiller Discharge to Wet Tower A Check (Previously CC-321A)	
ACC-140B	3	SH 3 M-1	C	6	CK	SA	C	-	CV	-	-	-	Chiller Discharge to Wet Tower B Check (Previously CC-321B)	
CC-322A	3	SH 3 L-1	B	6	B	AO	O	AI	Q* MT	- -	- -	- 10	Chiller Discharge to CCW Pump Suction Header	
CC-322B	3	SH 3 K-7	B	6	B	AO	O	AI	Q* MT	- -	- -	- 10	Chiller Discharge to CCW Pump Suction Header	
CC-323A	3	SH 3 K-1	C	6	CK	SA	O	-	CV	-	-	-	Chiller Discharge to CCW Pump Suction Header	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)
Including Auxiliary Component Cooling Water (ACC)

Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-323B	3	SH 3 K-7	C	6	CK	SA	O	-	CV	-	-	-	Chiller Discharge to CCW Pump Suction Header	
CC-413A	3	SH 3 D-13	B	6	B	AO	C	O	Q MT	- -	- 3.1.56	- 10	CCW from Diesel Generator to CCW Pump Suction Header	
CC-413B	3	SH 3 D-18	B	6	B	AO	C	O	Q MT	- -	- 3.1.56	- 10	CCW from Diesel Generator to CCW Pump Suction Header	
CC-501	3	SH 2 L-6	B	12	B	AO	O	C	Q* MT	- -	- -	- 6	Non-Essential CCW Isolation	
CC-562	3	SH 2 J-10	B	12	B	AO	O	C	Q* MT	- -	- -	- 6	Non-Essential CCW Isolation	
CC-563	3	SH 2 J-9	B	16	B	AO	O	C	Q* MT	- -	3.2.7 -	- 6	Non-Essential CCW Isolation	SIAS Closes.
CC-641	2	SH 1 E-4	[illegible]	10	B	AO	O	O	Q* MT LT	CS - -	3.1.31 3.1.3 3.1.4 3.1.56 -	- 5 -	CCW to Reactor Coolant Pumps and CEDM's	CSAS Closes, but has override

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)

Including Auxiliary Component Cooling Water (ACC)

Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-710	2	SH 1 D-1	A	10	B	AO	O	O	Q* MT LT	CS - -	3.1.31 3.1.3 3.1.4 3.1.56 -	- 5 -	CCW to Reactor Coolant Pumps and CEDM's	CSAS Closes, but has override
CC-713	2	SH 1 D-1	A	10	B	AO	O	O	Q* MT LT	CS - -	3.1.31 3.1.3 3.1.4 3.1.56 -	- 5 -	CCW to Reactor Coolant Pumps and CEDM's	CSAS Closes, but has override
CC-727	3	SH 2 K-8	B	16	B	AO	O	C	Q* MT	- -	3.2.7 -	- 5	Essential CCW Train Separation	SIAS Closes.
CC-807A	2	SH 1 E-8	B	8	B	AO	O	O	Q* MT	CS -	3.1.43 3.1.3 3.1.4 -	- 10	CCW to CTMT Fan Cooler 3C	SIAS Opens.
CC-807B	2	SH 1 E-11	B	8	B	AO	O	O	Q* MT	CS -	3.1.43 3.1.3 3.1.4 -	- 10	CCW to CTMT Fan Cooler 3B	SIAS Opens.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)
Including Auxiliary Component Cooling Water (ACC)
Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-808A	2	SH 1 E-9	B	8	B	AO	O	O	Q*	CS	3.1.43 3.1.3 3.1.4	-	CCW to CTMT Fan Cooler 3A	SIAS Opens.
									MT	-	-	10		
CC-808B	2	SH 1 E-10	B	8	B	AO	O	O	Q*	CS	3.1.43 3.1.3 3.1.4	-	CCW to CTMT Fan Cooler 3D	SIAS Opens.
									MT	-	-	10		
CC-822A	2	SH 1 E-9	B	8	B	AO	O	O	Q*	CS	3.1.43 3.1.3 3.1.4	-	CCW from CTMT Fan Cooler 3A	SIAS Opens.
									MT	-	-	10		
CC-822B	2	SH 1 E-10	B	8	B	AO	O	O	Q*	CS	3.1.43 3.1.3 3.1.4	-	CCW from CTMT Fan Cooler 3D	SIAS Opens.
									MT	-	-	10		
CC-823A	2	SH 1 E-9	B	8	B	AO	O	O	Q*	CS	3.1.43 3.1.3 3.1.4	-	CCW from CTMT Fan Cooler 3C	SIAS Opens.
									MT	-	-	10		

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)

Including Auxiliary Component Cooling Water (ACC)

Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CC-823B	2	SH 1 E-11	B	8	B	AO	O	O	Q* MT	CS -	3.1.43 3.1.3 3.1.4 -	- 10	CCW from CTMT Fan Cooler 3B	SIAS Opens.
CC-835A	3	SH 1 E-6	B	8	B	AO	O	O	Q* MT	CS -	3.1.43 3.1.3 3.1.4 3.1.55	- 20	CCW Flow Controller from CTMT Fan Coolers	
CC-835B	3	SH 1 F-9	B	8	B	AO	O	O	Q* MT	CS -	3.1.43 3.1.3 3.1.4 3.1.55	- 20	CCW Flow Controller from CTMT Fan Coolers	
CC-963A	3	SH 1 M-3	B	10	B	AO	C	O	Q* MT	- -	- 3.1.55	- 30	CCW from Shutdown Heat Exchanger A	
CC-963B	3	SH 1 N-3	B	10	B	AO	C	O	Q* MT	- -	- 3.1.55	- 30	CCW from Shutdown Heat Exchanger B	
ACC-108A	3	SH 2 G-2	C	16	CK	SA	C	-	CV	-	-	-	ACCW Pump A Discharge Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Component Cooling Water (CC)
Including Auxiliary Component Cooling Water (ACC)
Drawing Number: LOU-1564-G-160

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
ACC-108B	3	SH 2 G-17	C	16	CK	SA	C	-	CV	-	-	-	ACCW Pump B Discharge Check	
ACC-112A	3	SH 3 I-2	B	6	B	AO	C	AI	Q* MT	- -	- -	- 10	ACCW Pump A Discharge to Chillers	
ACC-112B	3	SH 3 I-6	B	6	B	AO	C	AI	Q* MT	- -	- -	- 10	ACCW Pump B Discharge to Chillers	
ACC-113A	3	SH 3 I-2	C	6	CK	SA	C	-	CV	-	-	-	ACCW Pump A Discharge to Chillers	
ACC-113B	3	SH 3 I-6	C	6	CK	SA	C	-	CV	-	-	-	ACCW Pump B Discharge to Chillers	
ACC-126A	3	SH 2 H-5	B	12	B	AO	O	O	Q MT	- -	- 3.1.55	- 45	ACCW Train A Temperature Controller	
ACC-126B	3	SH 2 H-14	B	12	B	AO	O	O	Q MT	- -	- 3.1.55	- 45	ACCW Train B Temperature Controller	
CC-644	2	SH 1 E-3	AC	10	CK	SA	O	-	CC LT	- -	- -	- -	CCW to Reactor Coolant Pumps and CEDM's	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Annulus Negative Pressure (ANP)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
ANP-101	3	H-7	B	6	B	AO	O	C	Q MT	- -	3.1.55 3.1.56	- 15	Annulus to ANP Fans Suction	
ANP-102	3	H-7	B	6	B	AO	O	C	Q MT	- -	3.1.55 3.1.56	- 15	Annulus to ANP Fans Suction	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Atmospheric Purge (CAP)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CAP-102	2	G-11	B	48	B	AO	C	C	Q* MT	- -	- -	- 5	Purge Supply to Containment	
CAP-103	2	G-10	A	48	B	AO	C	C	Q* MT LTP	- - -	- - -	- 5 -	Purge Supply to Containment	CTMT Isolation
CAP-104	2	G-10	A	48	B	AO	C	C	Q* MT LTP	- - -	- - -	- 5 -	Purge Supply to Containment	CTMT Isolation
CAP-203	2	G-6	A	48	B	AO	C	C	Q* MT LTP	- - -	- - -	- 5 -	Purge Exhaust from Containment	CTMT Isolation
CAP-204	2	G-6	A	48	B	AO	C	C	Q* MT LTP	- - -	- - -	- 5 -	Purge Exhaust from Containment	CTMT Isolation
CAP-205	2	H-6	B	48	B	AO	C	C	Q* MT	- -	- -	- 5	Purge Exhaust from Containment	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Atmospheric Release (CAR)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CAR-101A	2	H-9	A	4	B	M	C	-	Q LT	NT -	3.1.34 -	- -	CAR Supply Isolation	CTMT Isolation
CAR-101B	2	H-9	A	4	B	M	C	-	Q LT	NT -	3.1.34 -	- -	CAR Supply Isolation	CTMT Isolation
CAR-102A	2	G-9	AC	4	CK	SA	C	-	CV LT	CS -	3.1.48 3.1.47 3.1.3 -	- -	CAR Supply Isolation	CTMT Isolation
CAR-102B	2	G-9	AC	4	CK	SA	C	-	CV LT	CS -	3.1.48 3.1.47 3.1.3 -	- -	CAR Supply Isolation	CTMT Isolation
CAR-200B	2	E-4	A	3	BL	AO	C	C	Q* Mf LT	- - -	- - -	- 5 -	CAR Containment Pressure Reduction Isolation	CTMT Isolation CIAS closes.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Atmospheric Release (CAR)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CAR-201A	2	E-4	A	4	B	MO	C	AI	Q* MT LT	- - -	- - -	- 10 -	CAR Exhaust Isolation	CTMT Isolation CIAS closes, but has override.
CAR-201B	2	E-4	A	4	B	MO	C	AI	Q* MT LT	- - -	- - -	- 10 -	CAR Exhaust Isolation	CTMT Isolation CIAS closes, but has override.
CAR-202A	2	E-3	A	4	B	M	C	-	Q LT	NT -	3.1.34 -	- -	CAR Exhaust Isolation	CTMT Isolation
CAR-202B	2	E-3	A	4	BL	AO	C	C	Q* MT LT	- - -	- - -	- 5 -	CAR Exhaust Isolation	CTMT Isolation CIAS closes.
CAR-204A	2	E-3	B	4	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 45	CAR Exhaust Isolation	
CAR-204B	2	E-3	B	4	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 45	CAR Fxhaust Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Vacuum Relief (CVR)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CVR-101	2	E-10	A	24	B	AO	C	C	Q* MT LT	- - -	- 3.1.56 -	- 5 -	Vacuum Relief Isolation	CTMT Isolation Differential Pressure Opens.
CVR-102	2	E-10	AC	24	CK	SA	C	-	CV LT	CS -	3.1.49 3.1.47 3.1.3 -	-	Vacuum Relief Check	CTMT Isolation
CVR-201	2	H-8	A	24	B	AO	C	C	Q* MT LT	- - -	- - -	- 5 -	Vacuum Relief Isolation	CTMT Isolation Differential Pressure Opens.
CVR-202	2	H-8	AC	24	CK	SA	C	-	CV LT	CS -	3.1.49 3.1.47 3.1.3 -	-	Vacuum Relief Check	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Containment Vacuum Relief (CVR)

Drawing Number: LOU-1564-B-431

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CVR-401A	2	sh 283S	B	½	GL	SO	O	C	Q* MT	- TNT	- 3.1.1	- 2	Non-Essential Instrumentation Isolation	CIAS Closes.
CVR-401B	2	sh 283S	B	½	GL	SO	O	C	Q* MT	- TNT	- 3.1.1	- 2	Non-Essential Instrumentation Isolation	CIAS Closes.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Control Room HVAC (HVC)

Drawing Number: LOU-1564-G-853 (S01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HVC-101	3	J-13	B	16	B	AO	O	C	Q MT	- -	- 3.1.56	- 5	Normal AH-12 Supply Isolation	
HVC-102	3	J-13	B	16	B	AO	O	C	Q MT	- -	- 3.1.56	- 5	Normal AH-12 Supply Isolation	
HVC-201A	3	J-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency AH-12 Supply Isolation	
HVC-201B	3	J-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency AH-12 Supply Isolation	
HVC-202A	3	J-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency AH-12 Supply Isolation	
HVC-202B	3	J-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency AH-12 Supply Isolation	
HVC-203A	3	J-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency S-8 Supply Isolation	
HVC-203B	3	K-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency S-8 Supply Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Control Room HVAC (HVC)

Drawing Number: LOU-1564-G-853 (S01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HVC-204A	3	J-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency S-8 Supply Isolation	
HVC-204B	3	K-11	B	8	B	MO	C	AI	Q* MT	- -	- -	- 5	Emergency S-8 Supply Isolation	
HVC-306	3	J-17	B	12	B	AO	O	C	Q* MT	- -	- 3.1.56	- 5	E-34 (3A and 3B) Discharge Isolation	
HVC-307	3	J-17	B	12	B	AO	O	C	Q* MT	- -	- 3.1.56	- 5	E-34 (3A and 3B) Discharge Isolation	
HVC-313	3	I-14	B	12	B	AO	O	C	Q* MT	- -	- 3.1.56	- 5	E-42 Discharge Isolation	
HVC-314	3	I-14	B	12	B	AO	O	C	Q* MT	- -	- 3.1.56	- 5	E-42 Discharge Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Reactor Auxiliary Building HVAC (HVR)

Drawing Number: LOU-1564-G-853 (S01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HVR-104	[illegible]	[illegible]-5	[illegible]	30	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Pipe Penetration Area Isolation	
HVR-105	[illegible]	[illegible]	B	30	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Pipe Penetration Area Isolation	
[illegible]	[illegible]	I-[illegible]	B	36	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Controlled Ventilation Area Isolation	
HVR-1[illegible]	[illegible]	[illegible]	B	36	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Controlled Ventilation Area Isolation	
HVR-108	3	E-1	B	42	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Controlled Ventilation Area Isolation	
HVR-109	3	D-1	B	42	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Controlled Ventilation Area Isolation	
HVR-110	[illegible]	D-1	B	12	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Pipe Chase Area Isolation	
HVR-111	3	D-1	B	12	B	AO	O	C	Q MT	- -	- 3.1.55	- 15	Pipe Chase Area Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Reactor Auxiliary Building HVAC (HVR)

Drawing Number: LOU-1564-G-853 (S01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HVR-301	3	I-5	B	18	B	AO	C	O	Q MT	- -	- -	- 5	Controlled Ventilation Area Isolation	
HVR-302	3	E-1	B	14	B	AO	C	O	Q MT	- -	- -	- 5	Controlled Ventilation Area Isolation	
HVR-304A	3	B-1	B	18	B	MO	C	AI	Q MT	- -	- -	- 5	E-23 (3A) Suction Isolation	
HVR-304B	3	A-1	B	18	B	MO	C	AI	Q MT	- -	- -	- 5	E-23 (3B) Suction Isolation	
HVR-313A	3	B-2	B	18	B	MO	C	AI	Q MT	- -	- -	- 5	E-23 (3A) Suction Isolation	
HVR-313B	3	A-2	B	18	B	MO	C	AI	Q MT	- -	- -	- 5	E-23 (3B) Suction Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Shield Building Ventilation (SBV)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SBV-101A	2	F-4	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan A Suction Isolation	
SBV-101B	2	G-4	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan B Suction Isolation	
SBV-110A	2	H-2	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan A Suction Isolation	
SBV-110B	2	H-3	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan B Suction Isolation	
SBV-112A	2	F-2	C	30	CK	SA	C	-	CV	-	-	-	SBV Fan A Discharge to Shield Building Check	
SBV-112B	2	F-2	C	30	CK	SA	C	-	CV	-	-	-	SBV Fan B Discharge to Shield Building Check	
SBV-113A	2	F-4	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan A Discharge to Shield Building Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Shield Building Ventilation (SBV)

Drawing Number: LOU-1564-G-853 (S02)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SBV-113B	2	F-4	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan B Discharge to Shield Building Isolation	
SBV-114A	2	S01 D-16	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan A Discharge to Stack Isolation	
SBV-114B	2	S01 D-18	B	30	B	MO	C	AI	Q* MT	- -	- 3.1.55	- 15	SBV Fan B Discharge to Stack Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Instrument Air (IA)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
IA-909	2	G-152 SH 4 B-11	A	2	GL	AO	O	C	Q* MT LT	CS - -	3.1.32 3.1.3 3.1.4 - -	- 10 -	Containment Instrument Air Supply Isolation	CTMT Isolation CIAS Closes, but has manual override.
IA-910	2	G-152 SH 6 L-12	AC	2	CK	SA	O	-	CV LT	RR -	3.1.33 -	- -	Containment Instrument Air Supply Check	CTMT Isolation
IA-573132	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	
IA-57212	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	
IA-520212	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	
IA-520242	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Instrument Air (IA)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
IA-552182	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	
IA-552202	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	
IA-90232	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	
IA-902112	3	SH 2 G-8	AC	1	CK	SA	O	-	CV	-	-	-	Instrument Air Supply to Nitrogen Header Check	

CC = CODE CLASS
ACT TYPE = AC[illegible]R TYPE
NORM POSN = N[illegible] POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Station Air (SA)

Drawing Number: LOU-1564-G-157

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SA-908	2	E-12	A	2	GA	M	LC	-	Q LT	NT -	3.1.34 -	- -	Containment Station Air Supply Isolation	CTMT Isolation
SA-909	2	D-12	AC	2	CK	SA	C	-	CV LT	NT -	3.1.35 -	- -	Containment Station Air Supply Check	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Leak Rate Testing (LRT)

Drawing Number: LOU-1564-G-164

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
LRT-109	2	SH 1 N-12	A	10	GA	M	LC	-	Q LT	NT -	3.1.34 -	- -	Containment Leak Rate Test Valve	CTMT Isolation
LRT-201	2	SH 1 M-14	A	1	GL	M	LC	-	Q LT	NT -	3.1.34 -	- -	Integrated Leakage Rate Test (ILRT) Pressure Test Tap	CTMT Isolation
LRT-202	2	SH 1 M-14	A	1	GL	M	LC	-	Q LT	NT -	3.1.34 -	- -	Integrated Leakage Rate Test (ILRT) Pressure Test Tap	CTMT Isolation
LRT-203	2	SH 1 M-14	A	1	GL	M	LC	-	Q LT	NT -	3.1.34 -	- -	Controlled Leakage Rate Test Bleedoff	CTMT Isolation
LRT-204	2	SH 1 M-14	A	1	GL	M	LC	-	Q LT	NT -	3.1.34 -	- -	Controlled Leakage Rate Test Bleedoff	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Area Radiation Monitoring (ARM)

Drawing Number: LOU-1564-G-164

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
ARM-103	2	SH 2 J-15	A	3/4	GL	SO	O	C	Q*	CS	3.1.37 3.1.3 3.1.4	-	Containment Radiation Monitor Isolation	CTMT Isolation
									MT	TNT	3.1.1	2		
									LT	-	-	-		
ARM-104	2	SH 2 J-15	AC	3/4	CK	SA	O	-	CV	RR	3.1.33	-	Containment Radition Monitor Check	CTMT Isolation
									LT	-	-	-		
ARM-109	2	SH 2 J-15	A	3/4	GL	SO	O	C	Q*	CS	3.1.37 3.1.3 3.1.4	-	Containment Radiation Monitor Isolation	CTMT Isolation
									MT	TNT	3.1.1	2		
									LT	-	-	-		
ARM-110	2	SH 2 J-15	A	3/4	GL	SO	O	C	Q*	CS	3.1.37 3.1.3 3.1.4	-	Containment Radiation Monitor Isolation	CTMT Isolation
									MT	TNT	3.1.1	2		
									LT	-	-	-		

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Fuel Pool Cooling and Purification (FS)

Drawing Number: LOU-1564-G-163

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
FS-405	2	H-13	A	3	GA	M	LC	-	Q LT	NT -	3.1.34 -	- -	Refueling Cavity Inlet Isolation	CTMT Isolation
FS-406	2	H-14	A	3	GA	M	LC	-	Q LT	NT -	3.1.34 -	- -	Refueling Cavity Inlet Isolation	CTMT Isolation
FS-415	2	I-14	A	6	D	M	LC	-	Q LT	NT -	3.1.34 -	- -	Refueling Cavity Drain Pump Discharge Isolation	CTMT Isolation
FS-416	2	I-13	A	6	D	M	LC	-	Q LT	NT -	3.1.34 -	- -	Refueling Cavity Drain Pump Discharge Isolation	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Gaseous Waste Management (GMW)

Drawing Number: LOU-1564-G-170

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
GWM-104	2	SH 2 F-7	A	1	D	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 7 -	Reactor Coolant Drain Tank Vent to Gas Surge Tank	CTMT Isolation
GWM-105	2	SH 2 F-7	A	1	D	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 7 -	Reactor Coolant Drain Tank Vent to Gas Surge Tank	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Sump Pump (SP)

Drawing Number: LOU-1564-G-173

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SP-105	2	D-9	A	1½	D	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 7 -	Containment Sump Pumps Discharge Isolation	CTMT Isolation CIAS Closes, but has override.
SP-106	2	D-10	A	1½	D	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 7 -	Containment Sump Pumps Discharge Isolation	CTMT Isolation CIAS Closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Boron Management (BM)

Drawing Number: LOU-1564-G-171

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
BM-109	2	SH 1 E-6	A	3	D	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 7 -	Reactor Drain Tank Discharge to Reactor Drain Tank Pump Suction	CTMT Isolation
BM-110	2	SH 1 E-6	A	3	D	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 7 -	Reactor Drain Tank Discharge tc Reactor Drain Tank Pump Suction	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Condensate Makeup & Storage (CMU)

Drawing Number: LOU-1564-G-161

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
CMU-244	2	SH 2 E-12	A	1½	GL	M	LC	-	Q* LT	NT -	3.1.34 -	- -	Condensate Supply to Containment	CTMT Isolation
CMU-245	2	SH 2 E-12	AC	1½	CK	SA	C	-	CV LT	NT -	3.1.35 -	- -	Condensate Supply to Containment	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Primary Makeup (PMU)

Drawing Number: LOU-1564-G-161

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
PMU-151	2	SH 2 E-15	A	2	GL	M	LC	-	Q LT	NT -	3.1.34 -	- -	Primary Makeup Supply to Containment	CTMT Isolation
PMU-152	2	SH 2 E-15	AC	2	CK	SA	C	-	CV LT	NT -	3.1.35 -	- -	Primary Makeup Supply tp Containment	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Nitrogen Gas (NG)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
NG-157	2	SH 1 F-9	A	1	GL	AO	O	C	Q* MT LT	- - -	- 3.1.56 -	- 5 -	Nitrogen Supply to Containment	CTMT Isolation
NG-158	2	SH 1 F-10	AC	1	CK	SA	C	-	CV LT	RR -	3.1.35 3.1.3 -	- -	Nitrogen Supply to Containment	CTMT Isolation
NG-603	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-604	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-703	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-704	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-803	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-804	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Nitrogen Gas (NG)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
NG-903	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-904	3	SH 2 E-5	AC	1	CK	SA	C	-	CV	-	-	-	Nitrogen Accumulator Inlet Check	Passive
NG-609	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-610	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-709	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-710	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-809	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-810	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Nitrogen Gas (NG)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
NG-909	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-910	3	SH 2 E-7	B	1	GL	SO	C	O	Q MT	- NST	- 3.1.52	- -	Nitrogen Supply to Header Isolation	
NG-611	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-612	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-711	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-712	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-811	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-812	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Nitrogen Gas (NG)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
NG-911	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-912	3	SH 2 E-7	B	1	GL	AO	C	-	Q MT	- NST	- 3.1.54	- -	Nitrogen Pressure Regulator	
NG-617	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	
NG-618	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	
NG-717	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	
NG-718	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	
NG-817	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	
NG-818	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Nitrogen Gas (NG)

Drawing Number: LOU-1564-G-166

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
NG-917	3	SH 2 E-8	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	
NG-918	3	SH 2 E-3	C	1	CK	SA	C	-	CV	-	-	-	Nitrogen Supply to Header Check	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Hydrogen Recombiner & Analyzer (HRA)

Drawing Number: LOU-1564-B-430 (SP-01)

VALVE NUMBER	CC	LOCA-TION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTER-NATES	RELIEF REQUEST/ CLARIFI-CATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HRA-101A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Containment Dome Sample A	
HRA-101B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Containment Dome Sample B	
HRA-102A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Below Missile Shield Sample A	
HRA-102B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Below Missile Shield Sample B	
HRA-103A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Regenerative Heat Exchanger Sample A	
HRA-103B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Regenerative Heat Exchanger Sample B	
HRA-104A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Steam Generator #2 Compartment Sample A	
HRA-104B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Steam Generator #2 Compartment Sample B	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Hydrogen Recombiner & Analyzer (HRA)

Drawing Number: LOU-1564-B-4?0 (SP-01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HRA-105A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Steam Generator #1 Compartment Sample A	
HRA-105B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Steam Generator #1 Compartment Sample B	
HRA-106A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Pressurizer Sample A	
HRA-106B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Above Pressurizer Sample B	
HRA-109A	2	-	A	3/8	GL	SO	C	C	Q* MT LT	- TNT	- 3.1.1 -	- 2 -	Inlet Header A Isolation (Upstream of Penetration)	CTMT Isolation CIAS closes, but has override.
HRA-109B	2	-	A	3/8	GL	SO	C	C	Q* MT LT	- TNT -	- 3.1.1 -	- 2 -	Inlet Header B Isolation (Upstream of Penetration)	CTMT Isolation CIAS closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Hydrogen Recombiner & Analyzer (HRA)

Drawing Number: LOU-1564-B-430 (SP-01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HRA-110A	2	-	A	3/8	GL	SO	C	C	Q* MT LT	- TNT -	- 3.1.1 -	- 2 -	Inlet Header A Isolation (Downstream of Penetration)	CTMT Isolation CIAS closes, but has override.
HRA-110B	2	-	A	3/8	GL	SO	C	C	Q* MT LT	- TNT -	- 3.1.1 -	- 2 -	Inlet Header B Isolation (Downstream of Penetration)	CTMT Isolation CIAS closes, but has override.
HRA-126A	2	-	A	3/8	GL	SO	C	C	Q* MT LT	- TNT -	- 3.1.1 -	- 2 -	Containment Sample Return Isolation	CTMT Isolation CIAS closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Hydrogen Recombiner & Analyzer (HRA)

Drawing Number: LOU-1564-B-430 (SP-01)

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
HRA-126B	2	-	A	3/8	GL	SO	C	C	Q* MT LT	- TNT -	- 3.1.1 -	- 2 -	Containment Sample Return Isolation	CTMT Isolation CIAS closes, but has override.
HRA-128A	2	-	AC	3/8	CK	SA	C	-	CV LT	- -	- -	- -	Containment Sample Return Check	CTMT Isolation
HRA-128B	2	-	AC	3/8	CK	SA	C	-	CV LT	- -	- -	- -	Containment Sample Return Check	CTMT Isolation
HRA-201A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Annulus Sample A Inlet Isolation	
HRA-201B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Annulus Sample B Inlet Isolation	
HRA-202A	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Annulus Sample A Return Isolation	
HRA-202B	2	-	B	3/8	GL	SO	C	C	Q MT	- NST	3.2.8 3.1.38	- -	Annulus Sample B Return Isolation	

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Primary Sampling (PSL)

Drawing Number: LOU-1564-G-162

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
PSL-105	2	SH 2 B-5	A	½	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	RCS Loop 1 Hot Leg Sample	CTMT Isolation CIAS closes, but has override.
PSL-107	2	SH 2 B-6	A	½	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	RCS Loop 1 Hot Leg Sample	CTMT Isolation CIAS closes, but has override.
PSL-203	2	SH 2 B-5	A	½	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	Pressurizer Surge Line Sample	CTMT Isolation CIAS closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Primary Sampling (PSL)

Drawing Number: LOU-1564-G-162

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
PSL-204	2	SH 2 B-6	A	½	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	Pressurizer Surge Line Sample	CTMT Isolation CIAS closes, but has override.
PSL-303	2	SH 2 A-5	A	½	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	Pressurizer Steam Sample	CTMT Isolation CIAS closes, but has override.
PSL-304	2	SH 2 A-6	A	½	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	Pressurizer Steam Sample	CTMT Isolation CIAS closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Secondary Sampling (SSL)

Drawing Number: LOU-1564-G-162

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SSL-8004A	2	SH 2 E-1	B	½	GA	AO	O	C	Q* MT	- -	- 3.1.56	- 10	Steam Generator No. 1 Blowdown Sample Inside Containment Isolation (Previously PSL-404A)	CIAS Closes, but has override.
SSL-8004B	2	SH 2 E-4	B	½	GA	AO	O	C	Q* MT	- -	- 3.1.56	- 10	Steam Generator No. 2 Blowdown Sample Inside Containment Isolation (Previously PSL-404B)	CIAS Closes, but has override.
SSL-8006A	2	SH 2 F-1	B	½	GA	AO	O	C	Q* MT	- -	- 3.1.56	- 10	Steam Generator No. 1 Blowdown Sample Outside Containment Isolation (Previously PSL-406A)	CIAS Closes, but has override.
SSL-8006B	2	SH 2 F-4	B	½	GA	AO	O	C	Q* MT	- -	- 3.1.56	- 10	Steam Generator No. 2 Blowdown Sample Outside Containment Isolation (Previously PSL-406B)	CIAS Closes, but has override.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Secondary Sampling (SSL)

Drawing Number: LOU-1564-G-151

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
SSL-301A	2	SH 1 D-5	B	1	GL	AO	O	C	Q* MT	- -	- 3.1.56	- 5	Main Steam Sample	MSIS Closes.
SSL-301B	2	SH 1 I-5	B	1	GL	AO	O	C	Q* MT	- -	- 3.1.56	- 5	Main Steam Sample	MSIS Closes.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Blowdown (BD)

Drawing Number: LOU-1564-G-164

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
BD-102A	2	SH 1 D-1	B	4	GA	AO	O	C	Q* MT	- -	- -	- 10	Steam Generator No. 1 Secondary Blowdown	CIAS, EFAS Close.
BD-102B	2	SH 1 D-3	B	4	GA	AO	O	C	Q* MT	- -	- -	- 10	Steam Generator No. 2 Secondary Blowdown	CIAS, EFAS Close.
BD-103A	2	SH 1 E-1	B	4	GA	AO	O	C	Q* MT	- -	- -	- 10	Steam Generator No. 1 Secondary Blowdown	CIAS, EFAS Close.
BD-103B	2	SH 1 E-3	B	4	GA	AO	O	C	Q* MT	- -	- -	- 10	Steam Generator No. 2 Secondary Blowdown	CIAS, EFAS Close.

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

VALVES FOR INSERVICE TESTING

System: Fire Protection (FP)

Drawing Number: LOU-1564-G-161

VALVE NUMBER	CC	LOCATION ON DWG	SECT XI VLV CAT	SIZE IN INCH	VALVE TYPE	ACT TYPE	NORM POSN	FAIL POSN	TEST REQMT	TEST ALTERNATES	RELIEF REQUEST/ CLARIFICATIONS	STROKE TIME LIMIT (SEC.)	FUNCTION	REMARKS
FP-601A	2	SH 1 E-3	A	3	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	Fire Protection Water Supply to Containment	CTMT Isolation
FP-601B	2	SH 1 E-6	A	3	GL	AO	O	C	Q* MT LT	- - -	- - -	- 10 -	Fire Protection Water Supply to Containment	CTMT Isolation
FP-602A	2	SH 1 E-3	AC	3	CK	SA	O	-	CV LT	RR -	3.1.35 -	- -	Fire Protection Water Supply to Containment	CTMT Isolation
FP-602B	2	SH 1 E-6	AC	3	CK	SA	O	-	CV LT	RR -	3.1.35 -	- -	Fire Protection Water Supply to Containment	CTMT Isolation

CC = CODE CLASS
ACT TYPE = ACTUATOR TYPE
NORM POSN = NORMAL POSITION
FAIL POSN = FAILURE POSITION
TEST REQMT = TEST REQUIREMENT

3.1 Requests for Relief from ASME Boiler and Pressure Vessel Code Section XI Valve Testing Requirements

3.1.1 Test Requirement

IWV-3413(b) requires that the stroke time of all power-operated valves shall be measured to the nearest second for stroke times of 10 seconds or less. IWV-3417 requires that on any one test of power-operated valves, an increase in stroke time of 50% or more from the previous test for valves with stroke times of 10 seconds or less, the test frequency shall be increased to once each month until corrective action is taken.

Basis for Relief

These solenoid-actuated valves have extremely short stroke times. Accurate measurement of these stroke times is not practical. In addition, the stroke times may vary from one test to another due to temperature and/or pressure variations.

Alternate Testing

These valves will be full-stroke tested. The stroke times will be measured to the nearest second and compared to the stroke time limit. Acceptance of the test will be based only on the stroke time limit and not on the "50%" criteria in IWV-3417.

3.1.2 Test Requirement

Exercise the valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal operation could cause a loss of system function. The failure of these valves in a nonconservative position during a cycling test would cause the loss of the RCP seal water cooling function. The design of the valve will not facilitate a partial-stroke test.

Alternate Testing

The valves will be full-stroke tested for operability at each cold shutdown.

3.1.3 Test Requirement

IWV-3417(b) and IWV-3523 state that when corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before startup. A retest showing acceptable operation shall be run following any required corrective action before the valve is returned to service.

Basis for Relief

The plant Technical Specifications provide the requirements and plant conditions necessary for plant startup, i.e., mode changes.

Alternate Testing

The test requirement will be satisfied before the valve is required for plant operability as defined in the plant Technical Specifications.

3.1.4 Test Requirement

IWV-3417(a) states that if an increase in stroke time of 25% or more from the previous test for valves with stroke times greater than ten seconds or 50% or more for valves with stroke times less than or equal to ten seconds is observed, test frequency shall be increased to once each month until corrective action is taken.

Basis for Relief

Valves that are normally tested during cold shutdown cannot be tested once each month. Stroking these valves during power operation may place the plant in an unsafe condition.

Alternate Testing

The test frequency shall be increased to once each cold shutdown, not to exceed once each month.

3.1.5 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

Operability testing (full-stroke) of these normally closed valves during power operation would cause concentrated boric acid to be made available to the suction of the charging pumps. The charging pumps would inject the boric acid into the Reactor Coolant System causing overboration and possibly causing a plant shutdown. The design of the valves will not facilitate a partial-stroke test.

Alternate Testing

This valve will be full-stroke tested for operability at each cold shutdown.

3.1.6 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Operability Testing (full or partial stroking) of this normally closed check valve per IWV-3520 requires flow verification utilizing the flow of concentrated boric acid to the suction of the Charging Pumps. During power operation, this flow verification would cause the injection of the boric acid into the Reactor Coolant System causing overboration and possibly causing a plant shutdown.

Alternate Testing

This valve will be full-stroke tested for operability at each cold shutdown with two Charging Pumps operating.

3.1.7 Test Requirement

Exercise the valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal operation could jeopardize the charging function of the CVCS. Failure in a nonconservative (closed) position would eliminate the VCT as a source of RCS charging and possibly cause a plant shutdown. Pressurizer level control would be lost. In addition, the Regenerative Heat Exchanger would be subjected to unwanted thermal shock. The design of the valves will not facilitate a partial-stroke test.

Alternate Testing

The valves will be full-stroke tested for operability at each cold shutdown.

3.1.8 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The auxiliary pressurizer spray water temperature is approximately 140 degrees F. cooler than normal pressurizer spray. Operability testing (full stroke) of these normally closed valves during power operation would result in initiation of auxiliary pressurizer spray which would induce unnecessary thermal shock in the pressurizer and associated piping and nozzles. In addition, the introduction of this cooler water into the pressurizer will result in undesired primary pressure transients. The design of the valves will not facilitate a partial-stroke test.

Alternate Testing

The valves will be full-stroke tested for operability either during cold shutdown or during normal plant cooldown approaching cold shutdown.

3.1.9 Test Requirement

IWV-3413(b) requires that the stroke time of all power-operated valves shall be measured to the nearest second for stroke times of 10 seconds or less. IWV-3417 requires that on any one test of power-operated valves, an increase in stroke time of 50% or more from the previous test for valves with stroke times of 10 seconds or less, the test frequency shall be increased to once each month until corrective action is taken.

Basis for Relief

These solenoid-actuated valves have extremely short stroke times. Accurate measurement of these stroke times is not practical. In addition, the stroke times may vary from one test to another due to temperature and/or pressure variations.

Alternate Testing

These valves will be full-stroke exercised either during cold shutdown or during normal plant cooldown approaching cold shutdown. The stroke times will be measured to the nearest second and compared to the stroke time limit. Acceptance of the test will be based only on the stroke time limit and not on the "50%" criteria in IWV-3417.

3.1.10 <u>Test Requirement</u>

Exercise check valves for operability at least once every three (3) months.

<u>Basis for Relief</u>

Operability testing (full or partial stroking) of these normally closed check valves per IWV-3520 requires flow verification utilizing the auxiliary pressurizer spray flow path. The auxiliary pressurizer spray water temperature is approximately 140 degrees F cooler that normal pressurizer spray. Operability testing of these check valves during power operation would induce unnecessary thermal shock in the pressurizer and associated piping and nozzles. In addition, the introduction of this cooler water into the pressurizer will result in undesired primary pressure transients.

<u>Alternate Testing</u>

The valves will be full-stroke tested for operability either during cold shutdown or during normal plant cooldown approaching cold shutdown with at least two Charging Pumps operating.

3.1.11 This relief request was deleted at NRC meeting, October 24, 1984.

3.1.12 <u>Test Requirement</u>

Exercise check valves for operability at least once every three (3) months.

<u>Basis for Relief</u>

The operability testing (full-stroke) of these normally closed check valves per IWV-3520 requires flow verification into the RCS. These valves cannot be full-stroke exercised during power operation because the pumps cannot overcome RCS pressure. During cold shutdown, these valves cannot be full-stroke exercised because design flow cannot be verified through the valves unless all LOCA test conditions can be met (i.e., suction from the RWSP through the pumps to the RCS with the RCS at atmospheric pressure).

<u>Alternate Testing</u>

These valves will be partial-stroke exercised quarterly (coincident with pump testing) and full-stroke exercised during each refueling outage.

3.1.13 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full-stroke) of these normally closed check valves per IWV-3520 requires flow verification under LPSI into the RCS. These valves cannot be full-stroke exercised during power operation because the LPSI pumps cannot overcome RCS pressure. Partial-stroking these valves, using flow into containment, then back to the RWSP through a drain valve, would defeat the safety function of RCS Pressure Isolation Valves. During cold shutdown, these valves cannot be full-stroke exercised because design flow cannot be verified through the valves unless all LOCA test conditions can be met (i.e., suction from the RWSP through both pumps to the RCS with the RCS at atmospheric pressure).

Alternate Testing

These valves will be partial-stroke tested during each cold shutdown and full-stroked using LPSI design flow during each refueling outage.

3.1.14 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full-stroke) of these normally-closed check valves per IWV-3520 requires flow verification into the RCS. These valves cannot be full-stroke exercised during power operation because the HPSI pumps cannot overcome RCS pressure. During power operation, partial stroking these valves, using HPSI flow into containment then back to the RWSP through a drain valve, would defeat the safety function of RCS Pressure Isolation Valves (PIV's). During cold shutdown, these valves cannot be full-stroke exercised because design flow cannot be verified through the valves unless all LOCA test conditions can be met (i.e., suction from the RWSP through two HPSI pumps to the RCS with the RCS at atmospheric pressure). Also, during cold shutdown, these valves cannot be partial-stroke exercised because such testing would induce unwanted thermal shock to the safety injection nozzles and piping. Partial-stroke exercising at cold shutdowns also increases the possibility of overpressurizing the RCS at low temperature.

Alternate Testing

These valves will be full-stroke exercised during each refueling outage.

3.1.15 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing of these valves during normal operation would cause a loss of system function. Stroking the valves would cause a decrease in safety injection tank (SIT) nitrogen pressure. The failure of one of these valves in a nonconservative (open) position would cause the associated SIT to become inoperable. Valve design does not facilitate partial-stroke testing.

Alternate Testing

These valves will be full-stroke tested for operability during each cold shutdown.

3.1.16 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing of these normally closed check valves per IWV-3520 during normal operation or cold shutdown is not practical. During normal operation, these valves cannot be full-stroke exercised because the safety injection tanks (SIT's) cannot overcome RCS pressure. The valves cannot be partial-stroke exercised during normal operation without making the SIT's inoperable, thus placing the plant in an unsafe condition. During cold shutdown, these valves cannot be fully or partially stroked without overpressurizing the RCS. During refueling outages, these valves cannot be full-stroke exercised at SIT operating pressure without possibly causing internal core damage due to excessive flow rates.

Alternate Testing

The SIT's have four discharge check valves. Three are spring-loaded and will be treated as one group. The other one is non-spring-loaded and will be treated as another group. One check valve from each group will be disassembled and manually exercised to its full-open position during each refueling outage on a staggered sampling basis. The two groups of check valves are as follows:

Group 1 (Spring-Loaded)	Group 2 (Non-Spring-Loaded)
SI-329A	SI-330A
SI-329B	
SI-330B	

3.1.17 This relief request was deleted at NRC meeting, October 24, 1984. Valves SI-331 A & B and SI-332 A & B were also deleted from this Test Plan.

3.1.18 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) of these normally closed check valves per IWV-3520 during normal operation is not practical. During normal operation, these valves cannot be full-stroke exercised because neither the LPSI pumps, HPSI pumps nor safety injection tanks (SIT's) can overcome RCS pressure. Partial-stroking these valves during power operation using charging flow would induce unwanted thermal shock to safety injection nozzles and piping. During cold shutdown, these valves cannot be full-stroke tested unless all LOCA test conditions can be met. Fulfilling LOCA test conditions would require removing the Reactor Pressure Vessel (RPV) head. However, these valves are partial-stroke tested during each cold shutdown using normal shutdown cooling flow.

Alternate Testing

One check valve from the following group will be disassembled and manually exercised to its full-open position during each refueling outage on a staggered sampling basis:

SI-335A
SI-335B
SI-336A
SI-336B

3.1.19 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) of these valves during power operation cannot be accomplished because the valves are interlocked with an RCS pressure signal which prohibits the valves from opening at an RCS pressure greater than 400 psig.

Alternate Testing

The valves will be full-stroke tested for operability at each cold shutdown.

3.1.20 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) of these normally closed check valves per IWV-3520 during power operation is not practical. Exercising these valves requires flow verification into the RCS. During power operation the HPSI pumps cannot overcome RCS pressure and therefore cannot deliver any flow. Partial-stroking these valves during power operation using charging flow would induce unwanted thermal shock to Safety Injection nozzles and piping. During cold shutdown, these valves cannot be full-stroke exercised because design flow cannot be verified through the valves unless all LOCA test conditions can be met (i.e., suction from the RWSP through two pumps to the RCS with the RCS at atmospheric pressure). Also, during cold shutdown, these valves cannot be partial-stroke exercised because such testing would induce unwanted thermal shock to the safety injection nozzles and piping. Partial-stroke exercising at cold shutdowns also increases the possibility of overpressurizing the RCS at low temperature.

Alternate Testing

These valves will be full-stroke exercised during each refueling outage.

3.1.21 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full-stroke) of these normally closed check valves per IWV-3520 during power operation is not practical. Full stroke exercising requires flow verification from the SIS Sump through a HPSI pump into the RCS with the RCS at atmospheric conditions. During power operation and cold shutdowns, these test conditions cannot be met. During any mode of operation (including power operation, cold shutdown and refueling outages), the pumping of unknown-quality water into the RCS defeats the purpose of primary water chemistry controls and could cause violation of plant Technical Specifications. The only possible means of providing flow through these valves is through the check valve test connection. However, flow through the 3/4 inch test line only verifies a partial-stroke test. The small amount of water that could be pumped through the test connection would not prove operability nor increase plant safety.

Alternate Testing

One of these two check valves will be disassembled and manually exercised by hand to its full-open position at each refueling outage on a staggered sampling basis.

3.1.22 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The only positive means of exercising (full-stroke) this normally closed check valve is by directing Emergency Feedwater (EFW) flow into the Steam Generators. The initiation of EFW during power operation would result in unwanted thermal shock to the secondary portions of the Steam Generators, including feedwater nozzles and associated piping up to and including the EFW-to-FW connection. An introduction of cold water into the secondary system will also cause power transients. Partial-stroke testing at power could be performed by providing EFW flow through the valve then through the drain/recirculation line back to the Condensate Storage Pool. However, such testing would cause the diversion of EFW flow from the intended flow path to a non-safety, non-seismic line assuming that EFW flow were then required due to a plant condition change.

Alternate Testing

After leaving cold shutdown and prior to entering Mode 2 (Startup), EFW flow will be directed through the valve at the design flow rate of the EFW system. Verification of this flow through the valve will provide assurance that the valve has opened sufficiently to perform its function (full-stroke).

3.1.23 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The only positive means of exercising (full or partial stroke) this normally closed check valve is by directing Emergency Feedwater (EFW) flow into the Steam Generators. The initiation of EFW during power operation would result in unwanted thermal shock to the secondary portions of the Steam Generators, including feedwater nozzles and associated piping up to and including the EFW-to-FW connection. An introduction of cold water into the secondary system will also cause power transients. The operation of the Turbine-driven EFW pump during cold shutdowns is not possible because steam for the turbine is not available. Partial-stroke testing at power could be performed by providing EFW flow through the valve then through the drain/recirculation line back to the Condensate Storage Pool. However, such testing would cause the diversion of EFW flow from the intended flow path to a non-safety, non-seismic line assuming that EFW flow were then required due to a plant condition change.

Alternate Testing

EFW flow will be directed through the valve at the design flow rate of the EFW system during a mode of operation after leaving cold shutdown and prior to entering Mode 2 (Startup) in which steam is available. Verification of this flow through the valve will provide assurance that the valve has opened sufficiently to perform its function (full-stroke).

3.1.24 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full-stroke) of these normally closed check valves per IWV-3520 requires flow verification into the RCS. These valves cannot be full-stroke exercised during power operation because the pumps cannot overcome RCS pressure. During cold shutdown, these valves cannot be full-stroke exercised because design flow cannot be verified through the valves unless all LOCA test conditions can be met (i.e., suction from the RWSP through the pumps to the RCS with the RCS at atmospheric pressure).

Alternate Testing

These valves will be partial-stroke exercised quarterly and at cold shutdown by operating the LPSI Pumps in the Shutdown Cooling Warm-up Loop and full-stroke exercised during each refueling outage.

3.1.25 This relief request was deleted during NRC conference call, November 20, 1984.

3.1.26 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The safety function of these valves is to prevent the loss of EFW by closing. The operability testing (full stroke) of these valves during normal operation is not practical. Full-stroke exercising requires an interruption of feedwater to the Steam Generators which would result in a plant shutdown.

Alternate Testing

These valves will be partial-stroke tested (10% stroke) for operability quarterly and full-stroke tested during each cold shutdown.

3.1.27 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) of these normally closed valves during power operation is not practical. Stroking the valves would induce unwanted secondary and primary transients. Failure of the valves in a nonconservative (open) position would force a plant shutdown.

Alternate Testing

These valves will be full-stroke tested for operability during each cold shutdown.

3.1.28 This relief request was deleted at NRC meeting, October 24, 1984.

3.1.29 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full-stroke) of these normally open valves during power operation is not practical. Full stroking the valve will cause a plant shutdown.

Alternate Testing

These valves will be partial-stroke tested (10% stroke) for operability quarterly and full-stroke tested during each cold shutdown.

3.1.30 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) of these normally closed check valves per IWV-3520 during power operation or cold shutdown is not practical. Stroking these valves with flow would require the spraying of containment resulting in unnecessary equipment damage. Valve disassembly (manual full-stroke) during power operation is not practical because the valves are inside containment. During cold shutdown, valve disassembly would require draining a portion of the system which is beyond the scope of cold shutdown testing. An air test for flow verification would require either draining a portion of the system or risking the possibility of wetting equipment inside containment. Therefore, the air test is impractical. In general, performing any test during power operation which lowers the water level in the spray header below +149.5 feet MSL elevation places the plant under a Limiting Condition for Operation (LCO) and may result in a plant shutdown.

Alternate Testing

One of these two check valves will be disassembled and manually exercised by hand to its full-open position at each refueling outage on a staggered sampling basis.

3.1.31 <u>Test Requirement</u>

Exercise valves for operability at least once every three (3) months.

<u>Basis for Relief</u>

The operability testing (full stroke) of these valves during normal operation would jeopardize the RCP cooling function. Cycling of the valves would interrupt the CCW supply to the reactor coolant pumps. Also, the failure of the valves in a nonconservative position during the cycling test would result in a loss of the system function. The design of the valves does not facilitate a partial-stroke test.

<u>Alternate Testing</u>

The valves will be full-stroke tested for operability during each cold shutdown.

3.1.32 <u>Test Requirement</u>

Exercise valves for operability at least once every three (3) months.

<u>Basis for Relief</u>

The operability testing (full stroke) of this valve during normal operation would cause an interruption of instrument air supply to instruments and equipment within containment. Also, a failure in a nonconservative position during a cycling test would cause a complete loss of instrument air supply to the containment. The loss of Instrument Air to Containment would cause the Letdown Isolation Valves, CVC-101 and CVC-103, to fail closed. These CVC valves are not stroked closed during power operation, as explained in relief request 3.1.7. Therefore, this Instrument Air Isolation valve cannot be stroked closed at power. The design of the valve will not facilitate a partial-stroke test.

<u>Alternate Testing</u>

The valves will be full-stroke tested for operability during each cold shutdown.

3.1.33 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Due to plant design, it is not practical to verify by any positive means, neither directly nor indirectly, the operability of these normally open check valves per the requirements of IWV-3522(a).

Alternate Testing

Valve closure will be verified during the performance of the leak-rate tests at each refueling outage.

3.1.34 Test Requirement

Exercise the valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) during normal operation or cold shutdown of these valves provides no assurance of an increase in safety. The valves are containment isolation valves which are normally closed and passive.

Alternate Testing

The valves' closed position will be verified during the performance of the leak-rate tests at each refueling outage.

3.1.35 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroke) during normal operation or cold shutdown of these valves provides no assurance of an increase in safety. The valves are containment isolation valves which are normally closed and passive.

Alternate Testing

The valves' closed position will be verified during the performance of the leak-rate tests at each refueling outage.

3.1.36 This relief request was deleted at NRC meeting, October 24, 1984. Valves NG-161 A & B and NG-162 A & B were also deleted from this Test Plan.

3.1.37 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal operation could cause a loss of system function. A failure while cycling in a nonconservative (closed) position would cause a loss of the containment atmosphere radiation monitoring system. The valve design does not facilitate a partial-stroke test.

Alternate Testing

The valves will be full-stroke tested for operability at each cold shutdown.

3.1.38 Test Requirement

The stroke time of all power-operated valves shall be measured.

Basis for Relief

No physical means exists to measure the stroke times of these solenoid-operated valves. These valves do not have position indicators. In addition, the stems are not visible from the exterior of the valves. Also, there is no critical limit on the stroke time. Valve design does not facilitate partial-stroke testing.

Alternate Testing

Verification of normal sample flow through the appropriate Hydrogen Analyzer demonstrates that the valves move from a closed to an open position.

3.1.39 Test Requirement

IWV-3522(b) requires that for normally-closed check valves that are stroked without flow, a mechanical exerciser shall be used and the torque values must be within certain limits.

Basis for Relief

Due to valve design, a mechanical exerciser cannot be used.

Alternate Testing

These valves will be manually exercised by hand to their full-open position quarterly.

3.1.40 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Operability testing (full stroke) of these normally-closed check valves per IWV-3520 requires flow verification utilizing the emergency boration flow path to the suction of the Charging Pumps with at least two Charging Pumps in operation. During power operation, this flow verification would cause the injection of concentrated boric acid into the Reactor Coolant System causing overboration and possibly causing a plant shutdown. Partial-stroke testing would require flow verification from the BAM Tanks to the RWSP. Putting highly-concentrated boric acid into lines that are not heat traced could result in clogging of the lines thereby causing a loss of one of the three emergency boration flow paths. Although the line (3CH3-27A/B) to the RWSP could be flushed with Primary Make-up Water, it would be very unwise to routinely do so. The plant would be placed in a position of having to rely on a non-safety system (PMU) to protect a safety system (RWSP suction). In addition, line 3CH3-26A/B could not be flushed without injecting a slug of highly-borated water and some quantity of unborated PMU water into the RCS via at least one Charging Pump, thereby, causing Primary reactivity changes.

Alternate Testing

Full-stroke operability testing of these valves will be accomplished during each cold shutdown by providing flow individually from each Boric Acid Pump to the suction of the Charging Pumps with at least two charging Pumps in operation.

3.1.41 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full or partial stroking) of this check valve during normal operation requires that all charging flow be diverted from the normal flow path through this valve. Failure of this valve in a nonconservative (closed) position causes charging to be secured, thereby putting the plant in an undesirable and potentially unsafe condition. In addition, the securing of charging flow will cause a rapid temperature increase in the Regenerative and Letdown heat exchangers and associated piping, possibly inducing thermal shock. Also, securing of charging flow with charging pump(s) running will cause the lifting of the safety valves on the discharge of the charging pump(s), thereby increasing the possibility of gas binding the pump(s).

Alternate Testing

This check valve will be full-stroke tested for operability at each cold shutdown with at least two Charging Pumps operating.

3.1.42 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

Operability testing (full-stroke) of these normally-closed valves during power operation would cause a loss of reactor coolant which would produce unwanted pressure and level changes in the Reactor Coolant System. These pilot-operated solenoid valves, which are installed with RCS pressure under the pilot disc, have historically have a "burping" problem at other nuclear plants. With the RCS pressurized, opening either valve produces a pressure surge in the line which causes the other valve to pop open, thereby opening a line from the RCS to the Quench Tank. The valves can generally be closed after flow stabilizes in the vent line.

Operability testing (full-stroke) during cold shutdown with the RCS pressurized produces the same effects as testing at power except that the amount of water lost would be less. Plant Technical Specification 4.4.10, which is based on NUREG-0737 and Generic Letter No. 83-37, requires that these valves be stroked and flow be verified at least once per 18 months during cold shutdown or refueling. Testing these valves more frequently, such as during each cold shutdown with the RCS pressurized, produces some undesirable effects. For example, the water and gases vented from the RCS to the Quench Tank are contaminated with radioactive material. Routinely venting the RCS would cause an increase in radiation and contamination levels inside containment, particularly if the Quench Tank rupture disc pressure is exceeded. In addition, due to valve design, routinely opening these valves greatly increases the probability of them sticking open which will overfill the Quench Tank and dump contaminated water on the containment floor. However, these valves can be safely exercised during cold shutdown if the RCS is depressurized. Valve design does not facilitate partial-stroke testing.

3.1.42 Alternate Testing

The valves will be full-stroke tested for operability during each cold shutdown if the Reactor Coolant System is depressurized below 200 psia. Otherwise, these valves will be full stroked at cold shutdown or refueling at least once per 18 months per plant Technical Specification 4.4.10.

3.1.43 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these valves during normal operation could cause a loss of system function. The failure of one of these valves in a nonconservative (closed) position during a cycling test would cause the loss of one of the Containment coolers. Per Plant Technical Specifications, all Containment coolers must be operable. The design of the valves will not facilitate a partial-stroke test.

Alternate Testing

The valves will be full-stroke tested for operability at each cold shutdown.

3.1.44 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full-stroke) of these normally-closed check valves per IWV-3520 during power operation is not practical. Full-stroke exercising requires verification of full-design steam flow from the Main Steam line to the EFW Pump A/B Turbine. Full flow of steam through these lines and valves cannot be obtained unless the EFW Pump A/B is delivering full design flow of water to the Steam Generators. During power operation, the EFW Pump A/B can be operated only in the minimum recirculation mode.

Alternate Testing

During power operation, steam for the EFW Pump A/B quarterly test will be supplied through one of these valves. Then the other valve will be used to supply steam. Acceptable pump tests verify that each check valve partially strokes. These check valves will be full-stroke tested for operability while the EFW Pump A/B provides design flow to the Steam Generators after leaving cold shutdown and prior to entering Mode 2 (Startup).

3.1.45 This relief request was deleted during NRC conference call, November 20, 1984.

3.1.46 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The operability testing (full stroke) of these normally-open valves during power operation could cause a loss of system function. The design of the Feedwater System is such that in the event of a Reactor Trip Override (RTO) the Main Feedwater Control valves close and these Main Feedwater Control Bypass valves go to a position that allows a flow equal to 5% of normal Main Feedwater. This reduced flow rate causes a gradual cool-down of the primary systems. Failure of one of these Bypass valves in a nonconservative (closed) position coincident with an RTO would require initiation of Emergency Feedwater flow to the Steam Generators which is undesirable because of thermal shock and power transients.

Partial stroking of these valves at power also possibly produces undesired power transients.

Alternate Testing

These valves will be full-stroke tested during each cold shutdown.

3.1.47 Test Requirement

IWV-3522(b) requires that for normally-closed check valves that are stroked without flow, a mechanical exerciser shall be used and the torque values must be within certain limits.

Basis for Relief

Due to valve design, a mechanical exerciser cannot be used.

Alternate Testing

These valves will be manually exercised by hand to their full-open position during each cold shutdown.

3.1.48 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

The CAR system is designed for post-accident containment-dilution and, as such, is not designed for operation while the unit is at power. (This system is a back-up system to the Hydrogen Recombiners.) In addition, operability testing (full or partial stroke) of these normally-closed check valves per IWV-3520 requires flow verification utilizing the CAR make-up fans with the manual butterfly valves open. Since the isolation valves in line with these check valves do not receive a CIAS, there exists a possible unmonitored radiation release path should a Containment Isolation occur while the testing was in progress. Manual stroking of the check valves at power could place the plant in an unsafe condition. Failure of one of these check valves in a nonconservative (open) position would negate the double Containment Isolation valve principle.

Alternate Testing

These check valves will be manually full-stroked for operability during each cold shutdown.

3.1.49 Test Requirement

Exercise check valves for operability at least once every three (3) months.

Basis for Relief

Operability testing (full or partial stroke) of these normally-closed check valves per IWV-3520 requires flow verification from the Annulus into the Containment. The Annulus would have to be pressurized to accomplish any flow test. The Annulus is required by plant Technical Specifications to be maintained at a vacuum. Therefore, flow testing requires that the plant routinely exceed Technical Specification limits. Manual stroking of the check valves at power could place the plant in an unsafe condition. Failure of one of these check valves in a nonconservative (open) position would negate the double Containment Isolation valve principle.

Alternate Testing

These check valves will be manually full-stroked for operability during each cold shutdown.

3.1.50 This relief request was deleted.

3.1.51 Test Requirement

Exercise valves for operability at least once every three (3) months.

Basis for Relief

The safety function of these valves is to prevent the loss of EFW by closing. The operability testing (full stroke) of these valves during normal operation is not practical. Full-stroke exercising requires an interruption of feedwater to the Steam Generators which would result in a plant shutdown.

Alternate Testing

These valves will be partial-stroke tested for operability during the course of normal plant operations, although the frequency cannot be specified as stated in IWV-3414. They will be full-stroked tested during each cold shutdown.

3.1.52 Test Requirement

The stroke time of all power-operated valves shall be measured.

Basis for Relief

No physical means exists to measure the stroke times of these soleniod-operated valves. These valves do not have position indicators. In addition, the stems are not visible from the exterior of the valves. Also, there is no critical limit on the stroke time. Valve design does not facilitate partial-stroke testing.

Alternate Testing

Verification of flow from the appropriate Nitrogen Accumulator demonstrates that the valve moves from a closed to an open position.

3.1.53 Test Requirement

Exercise check valves to the position required to fulfill their safety function at lease once every three (3) months.

Basis for Relief

One of the Safety functions of these check valves, MS-402A and MS-402B, is to close in the event of a Main Steam Line Break (MSLB) with valves MS-401A and MS-401B open. If a MSLB occurs, both MS-401A and MS-401B go fully open and remain there. The check valve closest to the broken line must hold Main Steam pressure from the unaffected Steam Generator and prevent the diversion of Main Steam flow away from the EFW Pump A/B Turbine. Testing of these check valves to verify that they are closed and capable of holding pressure requires that the downstream side of the checks be pressurized and the upstream side be vented to atmosphere with MS-401A and MS-401B open. This cannot be performed during normal power operation since the upstream side is pressurized with Main Steam.

Alternate Testing

These check valves will be pressure tested with air to verify they are closed and capable of holding pressure with the upstream side vented to atmosphere. This testing will be performed during each cold shutdown.

3.1.54 Test Requirement

The stroke time of all power-operated valves shall be measured.

Basis for Relief

The safety function of these pressure-regulating valves is to control downstream pressure rather than to stroke fully. Consequently, there is no critical limit on the stroke time. Also, no physical means exists to measure the stroke time. In addition, the stems are not visible from the exterior of the valves.

Alternate Testing

Verification of flow from the appropriate Nitrogen Accumulator demonstrates that the valve moves from a closed to an open position.

3.1.55 Test Requirement

IWV-3413(b) states "The stroke time of all power-operated valves shall be measured to the nearest second, for stroke times of 10 seconds or less, or 10% of the specified limiting stroke time for full-stroke times longer than 10 seconds whenever such a valve is full stroke tested.

Basis for Relief

Due to the various stroke time limits greater than 10 seconds which are included in the Test Plan, it is confusing to measure valves to the nearest 10% of the specified limit.

Alternate Testing

All valves which are full-stroke tested will be measured to the nearest second.

3.1.56 Test Requirement

IWV-3417 requires that for power operated valves, if an increase in stroke time of 25% or more from the previous test for valves with full-stroke times greater than 10 sec. or 50% or more for valves with full stroke times less than or equal to 10 sec. is observed, test frequency shall be increased to once each month until corrective action is taken.

Basis for Relief

Valves that routinely operate with relatively short stroke times ($\leq$ 2 sec) may vary by one second due to human reaction time differences.

Alternate Testing

For power operated valves, if an increase in stroke time of 25% or more from the previous test for valves with full-stroke times greater than 10 sec. or 50% or more for valves with full stroke times greater than 2 sec. and less than or equal to 10 sec. is observed, test frequency shall be increased to once each month until corrective action is taken.

3.2 Clarification of Valve Testing Methods

3.2.1 Deleted.

3.2.2 Code Requirement

IWV-3522(b) requires that confirmation that the disk moves away from the seat shall be by visual observation, by electrical signal, by appropriate pressure indications, or by other positive means.

Test Method

Due to plant design, the operability of this normally closed check valve cannot be determined by any of the specific methods allowed in IWV-3522(b). The only positive means of demonstrating operability is by verification of flow such that the valve moves to perform its function. This valve will be tested quarterly coincident with the charging pump test provided the pump is operable. A successful pump test which demonstrates that the pump is operable also demonstrates that the discharge check valve is operable.

3.2.3 Code Requirement

IWV-3522(b) requires that confirmation that the disk moves away from the seat shall be by visual observation, by electrical signal, by pressure indications or by other positive means.

Test Method

Due to plant design, the operability of these normally closed check valves cannot be determined by any of the specific methods allowed in IWV-3522(b). The only positive means of demonstrating operability is by verification of flow such that the valves move to perform their function. During power operation, the pumps will be operated to provide design flow in the recirculation path back to the RWSP, thereby full stroking these valves.

Attachment 6.7 (1 of 3)

3.2.4 This clarification deleted. Replaced with Relief Request 3.1.24.

3.2.5 Code Requirement

IWV-3421 requires that Category A valves shall be leak-tested, except that valves which function in the course of plant operation in a manner that demonstrates functionally adequate seat tightness need not be leak-tested.

Testing Method

The seat tightness of these valves is demonstrated to be functionally adequate during normal plant operation. The safety injection tanks (SIT's) are monitored for pressure per Technical Specification 4.5.1.1. Ability to maintain pressure in the SIT's indicates adequate seat tightness of these valves.

3.2.6 This clarification deleted. Replaced with Relief Request 3.1.44.

3.2.7 Code Requirement

Exercise valves for operability at least once every three (3) months.

Test Method

Operability testing of these valves will be accomplished quarterly. However, prior to performing the tests, the operators will verify that at least two CCW pumps are operating and that valve alignments provide CCW flow through at least one dry cooling tower and through line 3CC18-11A/B. This line provides CCW flow to the Fuel Pool Heat Exchanger, Letdown Heat Exchanger, CEDM Cooling Coils and all Reactor Coolant Pump seal coolers.

3.2.8 Code Requirement

Exercise valves for operability at least once every three (3) months.

Test Method

Operability testing of these valves will be accomplished quarterly. However, these valves do not have position indicators to provide direct evidence of stem movement. Instead, the disk movement shall be demonstrated by verifying normal sample flow through the appropriate Hydrogen Analyzer. Establishment of normal sample flow demonstrates that the valves move to perform their function. The reclosure of each valve will be demonstrated by verification of the "low flow" alarm on the appropriate Hydrogen Analyzer.