

POINT BEACH NUCLEAR PLANT

UNIT NO. 2

INSERVICE TEST PLAN

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POINT BEACH NUCLEAR PLANT UNIT 2

INSERVICE TEST PLAN

This inservice test plan was prepared in response to U. S. Nuclear Regulatory Commission requirements contained in Part 50.55a of Title 10, Code of Federal Regulations (10 CFR 50.55a).

The tests and inspections required by this test plan are in accordance with the American Society of Mechanical Engineers' (ASME) Boiler and Pressure Vessel Code, Section XI, 1974 edition with addenda through Summer, 1975.

This inservice test plan is applicable to Unit 2 of the Point Beach Nuclear Plant, Two Creeks, Wisconsin. Unit 2 was placed into commercial operation on October 1, 1972. The plan is applicable to pump and valve periodic testing for the 20-month time period from June 1, 1979, through January 31, 1981. For inservice inspection of plant pressure boundaries, the plan is applicable for the 40-month period June 1, 1979, through September 30, 1982.

The inservice test plan is divided into three sections. Section 1 details the pump and valve periodic tests; section 2 details the inservice inspection tests, and section 3 contains color-coded piping diagrams.

10 CFR 50.55a provides for requests for relief by licensees from ASME Boiler Code requirements which are deemed impractical. The requirements considered to be impractical at Point Beach Nuclear Plant are identified in the individual sections of this test plan. It is not possible to determine in advance all the tests and inspections which are impractical to perform. Therefore it is anticipated that as additional tests and inspections are attempted, some may be identified as being impractical.

The pumps, valves, piping, and other equipment covered by this plan are safety-related ASME Class 1, 2 or 3. Not all ASME class equipment is safety-related. The equipment determined to be safety-related for the purpose of this test plan is that equipment identified as being safety related in the Final Facility Description and Safety Analysis Reports for Point Beach Nuclear Plant. Safety related systems and components are those plant features necessary to assure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents which could result in exposures not permitted by the Code of Federal Regulations.

The equipment determined to be ASME Class 1, 2 or 3 is that equipment determined to be ASME Class 1, 2 or 3 in the Operating Point Beach Nuclear Plant Materials, Repairs, and Modifications Quality Assurance Manual, QA Volume 2. The color-coded piping and instrumentation diagrams from QA Volume 2 have been color-coded to indicate the safety-related boundaries and are reproduced in Section 3 of this test plan.

SECTION 1

PUMP AND VALVE PERIODIC TESTS

PUMP AND VALVE TESTING PROGRAMS

Part 1 - Pump Testing

This section lists those nuclear safety related pumps which make up the Point Beach Nuclear Plant Unit 1 inservice pump testing program. The function, code classification, test parameters to be measured, test intervals, additional testing, and specific relief requested from the ASME Section XI requirements are listed for each of the pumps to be tested in accordance with this program. Relief from those ASME Section XI requirements identified herein as impractical is requested.

1. P15A&B, High Head Safety Injection Pumps

Function: High head safety injection

Code Class: ASME Section III, Code Class 2

Test parameters to be measured:

This is a fixed resistance system test

1. Discharge pressure
2. Bearing temperature (measured annually)
3. Test line flow rate
4. Vibration amplitude
5. Fluid temperature

Test Intervals: Monthly during periods when the plant is above cold shutdown conditions.

Relief from impractical ASME Code Section XI requirements:

1. Relief is requested for the requirement for suction pressure and differential pressure measurement. This pump is operated with a constant suction head, the refueling water storage tank (RWST). The RWST level is maintained at essentially 99% in accordance with Section 15.3.3 of the Technical Specifications and there is no practical value in measuring a constant suction pressure.

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Additional Testing: Once a year during refueling a full flow test is conducted while the refueling cavity is being filled. This test allows a head flow curve verification to be made at higher flow rates.

2. P10A&B, Residual Heat Removal Pumps

Function: Low head safety injection

Code Class: ASME Section III, Code Class 2

Test parameters to be measured:

This is a fixed resistance system test

1. Discharge pressure
2. Suction pressure
3. Bearing temperature (measured annually)
4. Vibration amplitude
5. Fluid temperature

Test Intervals: Monthly during periods when the plant is above cold shutdown conditions.

Relief from impractical ASME Code Section XI requirements: None

Additional Testing: There are no additional tests which are considered necessary.

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3. P14A&B, Containment Spray Pumps

Function: Containment depressurization

Code Class: ASME Section III, Code Class 2

Test parameters to be measured:

This is a fixed resistance system test

1. Discharge pressure
2. Bearing temperature (measured annually)
3. Vibration amplitude
4. Fluid temperature

Test Interval: Monthly during periods when the plant is above cold shutdown conditions.

Relief from impractical ASME Code Section XI requirements:

1. Relief is requested for the requirement for suction pressure and differential pressure measurement. This pump is operated at a constant suction head, the refueling water storage tank (RWST). The RWST is maintained at essentially 99% in accordance with Section 15.3.3 of the Technical Specifications and there is no practical value in measuring a constant suction pressure.

Additional Testing: There are no additional tests which are considered necessary.

4. P29, Turbine-Driven Auxiliary Feedwater Pumps

Function: Steam generator auxiliary feedwater

Code Class: ASME Section III, Code Class 3

Test parameters to be measured:

This is a fixed resistance system test

1. Discharge pressure
2. Suction pressure
3. Turbine RPM
4. Bearing temperature (measured annually)
5. Vibration amplitude
6. Fluid Temperature

Test Interval: Monthly during periods when the plant is above cold shutdown conditions.

Relief from impractical ASME Code Section XI requirements: None

Additional Testing: There are no additional tests that are considered necessary.

5. P38A&B, Electrically-Driven Auxiliary Feedwater Pumps

Function: Steam generator auxiliary feedwater

Code Class: ASME Section III, Code Class 3

Test parameters to be measured:

This is a fixed resistance system test

1. Discharge pressure
2. Suction pressure

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3. Bearing temperature (measured annually)
4. Vibration amplitude
5. Fluid temperature

Test Interval: Monthly during periods when the plant is above cold shutdown conditions.

Relief from impractical ASME Code Section XI requirements: None

Additional Testing: There are no additional tests that are considered necessary.

6. P32A, B, C, D, E & F, Service Water Pumps

Function: Provide vital cooling water

Code Class: ASME Section III, Code Class 3

Test parameters to be measured:

1. Discharge pressure
2. Circulating water forebay level
3. Vibration amplitude
4. Fluid temperature

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Test Intervals: At least monthly. The two running pumps are normally tested every two weeks. Then the pumps are shifted to the preferred pumps for the next two weeks period and they are tested.

Relief from impractical ASME Code Section XI requirements:

1. Relief is requested for the requirement of differential pressure measurement. The forebay level is measured with each test and it will enable any variation in discharge pressure which is caused by forebay level changes to be explained.
2. Relief is requested for the requirement of measuring bearing temperature. These pumps are vertical, water-lubricated pumps and bearing temperature is not accessible.
3. Relief is requested for the requirement to measure flow. The measurement of discharge pressure will allow pump wear to be evaluated. The redundancy provided (six pumps with only four required) will insure required capacity at all times without installing flow instrumentation.

Additional Testing: There are no additional tests which are considered necessary.

Part 2 - Valve Testing

This section lists the nuclear safety related valve testing requirements which make up Point Beach Nuclear Plant inservice valve testing program. This section is divided into four subsections. They are:

- A. Category A Valve Leak Testing Requirements
- B. Category A & B Valve Testing Requirements
- C. Category C, D, and E Valve Testing Requirements
- D. Valve Testing Requirements Determined to be Unpractical

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A. Category A Valve Leak Testing Requirements

The following valves are leak tested during refueling outages in accordance with Appendix J:

WL-1721	Common suction to reactor coolant drain tank pumps
-----	Test valve between WL-1721 and containment penetration (A-E)
816	Refueling water storage tank recirculating pump (P33) suction from refueling cavity (A-E)
WL-1698	Reactor coolant drain tank divert valve to -19' sump
WL-1003A	Reactor coolant drain tank pump (P18) suction
WL-1003B	Reactor coolant drain tank pump (P66) suction
371	Reactor coolant system letdown isolation
313	Reactor coolant pump seal water return
DI-9	Demineralized water to containment (A-E)
DI-10	Demineralized water connection between DI-9 and the containment (A-E)
-----	Containment permanent test connection (A-E)
WL-1786	Pressurizer relief tank and reactor coolant drain tank vent
WL-1713	Nitrogen supply to reactor coolant drain tank check valve (A-C)
WL-1787	Pressurizer relief tank and reactor coolant drain tank
528	Nitrogen supply check valve to pressurizer relief tank (A-C)
846	Nitrogen supply to safety injection accumulators
-----	Post-accident vent system valves 12 and 13 (A-E)
370	Normal charging check valve (A-C)
966C	Hot leg sample
966B	Pressurizer liquid sample
966A	Pressurizer gas space sample
304C	Seal injection to "A" reactor coolant pump (A-C)
304D	Seal injection to "B" reactor coolant pump (A-C)
-----	Permanent test connection valve "B" (A-E)
529	Reactor makeup water check valve to containment (A-C)
508	Reactor makeup water to containment
-----	H ₂ -8 containment sample line (A-E)
-----	H ₂ -9 containment sample line (A-E)
-----	Post-accident containment ventilation valve #4 (A-E)
-----	Post-accident containment ventilation valve #6 (A-E)
-----	Post-accident containment ventilation valve #5 (A-E)
-----	Post-accident containment ventilation valve #7 (A-E)
1296	Auxiliary charging line
IA-33A	Instrument air to containment check valve (A-C)
IA-3047	Instrument air to containment
IA-34A	Instrument air to containment check valve (A-C)
IA-3048	Instrument air to containment
SA-C	Service air to containment check valve (A-C)
538	Pressurizer relief tank to gas analyzer
539	Pressurizer relief tank to gas analyzer

2084	"B" steam generator sample
2083	"A" steam generator sample
1788	Reactor coolant drain tank to gas analyzer
1789	Reactor coolant drain tank to gas analyzer
2045	"B" steam generator blowdown
2042	"A" steam generator blowdown
632	Heating steam to containment (A-E)
633	Condensate return from containment (A-E)
B&E	Containment test connection valves (A-E)
862A	Spray pump discharge check valve (A-C)
862B	Spray pump discharge check valve (A-C)
1723	Sump "A" drain valve
1728	Sump "A" drain valve
3212	Purge exhaust valve
3213	Purge exhaust valve
3244	Purge supply valve
3245	Purge supply valve
3200C	R11/12 supply piping
3200B	R11/12 supply piping
Valve #4	R11/12 return piping (A-C)
3200A	R11/12 return piping
767	Component cooling water to excess letdown heat exchanger (A-C)
769	Component cooling water from excess letdown heat exchanger
D-7	Drain valve on component cooling water line from excess letdown heat exchanger (A-E)
755A	Component cooling water to "A" reactor coolant pump (A-C)
759A	Component cooling water from "A" reactor coolant pump
755B	Component cooling water to "B" reactor coolant pump (A-C)
759B	Component cooling water from "B" reactor coolant pump

B. Category A and B Valve Testing Requirements

The following valves will be cycled every three months:

538	Pressurizer relief tank to gas analyzer (containment isolation)
539	Pressurizer relief tank to gas analyzer (containment isolation)
508	Reactor makeup water to containment (containment isolation)
371	Normal letdown (containment isolation)
1296	Auxiliary charging
825A	High head safety injection pump suction from RWST
825B	High head safety injection pump suction from RWST
856A	Low head safety injection pump suction from RWST
856B	Low head safety injection pump suction from RWST
897A	Safety injection test line return to RWST
897B	Safety injection test line return to RWST
2838	Service water from 4D heat exchanger
2839	Service water from 3D heat exchanger

2907 Service water from containment ventilation coolers
 2908 Service water from containment ventilation coolers
 860A Spray to containment
 860B Spray to containment
 860C Spray to containment
 860D Spray to containment
 4020 "B" auxiliary feed pump discharge to Unit 1 "B" steam generator
 4021 "B" auxiliary feed pump discharge to Unit 2 "B" steam generator
 4022 "A" auxiliary feed pump discharge to Unit 2 "A" steam generator
 4023 "A" auxiliary feed pump discharge to Unit 1 "A" steam generator
 2015 "B" steam generator atmospheric steam dump
 2016 "A" steam generator atmospheric steam dump
 2082 P29 supply trip valve
 2083 "A" steam generator sample (containment isolation)
 2084 "B" steam generator sample (containment isolation)
 2042 "A" steam generator blowdown isolation
 2045 "B" steam generator blowdown isolation
 2019 "B" steam generator supply to P29
 2020 "A" steam generator supply to P29
 SA-10 Unit 2 steam supply to radwaste system
 SA-9 Unit 1 steam supply to radwaste system
 1698 Reactor coolant drain tank valve to -19' sump
 1003A Reactor coolant drain tank pump suction
 1003B Reactor coolant drain tank pump suction
 1736 Pressurizer relief tank and reactor coolant drain tank vent
 1787 Pressurizer relief tank and reactor coolant drain tank vent
 846 Nitrogen supply to safety injection accumulators
 966A Pressurizer gas space sample
 966B Pressurizer liquid sample
 966C Hot leg sample
 3047 Instrument air to containment
 3048 Instrument air to containment
 1788 Reactor coolant drain tank to gas analyzer
 1789 Reactor coolant drain tank to gas analyzer
 1723 Sump "A" drain
 1728 Sump "A" drain
 3200A R11/12 return piping
 3200B R11/12 supply piping
 3200C R11/12 supply piping
 850A "B" sump suction to low head safety injection pump
 850B "B" sump suction to low head safety injection pump
 851A Sump "B" suction to low head safety injection
 851B Sump "B" suction to low head safety injection
 852A Low head safety injection reactor vessel isolation
 852B Low head safety injection reactor vessel isolation
 4006 Service water supply to P29
 4016 Service water supply to P38B
 4009 Service water supply to P38A
 1721 Common suction to reactor coolant drain tank pumps

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C. Category C, D, and E Valve Testing Requirements

For the purpose of this listing, the use of the term "cold shutdown" is assumed to mean a shutdown to less than 200°F on the primary systems which has an anticipated duration of 48 hours or longer.

	<u>Tested Every 3 Months</u>	<u>Cold Shutdown</u>
<u>1. Category C Check Valves</u>		
710A&B	Residual heat removal pump discharge	x
842A&B	Safety injection accumulator discharge	x
847A&B	Containment spray system flow to eductor	x
853A,B,C&D	First and second off low head safety injection	x
854A&B	Residual heat removal pump suction	x
867B	First off high head safety injection	x
889A&B	High head safety injection pump discharge	x
	Service water to containment coolers (4)	x
	Service water pump discharge (6)	x
	"A" and "B" main steam	x
	Auxiliary feed pump suction (3)	x
	Auxiliary feed pump suction (3)	x
	First-off auxiliary feed to steam generator (2)	x
	Second-off auxiliary feed to steam generator	x

2. Category C Relief Valves

Category C relief valves will be tested for their setpoint. Frequency will be per Section XI.

887	Safety injection test line
861A	Residual heat removal to reactor vessel
434	Pressurizer
435	Pressurizer
2005	"B" steam generator
2006	"B" steam generator
2007	"B" steam generator
2008	"B" steam generator
2010	"A" steam generator
2011	"A" steam generator
2012	"A" steam generator
2013	"A" steam generator
203	CVCS letdown

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3. Category D Valves

There are no category "D" valves which require testing in accordance with ASME Section XI.

4. Category E Valves

There are no category "E" valves which are tested other than those classified as category "AE". These valves are so identified in the category "A" list.

D. Valve Testing Requirements Determined to be Impractical.

The following listed valves have one or more Code requirements which have been determined to be impractical. The specific Code requirements identified as being impractical together with supporting information and tests to be performed in lieu of the Code requirement are listed after each valve. Relief from the ASME Section XI requirement identified herein is requested.

1. 842A&B, "A" and "B" Safety Injection Accumulator Discharge Check Valves

Function: Normally closed swing check valve which opens on differential pressure to allow the accumulators to deliver borated water to the reactor coolant system.

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Code Class: ASME Section III, Code Class 1

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements:

1. IWV-3520, b-2 - Requirements for swing disk-type valves.

Support Information:

1. It is impractical to measure differential pressure across the valves. Verification of valve opening by reducing system pressure to slightly below the accumulator pressure and noting a water level decrease in the accumulator is a practical method of verifying valve operability.

Inservice Testing in lieu of Section XI: None

Implementation Schedule: It is already in implementation:

2. 867A&B, "A" and "B" Loop Safety Injection First Off Check Valves

Function: Normally closed swing check valves which open on differential pressure to allow the accumulators and the high head safety injection system to deliver borated water to the reactor coolant system.

Code Class: ASME Section III, Code Class 1

Valve Category per Section XI: IWV-2000-C

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Impactical Code Requirements:

1. IWV-3520, a & b - Test frequency (867A only)
2. IWV-3520, b-2 - Requirements for swing disk-type valves.

Support Information

1. It is impractical to test valve 867A except during refueling shutdown. The pressure source required to insure flow could also potentially overpressurize the reactor coolant system.
2. It is impractical to measure differential pressure across these valves. Flow can be measured, however in accordance with the following paragraph.

Inservice Testing in Lieu of Section XI: Once per refueling a full flow test is conducted of the high head safety injection system in order to insure the pumps and valves are functioning properly.

Implementation Schedule: It is already in implementation.

3. 845A, B, C, D, E & F, High Head Safety Injection Second Off Check Valves

Function: Normally closed check valves which open on differential pressure to allow the high head safety injection system to deliver borated water to the reactor coolant system.

Code Class: ASME Section III, Code Class 1

Valve Category per Section XI: IWV-2000-C

Impactical Code Requirements:

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test these valves except during refueling shutdown. The pressure source required to insure flow could also potentially overpressurize the reactor coolant system.

Inservice Testing in Lieu of Section XI: Once per refueling a test is completed which verifies flow through the check valves.

Implementation Schedule: It is already in implementation.

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4. 889A&B, High Head Safety Injection Pump Discharge Check Valves

Function: Normally closed swing check valves which open on high head safety injection delivery of borated water to the reactor coolant system.

Code Class: ASME Section III, Code Class 2

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency
2. IWV-3520, b-2 - Requirements for swing check-type valves

Support Information

1. It is impractical to full flow test these check valves except during the system flow test conducted during refueling. Partial stroking is performed quarterly during pump testing.
2. It is impractical to measure differential pressure across these valves. Flow can be measured, however in accordance with the following paragraph.

Inservice Testing in Lieu of Section XI: Once per refueling a test is completed which verifies flow through the check valves.

Implementation Schedule: It is already in implementation.

5. 853A, B, C&D, Low Head Safety Injection First and Second Off Check Valves

Function: Normally closed swing check valves which open on differential pressure to allow the low head safety injection system to deliver borated water to the reactor coolant system.

Code Class: ASME Section III, Code Class 1

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type valves.

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Support Information

1. It is impractical to measure differential pressure across these valves. Flow can be measured, however in accordance with the following paragraph.

Inservice Testing in Lieu of Section XI: Once per refueling a full flow test will be conducted of the low head safety injection system in order to insure the pumps and valves are functioning properly.

Implementation Schedule: The test will be implemented at the next refueling upon approval of the Section XI testing program.

6. 710A&B, Residual Heat Removal Pump Discharge Check Valves

Function: Normally closed swing check valves which open upon delivery of borated water via the low head safety injection.

Code Class: ASME Section III, Code Class 2

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type check valves.

Support Information

1. It is impractical to measure differential pressure across these valves. Flow is measured, however during cold shutdown in accordance with IWV-3520 (b).

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable.

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7. 854A&B, Residual Heat Removal Pump Suction Check Valves

Function: Normally closed swing check valves which open upon delivery of borated water via the low head safety injection.

Code Class: ASME Section III, Code Class 2

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type valves.

Support Information

1. It is impractical to measure differential pressure across these valves. Flow can be measured, however in accordance with the following paragraph.

Inservice Testing in Lieu of Section XI: Once per refueling a full flow test will be conducted of the low head safety injection system in order to insure the pumps and valves are functioning properly.

Implementation Schedule: The test will be implemented at the next refueling upon approval of the Section XI testing program.

8. 858A&B, Containment Spray Pump Suction Check Valves

Function: Normally closed swing check valves which open on differential pressure to allow the containment spray system to spray the containment atmosphere.

Code Class: ASME Section III, Code Class 2

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Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520

Support Information

1. It is impractical to test these valves. The piping design does not allow design flow through these valves except when they are actually spraying into the containment.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable.

9. 862A&B, Containment Spray Pump Discharge Check Valves

Function: Normally closed swing check valves which open on differential pressure to allow the containment spray system to spray the containment atmosphere.

Code Class: ASME Section III, Code Class 2

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520

Support Information

1. It is impractical to test these valves other than the leakage test now being conducted. The piping design does not allow design flow through these valves except when they are actually spraying into the containment.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

10. 840A&B, Spray Additive Tank Vacuum Breaker Valves

Function: To open on differential pressure and allow air to back fill the tank as the level is being dropped.

Code Class: ASME Section III, Code Class 3

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520

Support Information

1. It is impractical to test these valves. The containment spray system design does not provide for raising or lowering the additive tank level except in the actual spraying into the containment atmosphere.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable.

11. 767, Component Cooling to the Excess Letdown Heat Exchanger Containment Isolation Check Valve

Function: To close and isolate the component cooling line in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is located in containment and testing on more than a once per year basis will cause unnecessary exposure.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

12. 755A&B, Component Cooling to the Reactor Coolant Pumps Containment Isolation Check Valves

Function: To close and isolate the component cooling line in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is located in containment and testing on more than a once per year basis will cause unnecessary radiation exposure.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

13. 304C&D, Chemical and Volume Control System Reactor Coolant Pump Seal Injection Containment Isolation Check Valve

Function: To close and isolate the seal injection line in the event of a containment isolation.

Code Class: ASME Section III, Code Class 1

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is located in containment and testing on more than a once per year basis will cause unnecessary radiation exposure.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

14. 370, Chemical and Volume Control System Normal Charging Line Containment Isolation Check Valve

Function: To close and isolate the normal charging line in the event of a containment isolation.

Code Class: ASME Section III, Code Class 2

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is located in containment and testing on more than a once per year basis will cause unnecessary radiation exposure.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

15. P29, Steam Driven Auxiliary Feedwater Pump Suction and Discharge Check Valve

Function: Normally closed swing check valves which open upon an auxiliary feedwater start signal, to deliver condensate to the steam generator.

Code Class: ASME Section III, Code Class 3

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type check valves.

Support Information

1. It is impractical to measure differential pressure across the valves. Verification of system flow will be done during each pump flow test.

Inservice Testing in Lieu of Section XI: In accordance with the requested pump waiver a flow test will be done during plant cooldown.

Implementation Schedule: The test will be implemented at the next refueling upon approval of the Section XI testing program.

16. P38A&B, Electric Driven Auxiliary Feedwater Suction and Discharge Check Valve

Function: Normally closed swing check valves which open on an auxiliary feedwater start signal to deliver condensate to the "A" and "B" steam generators.

Code Class: ASME Section III, Code Class 3

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type check valves.

Support Information

1. It is impractical to measure differential pressure across the valves. Verification of system flow will be done during each pump flow test.

Inservice Testing in Lieu of Section XI: In accordance with the requested pump waiver a flow test will be done during plant cooldown.

Implementation Schedule: The test will be implemented at the next refueling upon approval of the Section XI testing program.

17. Auxiliary Feedwater System First and Second Off Check Valves (6)

Function: Normally closed swing check valves which open upon an auxiliary feedwater start signal, to deliver condensate to the steam generators.

Code Class: ASME Section III, Code Class 2

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type check valves.

Support Information

1. It is impractical to measure differential pressure across the valves. Verification of system flow will be done during each pump flow test.

Inservice Testing in Lieu of Section XI: In accordance with the requested pump waiver a flow test will be done during plant cooldown.

Implementation Schedule: The test will be implemented at the next refueling upon approval of the Section XI testing program.

18. 529, Reactor Makeup Water Supply to Pressurizer Relief Tank Containment Isolation Check Valve

Function: To close and isolate the pressurizer relief tank in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is located in containment and testing on more than a once per year basis will cause unnecessary radiation exposure.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

19. 528, Nitrogen Supply to the Pressurizer Relief Tank Containment Isolation Check Valve

Function: To close and isolate the pressurizer relief tank in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is located in containment and testing on more than a once per year basis will cause unnecessary radiation exposure. In addition it is part of a closed (Nitrogen) system outside containment.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

20. 1713, Nitrogen Supply to Reactor Coolant Drain Tank Containment Isolation Check Valve

Function: To close and isolate the reactor coolant drain tank in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impactical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this check valve other than its leakage test on a refueling interval. It is part of a closed (Nitrogen) system outside containment.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

21. Containment Service Water Recirculating Cooler Supply Swing Check Valves (4)

Function: To open and allow proper service water flow to the containment coolers.

Code Class: ASME Section III, Code Class 3

Valve Category per Section XI: IWV-2000-C

Impactical Code Requirements

1. IWV-3520, b-2 - Requirements for swing disk-type valves

Support Information

1. It is impractical to measure differential pressure across these valves. Verification of opening is made by installed flow meters in the line.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

22. 33A & 34A, Instrument Air to the Containment, Containment Isolation Check Valves

Function: To close and isolate containment in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test these check valves other than the leakage test on a refueling interval. The secondary boundary valves 3047 & 3048 are tested quarterly.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

23. Service Air to the Containment, Containment Isolation Check Valve

Function: To close and isolate containment in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this valve other than the leakage test on a refueling interval. The service air to containment is normally isolated and only cut into the containment when needed.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

24. R11/12 Containment Radiation Monitor Process Return to Containment, Containment Isolation Check Valve

Function: To close and isolate containment in the event of a containment isolation.

Code Class: ASME Section III, Code Class MC

Valve Category per Section XI: IWV-2000-C

Impractical Code Requirements

1. IWV-3520, a & b - Test frequency

Support Information

1. It is impractical to test this valve other than the leakage test on a refueling shutdown. The secondary boundary valve 3200A is tested quarterly.

Inservice Testing in Lieu of Section XI: There is no additional testing needed.

Implementation Schedule: Not applicable

SECTION 2

INSERVICE INSPECTION

INSERVICE INSPECTION

This section covers the inservice inspection of pressure boundaries. It includes inspection of safety related ASME Class 1, 2, and 3 piping, pumps, valves, pressure vessels and heat exchangers. The inspection program for the third forty-month period of the first ten-year inspection interval is presented in tabular format on the following pages.

In the inservice inspection test plan the ITEM NO. listed is the item number assigned by Tables IWB-2600 and IWC-2600 of Section XI of the ASME Boiler and Pressure Vessel Code. The EXAM. CAT. listed is the examination category as assigned by Tables IWB-2500 and IWC-2520. In those cases where the examination requirement is not included in Tables IWB-2500 or IWC-2520, the applicable paragraph number is listed. EXAM. METH. is the examination method abbreviated as follows:

VT	Visual examination
PT	Surface examination using dye penetrant
MT	Surface examination using magnetic particle techniques
UT	Volumetric examination using ultrasonic techniques

The INSPECTION INTERVAL (10-YEAR) REQUIREMENT lists the overall testing requirement for the ten-year interval as shown in the 1975 summer addenda to the 1974 Boiler Code. In general, the PLANNED TESTS DURING 3RD 40-MONTH PERIOD reflect one third of the 10-year requirements. Notable exceptions to this are tests such as system hydrostatic pressure tests and reactor vessel inspections that are performed only once during the ten-year period and those examination requirements that are impractical. The tests and examinations that are impractical for the Point Beach Nuclear Plant are identified in the REMARKS column of the test plan. Relief from those ASME Section XI requirements identified herein as impractical is requested.

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>REACTOR PRESSURE VESSEL FIGURE 4.2-1</u>						
Closure head to flange weld	B1.3	B-C	UT	100%	33-1/3%	
Flange to Shell Weld	B1.3	B-C	UT	100%	33-1/3%	
Instrumentation Penetrations in Lower Head	B1.5	B-E	VT	25% (IWA-5000)	25% (IWA-5000)	
Control Rod Drive Penetrations in Closure Head	B1.5	B-E	VT	25% (IWA-5000)	25% (IWA-5000)	
Closure studs and nuts	B1.8	B-G-1	UT PT/MT	100% 100%	16 studs and 16 nuts 16 studs and 16 nuts	48 total 32 previously inspected
Ligaments between threaded stud holes	B1.9	B-G-1	UT	100%	16	
Closure Washers	B1.10	B-G-1	VT	100%	16 washers	
Closure Head Cladding	B1.13	B-I-1	VT PT	100% of 6 patch areas each 36 sq.in. 100% of 6 patch areas each 36 sq.in.	100% of 2 patch areas 100% of 2 patch areas	
Upper Internals	B1.17	B-N-3	VT	100% of visually accessible attachment welds and surfaces	100% of visually accessible attachment welds and surfaces	

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
Vent Line Penetrations in Closure Head	B1.19	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	
Monitoring Taps	B1.19	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	
Incore Instrumentation Piping and Seal Table	B1.19	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>PRESSURIZER</u> <u>FIGURE 4.2-1</u>						
Upper Head to Upper Shell Weld	B2.1	B-B	UT	5% of weld length	5% of weld length	
Upper Shell Longitudinal Weld	B2.1	B-B	UT	10% of weld length	10% of weld length	
Safety Nozzle Inside Radiused Section	B2.2	B-D	UT	100%	100%	
Spray Nozzle Inside Radiused Section	B2.2	B-D	UT	100%	100%	
Heater Penetrations	B2.3	B-E	VT	25% (IWA-5000)	25% (IWA-5000)	
Safety Nozzle to Safe End Weld	B2.4	B-F	UT PT	100% 100%	100% 100%	
Spray Nozzle to Safe End Weld	B2.4	B-F	UT PT	100% 100%	100% 100%	
Support Skirt	B2.8	B-H	UT	10% of weld length	3-1/3% of weld length	
Cladding	B2.9	B-I-2	VT	100% of 1 patch area of 36 sq.in.	100% of 1 patch area	
Temperature, Sampling and Level Nozzles	B2.10	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	

2.4

POINT BEACH NUCLEAR PLANT
 UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
Manway Bolting	B2.11	B-G-2	VT	100%	6 Manway Bolts	16 total

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
STEAM GENERATORS <u>FIGURE 4.2-1</u>						
Nozzle Inside Radiused Section	B3.2	B-D	UT	100%	B Steam Generator Inlet and Outlet Nozzles will be examined.	
Nozzle to Safe End Weld	B3.3	B-F	UT	100%	A Steam Generator Outlet and B Steam Generator Outlet Buttered Connections will be examined.	
			PT	100%	A Steam Generator Outlet and B Steam Generator Outlet Buttered Connections will be examined.	
Cladding	B3.8	B-I-2	VT	100% of one patch area 36 sq.in. per Steam Generator	100% of one patch area per Steam Generator	
Pressure Retaining Bolting	B3.10	B-G-2	VT	100%	11 Manway Bolts from Each Steam Generator will be examined	

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
REGENERATIVE HEAT EXCHANGER FIGURE 9.2-1						
Circumferential Welds	B3.1	B-B	UT	5% of the length of each weld	5% of the length of 4 welds will be examined.	12 total 8 previously inspected
Nozzle to Shell Weld	B3.2	B-D	UT	100%	4 welds will be examined	12 total 8 previously inspected
Integrally Welded Supports	B3.7	B-H	UT	10% of weld length	None	Ultrasonic examination of the support to vessel tack welds is not practical because of the curvatures of the vessel end caps. Liquid penetrant examination of these welds is not practical due to masking caused by penetrant entrapment between the support member and vessel shell.
			VT		10% of each weld length	Visual examination of the accessible portions of these welds will be performed in lieu of ultrasonic examination. Radiation levels around the residual heat exchanger are 2r to 3r.

POINT BEACH NUCLEAR PLANT
 UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
EXCESS LETDOWN HEAT EXCHANGER FIGURE 9.2-1	B3.9	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	
Tube Side Nozzles						

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>PIPING</u> <u>FIGURES 4.2-1, 6.2-1 and 9.2-1</u>						
Circumferential and Longitudinal Pipe Welds Larger Than One Inch Diameter	B4.5	B-J	UT	25% of circumferential welds and adjoining one foot lengths of longitudinal welds.	Approximately 24 circumferential welds will be examined.	291 total 49 previously inspected.
Branch Pipe Connection Welds Larger than Six Inch Diameter	B4.6	B-J	UT	25%	One weld will be examined.	4 total
Branch Pipe Connection Welds Six Inch or smaller	B4.7	B-J	PT	25%	One weld will be examined.	18 total 4 previously inspected
Socket Welds Larger than One Inch	B4.8	B-J	UT	25%	Approximately 31 socket welds will be examined.	379 total 64 previously inspected
Integrally Welded Supports	B4.9	B-K-1	UT	25%	One Weld will be examined	8 total 3 previously inspected

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
Support Components on Piping Larger than One Inch Diameter	B4.10	B-K-2	VT	100%	33-1/3% of Support Components will be examined.	
Piping One Inch Diameter or less	B4.11	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	
Pressure Retaining Bolting Two Inch Diameter or less in Piping Larger than One Inch Diameter	B4.12	B-G-2	VT	100%	Flange Bolting of approximately 4 flanges will be examined.	12 total

2.10

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>REACTOR COOLANT PUMPS FIGURE 4.2-1</u>						
Studs, In Place	B5.1	B-G-1	UT	100%	8 studs	
Studs, When Removed	B5.2	B-G-1	UT PT/MT	100% 100%	8 studs per pump 8 studs per pump	Bolting will not be disassembled for the sole purpose of examination but if removed for some other reason it will be examined.
Studs and Nuts, in Place or When Removed	B5.3	B-G-1	VT	100%	8 studs and 8 nuts per pump	
Ligaments	B5.3	B-G-1	VT	100%	8 ligaments per pump	This examination will be performed only if bolting is disassembled
Integrally Welded Supports	B5.4	B-K-1	UT	25%	None	Volumetric examination of these welds is not practical. The surface is rough and ultrasonic waves do not propagate well in the cast stainless material.

2.11

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
Support Components	B5.5	B-K-2	VT	100%	#2 for pump A #1 and #3 for pump B	A visual examination will be performed in lieu of the volumetric examination.
Pump Casing Welds	B5.6	B-L-1	UT	100% of one pump	33-1/3% of the support components will be examined. none	Volumetric examination of these welds is not practical. Ultrasonic waves do not propagate well in the cast stainless material. Also the surface roughness is a problem. We are keeping abreast of the technology in this area and if technological advances make volumetric examination of these welds practical in the future the inspections will be performed.

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
Pump Casing	B5.7	B-L-2	VT	100% of one pump	100% of weld of one pump 100% of one pump	A visual examination will be performed in lieu of the ultrasonic examination.

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	ITEM NO.	EXAM CAT.	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<p><u>VALVES</u> FIGURES 4.2-1, 6.2-1 and 9.2-1</p> <p>Valve Bodies on Valves Exceeding Four Inch Diameter</p>	B6.7	B-M-2	VT	The interval pressure surfaces of one valve in each group of valves of the same design, manufacturing method and manufacturer that perform similar functions.	Three valves will be examined if operational conditions permit. Valve 700, Either Valve 853A, B, C or D and Either Valve 701 or 720.	Valve 700 is a 10 inch Darling Gate Valve. Valves 853A, B, C and D are 6" Velan Check Valves, Valves 701 and 720 are 10 inch Velan Motor-Operated Gate Valves.
Valves One Inch Diameter or smaller	B6.8	B-P	VT	100% (IWA-5000)	100% (IWA-5000)	
Pressure Retaining Bolting Less than Two Inch Diameter on Valves Larger than One Inch Diameter	B6.9	B-G-2	VT	100%	Bolting of approximately 10 valves will be examined.	

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 1

COMPONENT TO BE EXAMINED	SUB ARTICLE	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>System Leakage and Hydrostatic Pressure Tests</u>					
<u>System Leakage Test</u>					
Reactor Coolant System	IWB-5200	VT	After each refueling outage	After each refueling outage	
<u>System Hydrostatic Pressure Test</u>					
Reactor Coolant System	IWB-5200	VT	Once, at or near the end of the inspection interval	One system hydrostatic pressure test will be performed	

2.15

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 2

COMPONENT TO BE EXAMINED	SUB PARAGRAPH	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>System Pressure Tests</u> <u>Class 2 Safety Related Components</u>					
Exempted Components	IWC-2412(a)	VT	100% except open-ended portions of a non closed system	33-1/3% of the exempted components will be examined	
Nonexempt Components	IWC-2412(b)		100% except open-ended portions of a non closed system	100% of the nonexempt components will be examined	

POINT BEACH NUCLEAR PLANT
UNIT 2 INSERVICE TEST PLAN

CLASS 3

COMPONENT TO BE EXAMINED	ARTICLE	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
<u>System Pressure Tests</u> Class 3 Safety Related Systems and Components	IWD-2000	VT	100% of components	33-1/3% of the class 3 components will be examined	
Visual Examination During Operation or During Inservice Inspection					
Class 3 Safety Related Systems and Components	IWD-2000	VT	100% of components during 1/3 of each inspection interval	100% of the Class 3 components will be examined	

2.17

SECTION 3

PIPING AND INSTRUMENTATION DIAGRAMS

PIPING AND INSTRUMENTATION DIAGRAMS

The piping and instrumentation diagrams are presented in this section as an aid to understanding the system configurations and classification of components at the Point Beach Nuclear Plant.

The diagrams are color-coded as follows:

Black	Basic piping diagram
Red	Class 1 components
Green	Class 2 components
Blue	Class 3 components
Yellow	Instrumentation
Brown	Containment
Purple	Safety Related Boundary

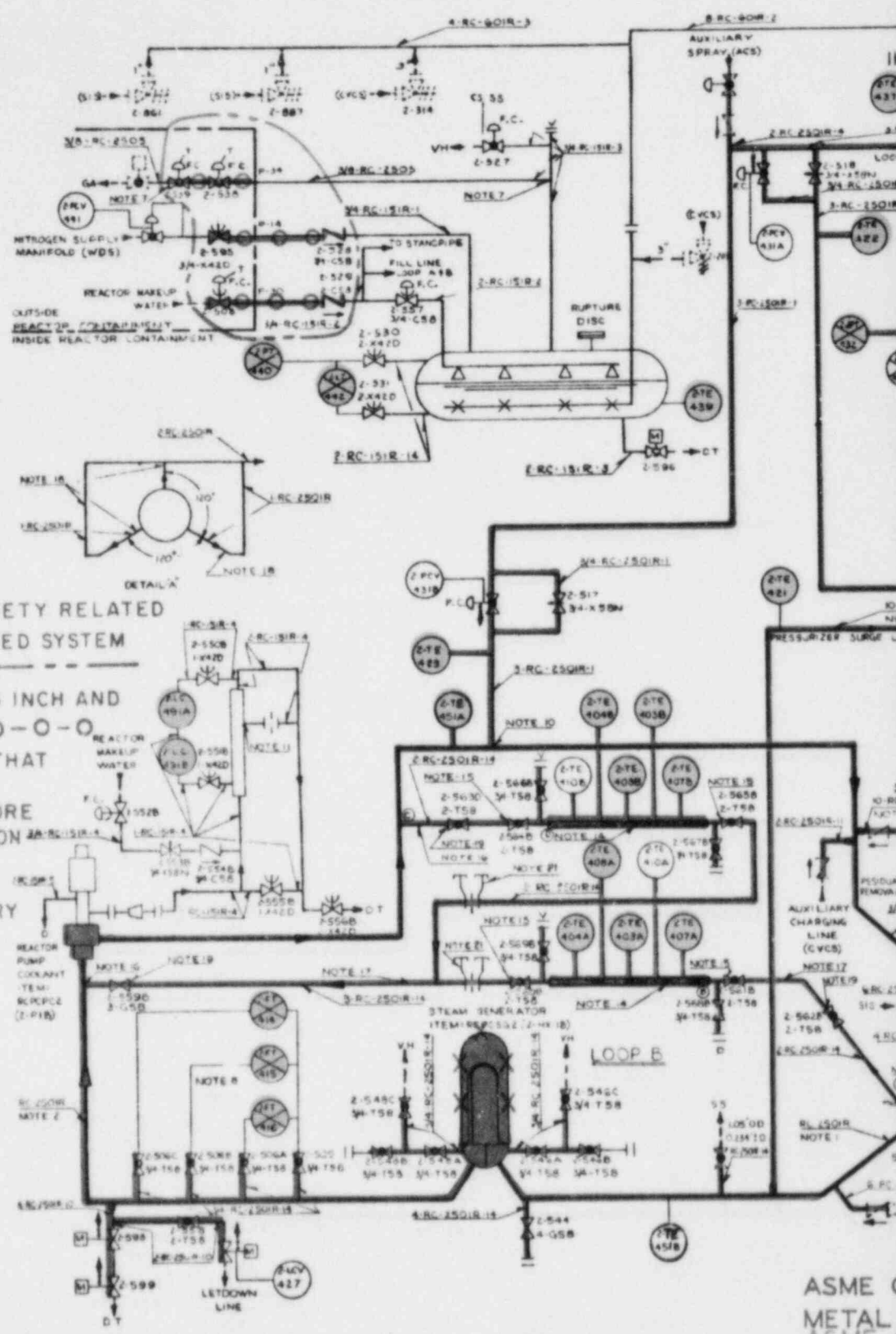
The class 2 components are further coded by symbols to identify those components that are classified as exempted by subarticle IWC-1200. Many components meet more than one of the requirements of IWC-1200. In these instances only one of the criteria is coded.

0-0-0	Components four inches or smaller nominal diameter
X-X-X	Components that perform an emergency core cooling function and have controlled water chemistry
Δ - Δ - Δ	Components which do not function during normal reactor operation

LIST OF FIGURES

<u>PAGE</u>	<u>FIGURE</u>	<u>DESCRIPTION</u>
3.1	4.2-1	Reactor Coolant System Process Flow Diagram
3.2	6.2-1	Safety Injection System, Sheet 1
3.3	6.2-1	Safety Injection System, Sheet 2
3.4	6.2-1	Safety Injection System, Sheet 3
3.5	9.2-1	Chemical and Volume Control System
3.6	9.2-2	Chemical and Volume Control System
3.7	9.2-4	Chemical and Volume Control System
3.8	9.3-1	Auxiliary Coolant System
3.9	9.3-2	Auxiliary Coolant System
3.10	9.3-3	Auxiliary Coolant System
3.11	Drawing M-2207	Piping and Instrument Diagram, Service Water
3.12	Drawing M-207	Piping and Instrument Diagram, Service Water, Sheet 1
3.13	Drawing M-207	Piping and Instrument Diagram, Service Water, Sheet 2
3.14	10.2-1	Piping and Instrument Diagram Main and Reheat Steam
3.15	10.2-2	Piping and Instrument Diagram Condensate and Feedwater
3.16	10.2-5	Piping and Instrument Diagram Auxiliary Feedwater System
3.17	11.1-2	Waste Disposal System Process Flow Diagram, Sheet 2

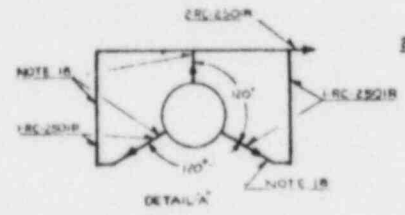
<u>PAGE</u>	<u>FIGURE</u>	<u>DESCRIPTION</u>
3.18	Drawing G-276-P	Cryogenic Noble Gas Removal System, Sheet 1
3.19	Drawing G-276-P	Cryogenic Noble Gas Removal System, Sheet 2
3.20	Drawing F-2077-P	Radwaste Component Cooling Water
3.21	Drawing F-2070-P	Radwaste Steam
3.22	Drawing F-2069-P	Letdown Gas Strippers
3.23	Drawing F-2068-P	Blowdown Gas Strippers
3.24	Drawing F-2071-P	Radwaste Condensate
3.25	Drawing 110E018	Auxiliary Coolant System Engineering Flow Diagram



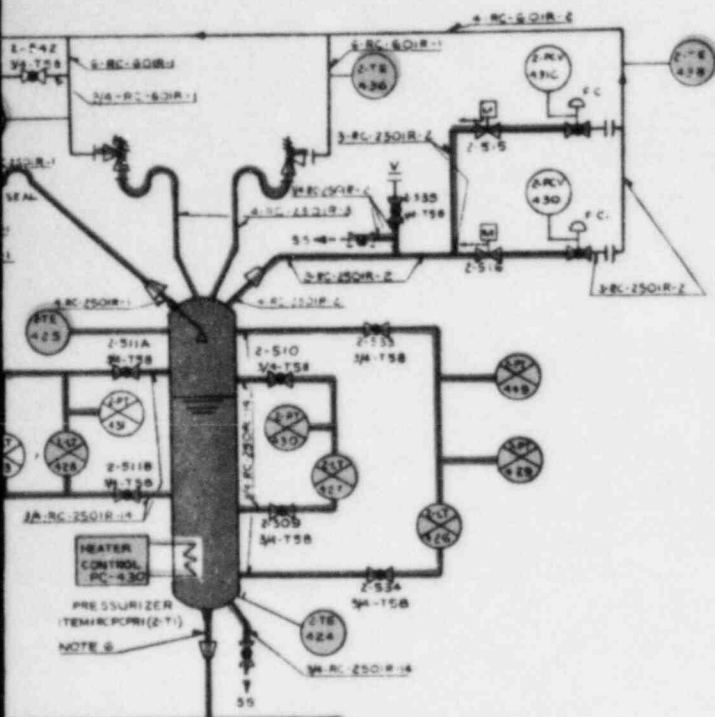
NOTES

1. CLASS I IS SAFETY RELATED
2. SAFETY RELATED SYSTEM BOUNDARY
3. COMPONENTS 4 INCH AND SMALLER
4. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY

X-X-X



ASME
METAL
ASME
ASME
NON CO



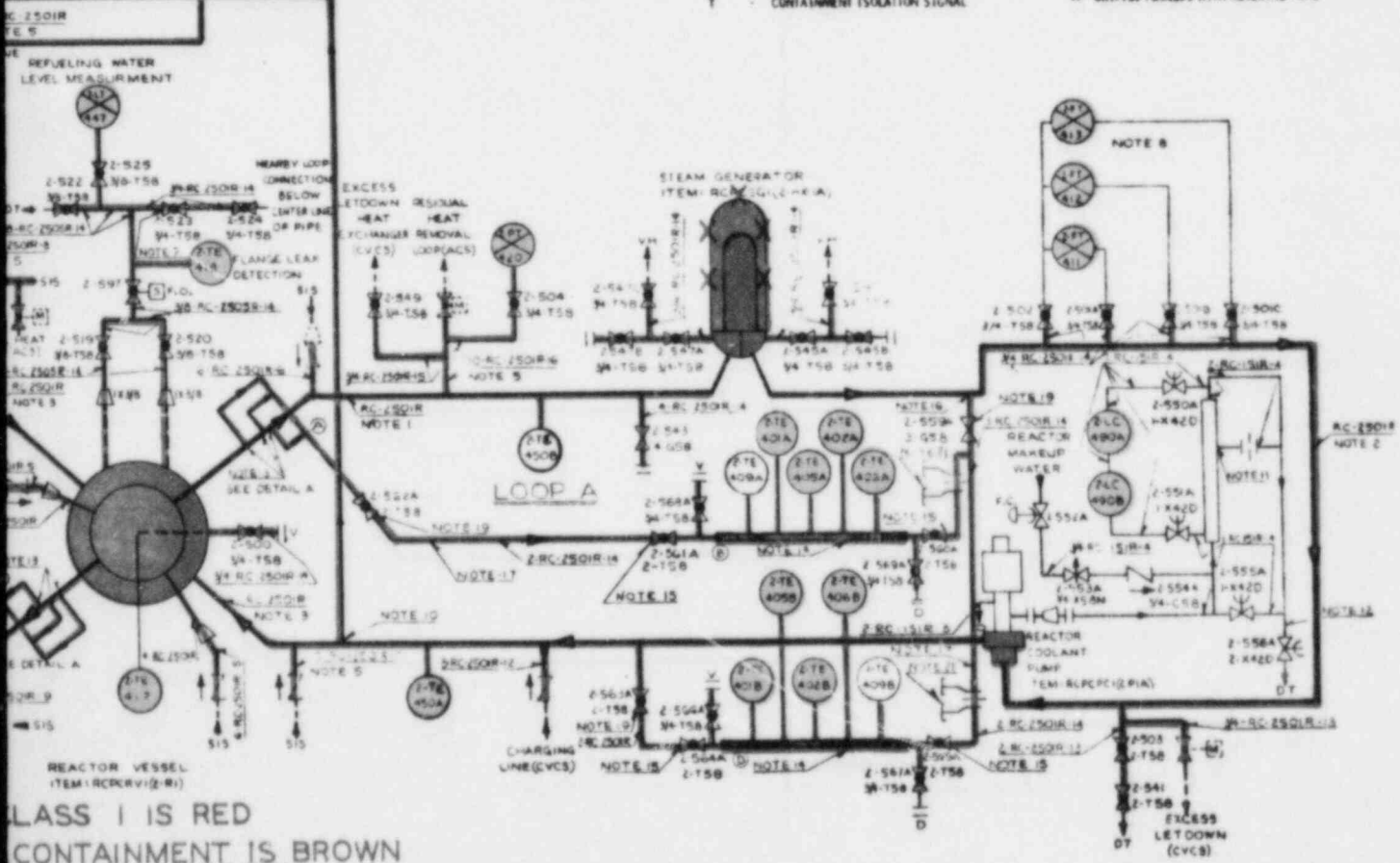
REFERENCE DRAWINGS

CVCS - CHEMICAL & VOLUME CONTROL SYSTEM SHEET #1 - DWG. 485 J 175
 CVCS - CHEMICAL & VOLUME CONTROL SYSTEM SHEET #2 - DWG. 541 F 453
 CVCS - CHEMICAL & VOLUME CONTROL SYSTEM SHEET #3 - DWG. 541 F 944
 ACS - AUXILIARY COOLANT SYSTEM SHEET #1 - DWG. 101 025
 WDS - WASTE DISPOSAL SYSTEM SHEET #1 - DWG. 484 J 971
 WDS - WASTE DISPOSAL SYSTEM SHEET #2 - DWG. 484 J 972
 SIS - SAFETY INJECTION SYSTEM SHEET #1 - DWG. 101 035
 SS - SAMPLING SYSTEM SHEET #1 - DWG. 541 F 448

LEGEND

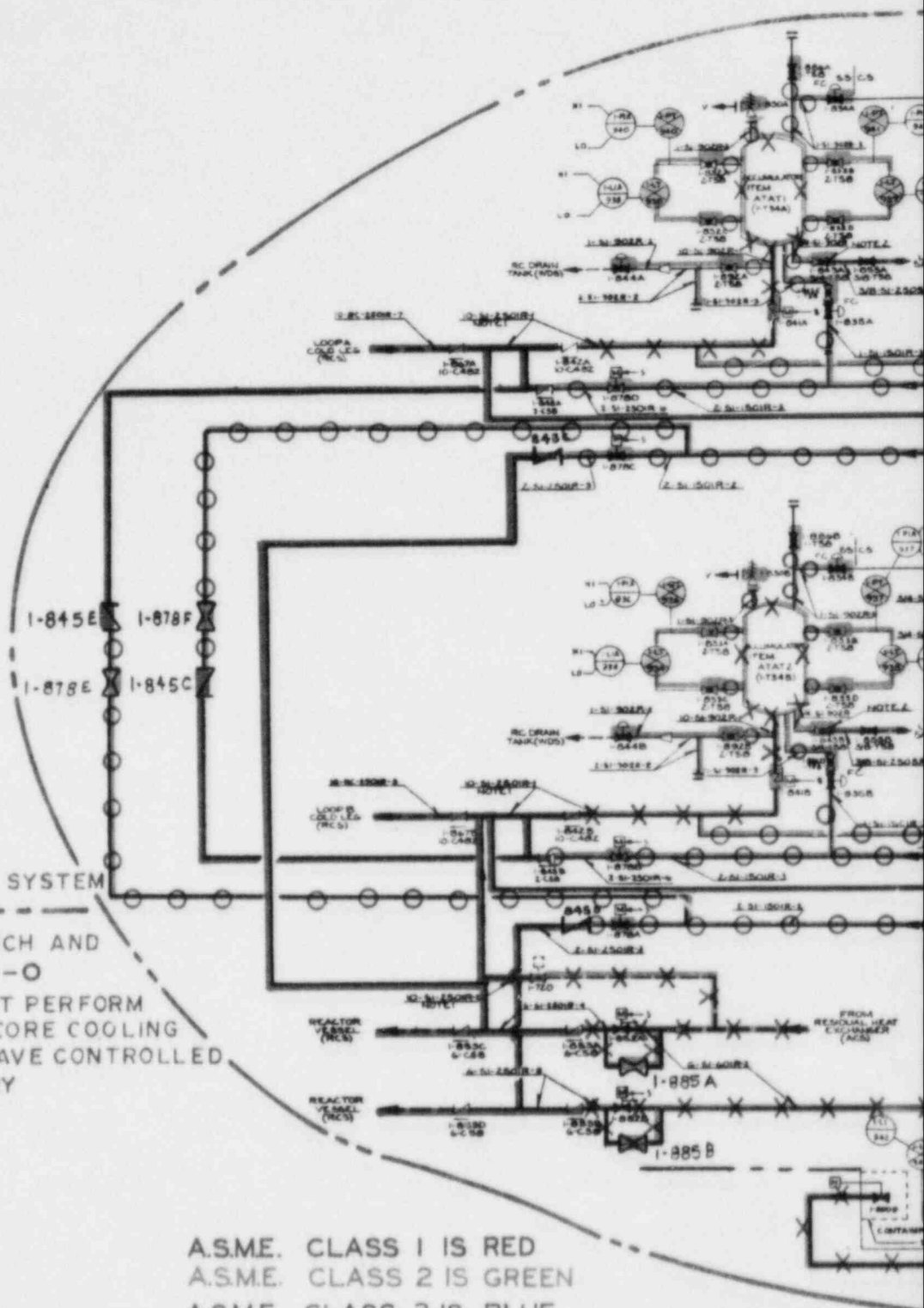
GA - GAS ANALYZER (WDS)
 VH - VENT HEADER (WDS)
 DT - DRAIN TANK
 F.C. - FAIL CLOSED
 F.O. - FAIL OPEN
 V - LOCAL VENT
 T - CONTAINMENT ISOLATION SIGNAL

- NOTES**
- 2" INSIDE DIAMETER
 - 3" INSIDE DIAMETER
 - 2.5" INSIDE DIAMETER
 - ALL GLOBE VALVES INSTALLED WITH FLOW UNDER THE SEAT EXCEPT NO. 2
 - SCHEDULE 40 PIPE
 - 4" SCHEDULE 40 NOZZLE
 - 3/4" PIPE X 3/8" TUBE INSERT
 - ELBOW FLOW METER
 - ALL ITEM NUMBERS INCLUDE PREFIX W#B
 - SPRAY LINE SCOOPS
 - 7' LONG 8" SCHEDULE 40 STAND PIPE ENDS CAPPED. THE STAND PIPE ORIFICE IS 7 FT. ABOVE THE CONNECTION TO THE REACTOR COOLANT PUMP
 - THIS PIPING SHOULD BE SLOPED DOWN HILL THROUGHOUT THE RUN TO DRAIN TANK
 - HOT LEG BY-PASS LINE SCOOPS
 - RTD MANIFOLD - PIPE & RTD'S SUPPLIED AS A PACKAGE MANIFOLD APPROX. 20 IN. LONG
 - LOCATE RTD MANIFOLD ISOLATION VALVES APPROX. 9 INCHES FROM MANIFOLD
 - LOCATE CONNECTION ON UPPER 180° OF PIPE CIRCUMFERENCE
 - ALL BY-PASS LOOP PIPING & RTD MANIFOLDS SHALL HAVE REMOVABLE INSULATION UP TO LOOP ROOT VALVES
 - PARALLEL 1 INCH PIPE PATHS SHOULD BE OF APPROX. EQUAL EQUIVALENT LENGTHS WITH FLOW PATHS NOT EXCEEDING 4 FT. PENETRATIONS SHOULD BE IN THE SAME VERTICAL PLANE
 - LOCATE ROOT VALVES ABOVE ELEVATION OF REACTOR VESSEL NAIL LINES
 - LENGTH OF HOT LEG 2 INCH PIPE UPSTREAM OF RTD MANIFOLD 1 A TO B - TO BE A MAXIMUM OF 3 FT. LENGTH OF COLD LEG 2 INCH PIPE UPSTREAM OF RTD MANIFOLD 1 C TO D - TO BE A MAXIMUM OF 4 FT.
 - ORIFICE FLANGES WITH METERING TAPS



CLASS 1 IS RED
 CONTAINMENT IS BROWN
 CLASS 2 IS GREEN
 CLASS 3 IS BLUE
 DE QA IS YELLOW

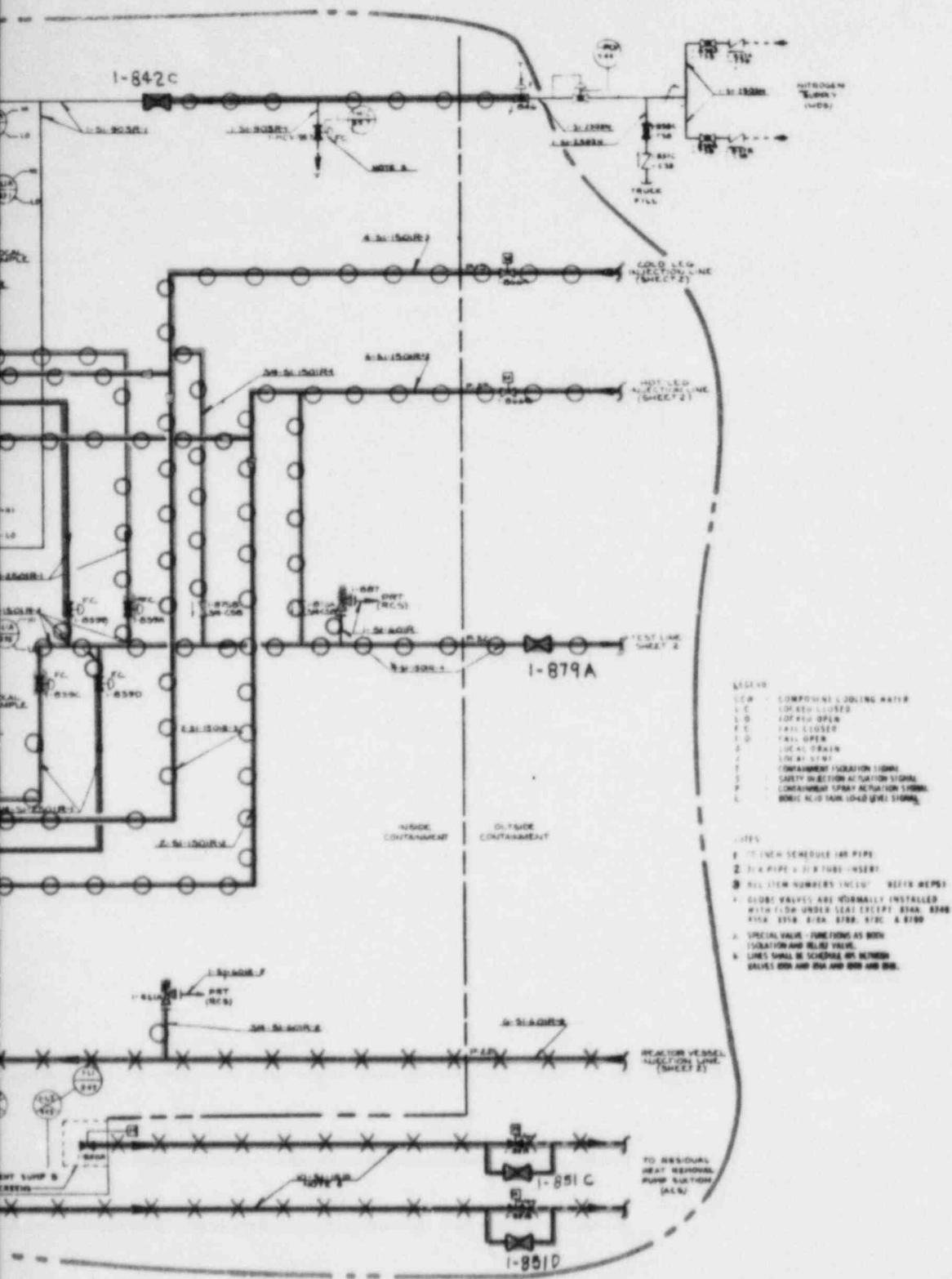
REACTOR COOLANT SYSTEM PROCESS
 FLOW DIAGRAM
 FIGURE 4.2-1
 PAGE 3.1



NOTES

1. SAFETY RELATED SYSTEM BOUNDARY - - - - -
2. COMPONENTS 4 INCH AND SMALLER ○-○-○
3. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY X-X-X

A.S.M.E. CLASS 1 IS RED
 A.S.M.E. CLASS 2 IS GREEN
 A.S.M.E. CLASS 3 IS BLUE
 NON-CODE Q.A. IS YELLOW
 METAL CONTAINMENT IS BROWN



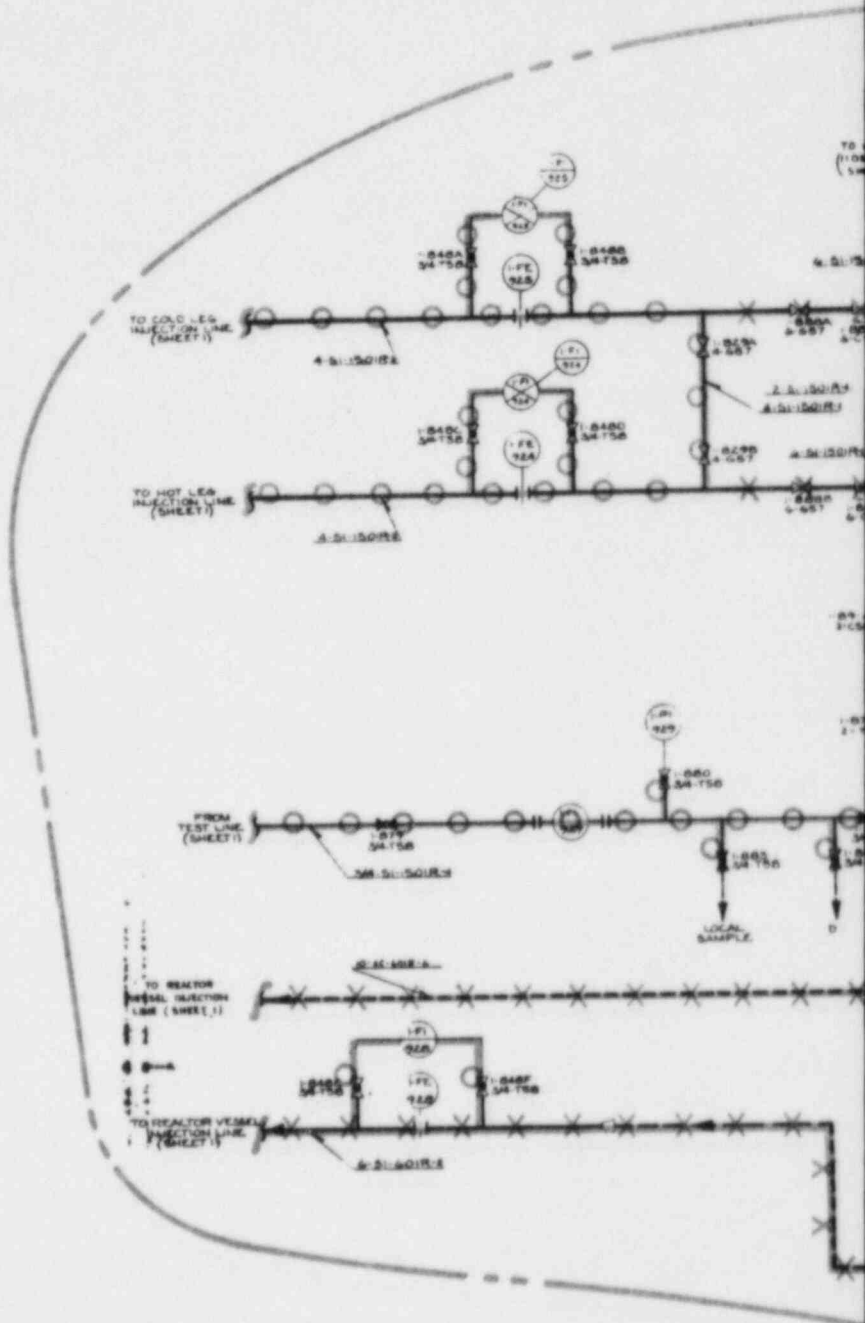
- LEGEND
- 1-842C - COMPOUND DILUING WATER
 - 1-8 - COOLERS
 - 1-0 - 100% OPEN
 - 1-1 - 10% OPEN
 - 1-2 - 20% OPEN
 - 1-3 - 30% OPEN
 - 1-4 - 40% OPEN
 - 1-5 - 50% OPEN
 - 1-6 - 60% OPEN
 - 1-7 - 70% OPEN
 - 1-8 - 80% OPEN
 - 1-9 - 90% OPEN
 - 1-10 - 100% OPEN
 - 1-11 - 110% OPEN
 - 1-12 - 120% OPEN
 - 1-13 - 130% OPEN
 - 1-14 - 140% OPEN
 - 1-15 - 150% OPEN
 - 1-16 - 160% OPEN
 - 1-17 - 170% OPEN
 - 1-18 - 180% OPEN
 - 1-19 - 190% OPEN
 - 1-20 - 200% OPEN
 - 1-21 - 210% OPEN
 - 1-22 - 220% OPEN
 - 1-23 - 230% OPEN
 - 1-24 - 240% OPEN
 - 1-25 - 250% OPEN
 - 1-26 - 260% OPEN
 - 1-27 - 270% OPEN
 - 1-28 - 280% OPEN
 - 1-29 - 290% OPEN
 - 1-30 - 300% OPEN
 - 1-31 - 310% OPEN
 - 1-32 - 320% OPEN
 - 1-33 - 330% OPEN
 - 1-34 - 340% OPEN
 - 1-35 - 350% OPEN
 - 1-36 - 360% OPEN
 - 1-37 - 370% OPEN
 - 1-38 - 380% OPEN
 - 1-39 - 390% OPEN
 - 1-40 - 400% OPEN
 - 1-41 - 410% OPEN
 - 1-42 - 420% OPEN
 - 1-43 - 430% OPEN
 - 1-44 - 440% OPEN
 - 1-45 - 450% OPEN
 - 1-46 - 460% OPEN
 - 1-47 - 470% OPEN
 - 1-48 - 480% OPEN
 - 1-49 - 490% OPEN
 - 1-50 - 500% OPEN
 - 1-51 - 510% OPEN
 - 1-52 - 520% OPEN
 - 1-53 - 530% OPEN
 - 1-54 - 540% OPEN
 - 1-55 - 550% OPEN
 - 1-56 - 560% OPEN
 - 1-57 - 570% OPEN
 - 1-58 - 580% OPEN
 - 1-59 - 590% OPEN
 - 1-60 - 600% OPEN
 - 1-61 - 610% OPEN
 - 1-62 - 620% OPEN
 - 1-63 - 630% OPEN
 - 1-64 - 640% OPEN
 - 1-65 - 650% OPEN
 - 1-66 - 660% OPEN
 - 1-67 - 670% OPEN
 - 1-68 - 680% OPEN
 - 1-69 - 690% OPEN
 - 1-70 - 700% OPEN
 - 1-71 - 710% OPEN
 - 1-72 - 720% OPEN
 - 1-73 - 730% OPEN
 - 1-74 - 740% OPEN
 - 1-75 - 750% OPEN
 - 1-76 - 760% OPEN
 - 1-77 - 770% OPEN
 - 1-78 - 780% OPEN
 - 1-79 - 790% OPEN
 - 1-80 - 800% OPEN
 - 1-81 - 810% OPEN
 - 1-82 - 820% OPEN
 - 1-83 - 830% OPEN
 - 1-84 - 840% OPEN
 - 1-85 - 850% OPEN
 - 1-86 - 860% OPEN
 - 1-87 - 870% OPEN
 - 1-88 - 880% OPEN
 - 1-89 - 890% OPEN
 - 1-90 - 900% OPEN
 - 1-91 - 910% OPEN
 - 1-92 - 920% OPEN
 - 1-93 - 930% OPEN
 - 1-94 - 940% OPEN
 - 1-95 - 950% OPEN
 - 1-96 - 960% OPEN
 - 1-97 - 970% OPEN
 - 1-98 - 980% OPEN
 - 1-99 - 990% OPEN
 - 1-100 - 1000% OPEN
- NOTES
1. 12 INCH SCHEDULE 160 PIPE
 2. 3/4 INCH PIPE x 3/8 INCH INSERT
 3. ALL ITEM NUMBERS INCLUDE 250% BEPS
 4. GLOBE VALVES ARE NORMALLY INSTALLED WITH F.O.D. UNDER SEAT EXCEPT 834A, 834B, 834C, 834D, 834E, 834F, 834G, 834H, 834I, 834J, 834K, 834L, 834M, 834N, 834O, 834P, 834Q, 834R, 834S, 834T, 834U, 834V, 834W, 834X, 834Y, 834Z, 834AA, 834AB, 834AC, 834AD, 834AE, 834AF, 834AG, 834AH, 834AI, 834AJ, 834AK, 834AL, 834AM, 834AN, 834AO, 834AP, 834AQ, 834AR, 834AS, 834AT, 834AU, 834AV, 834AW, 834AX, 834AY, 834AZ, 834BA, 834BB, 834BC, 834BD, 834BE, 834BF, 834BG, 834BH, 834BI, 834BJ, 834BK, 834BL, 834BM, 834BN, 834BO, 834BP, 834BQ, 834BR, 834BS, 834BT, 834BU, 834BV, 834BW, 834BX, 834BY, 834BZ, 834CA, 834CB, 834CC, 834CD, 834CE, 834CF, 834CG, 834CH, 834CI, 834CJ, 834CK, 834CL, 834CM, 834CN, 834CO, 834CP, 834CQ, 834CR, 834CS, 834CT, 834CU, 834CV, 834CW, 834CX, 834CY, 834CZ, 834DA, 834DB, 834DC, 834DD, 834DE, 834DF, 834DG, 834DH, 834DI, 834DJ, 834DK, 834DL, 834DM, 834DN, 834DO, 834DP, 834DQ, 834DR, 834DS, 834DT, 834DU, 834DV, 834DW, 834DX, 834DY, 834DZ, 834EA, 834EB, 834EC, 834ED, 834EE, 834EF, 834EG, 834EH, 834EI, 834EJ, 834EK, 834EL, 834EM, 834EN, 834EO, 834EP, 834EQ, 834ER, 834ES, 834ET, 834EU, 834EV, 834EW, 834EX, 834EY, 834EZ, 834FA, 834FB, 834FC, 834FD, 834FE, 834FF, 834FG, 834FH, 834FI, 834FJ, 834FK, 834FL, 834FM, 834FN, 834FO, 834FP, 834FQ, 834FR, 834FS, 834FT, 834FU, 834FV, 834FW, 834FX, 834FY, 834FZ, 834GA, 834GB, 834GC, 834GD, 834GE, 834GF, 834GG, 834GH, 834GI, 834GJ, 834GK, 834GL, 834GM, 834GN, 834GO, 834GP, 834GQ, 834GR, 834GS, 834GT, 834GU, 834GV, 834GW, 834GX, 834GY, 834GZ, 834HA, 834HB, 834HC, 834HD, 834HE, 834HF, 834HG, 834HH, 834HI, 834HJ, 834HK, 834HL, 834HM, 834HN, 834HO, 834HP, 834HQ, 834HR, 834HS, 834HT, 834HU, 834HV, 834HW, 834HX, 834HY, 834HZ, 834IA, 834IB, 834IC, 834ID, 834IE, 834IF, 834IG, 834IH, 834II, 834IJ, 834IK, 834IL, 834IM, 834IN, 834IO, 834IP, 834IQ, 834IR, 834IS, 834IT, 834IU, 834IV, 834IW, 834IX, 834IY, 834IZ, 834JA, 834JB, 834JC, 834JD, 834JE, 834JF, 834JG, 834JH, 834JI, 834JJ, 834JK, 834JL, 834JM, 834JN, 834JO, 834JP, 834JQ, 834JR, 834JS, 834JT, 834JU, 834JV, 834JW, 834JX, 834JY, 834JZ, 834KA, 834KB, 834KC, 834KD, 834KE, 834KF, 834KG, 834KH, 834KI, 834KJ, 834KK, 834KL, 834KM, 834KN, 834KO, 834KP, 834KQ, 834KR, 834KS, 834KT, 834KU, 834KV, 834KW, 834KX, 834KY, 834KZ, 834LA, 834LB, 834LC, 834LD, 834LE, 834LF, 834LG, 834LH, 834LI, 834LJ, 834LK, 834LL, 834LM, 834LN, 834LO, 834LP, 834LQ, 834LR, 834LS, 834LT, 834LU, 834LV, 834LW, 834LX, 834LY, 834LZ, 834MA, 834MB, 834MC, 834MD, 834ME, 834MF, 834MG, 834MH, 834MI, 834MJ, 834MK, 834ML, 834MM, 834MN, 834MO, 834MP, 834MQ, 834MR, 834MS, 834MT, 834MU, 834MV, 834MW, 834MX, 834MY, 834MZ, 834NA, 834NB, 834NC, 834ND, 834NE, 834NF, 834NG, 834NH, 834NI, 834NJ, 834NK, 834NL, 834NM, 834NN, 834NO, 834NP, 834NQ, 834NR, 834NS, 834NT, 834NU, 834NV, 834NW, 834NX, 834NY, 834NZ, 834OA, 834OB, 834OC, 834OD, 834OE, 834OF, 834OG, 834OH, 834OI, 834OJ, 834OK, 834OL, 834OM, 834ON, 834OO, 834OP, 834OQ, 834OR, 834OS, 834OT, 834OU, 834OV, 834OW, 834OX, 834OY, 834OZ, 834PA, 834PB, 834PC, 834PD, 834PE, 834PF, 834PG, 834PH, 834PI, 834PJ, 834PK, 834PL, 834PM, 834PN, 834PO, 834PP, 834PQ, 834PR, 834PS, 834PT, 834PU, 834PV, 834PW, 834PX, 834PY, 834PZ, 834QA, 834QB, 834QC, 834QD, 834QE, 834QF, 834QG, 834QH, 834QI, 834QJ, 834QK, 834QL, 834QM, 834QN, 834QO, 834QP, 834QQ, 834QR, 834QS, 834QT, 834QU, 834QV, 834QW, 834QX, 834QY, 834QZ, 834RA, 834RB, 834RC, 834RD, 834RE, 834RF, 834RG, 834RH, 834RI, 834RJ, 834RK, 834RL, 834RM, 834RN, 834RO, 834RP, 834RQ, 834RR, 834RS, 834RT, 834RU, 834RV, 834RW, 834RX, 834RY, 834RZ, 834SA, 834SB, 834SC, 834SD, 834SE, 834SF, 834SG, 834SH, 834SI, 834SJ, 834SK, 834SL, 834SM, 834SN, 834SO, 834SP, 834SQ, 834SR, 834SS, 834ST, 834SU, 834SV, 834SW, 834SX, 834SY, 834SZ, 834TA, 834TB, 834TC, 834TD, 834TE, 834TF, 834TG, 834TH, 834TI, 834TJ, 834TK, 834TL, 834TM, 834TN, 834TO, 834TP, 834TQ, 834TR, 834TS, 834TT, 834TU, 834TV, 834TW, 834TX, 834TY, 834TZ, 834UA, 834UB, 834UC, 834UD, 834UE, 834UF, 834UG, 834UH, 834UI, 834UJ, 834UK, 834UL, 834UM, 834UN, 834UO, 834UP, 834UQ, 834UR, 834US, 834UT, 834UU, 834UV, 834UW, 834UX, 834UY, 834UZ, 834VA, 834VB, 834VC, 834VD, 834VE, 834VF, 834VG, 834VH, 834VI, 834VJ, 834VK, 834VL, 834VM, 834VN, 834VO, 834VP, 834VQ, 834VR, 834VS, 834VT, 834VU, 834VV, 834VW, 834VX, 834VY, 834VZ, 834WA, 834WB, 834WC, 834WD, 834WE, 834WF, 834WG, 834WH, 834WI, 834WJ, 834WK, 834WL, 834WM, 834WN, 834WO, 834WP, 834WQ, 834WR, 834WS, 834WT, 834WU, 834WV, 834WW, 834WX, 834WY, 834WZ, 834XA, 834XB, 834XC, 834XD, 834XE, 834XF, 834XG, 834XH, 834XI, 834XJ, 834XK, 834XL, 834XM, 834XN, 834XO, 834XP, 834XQ, 834XR, 834XS, 834XT, 834XU, 834XV, 834XW, 834XX, 834XY, 834XZ, 834YA, 834YB, 834YC, 834YD, 834YE, 834YF, 834YG, 834YH, 834YI, 834YJ, 834YK, 834YL, 834YM, 834YN, 834YO, 834YP, 834YQ, 834YR, 834YS, 834YT, 834YU, 834YV, 834YW, 834YX, 834YY, 834YZ, 834ZA, 834ZB, 834ZC, 834ZD, 834ZE, 834ZF, 834ZG, 834ZH, 834ZI, 834ZJ, 834ZK, 834ZL, 834ZM, 834ZN, 834ZO, 834ZP, 834ZQ, 834ZR, 834ZS, 834ZT, 834ZU, 834ZV, 834ZW, 834ZX, 834ZY, 834ZZ

SAFETY INJECTION SYSTEM (Sheet 1)
 FIGURE 6.2-1
 January 16, 1970
 PAGE 3.2

2

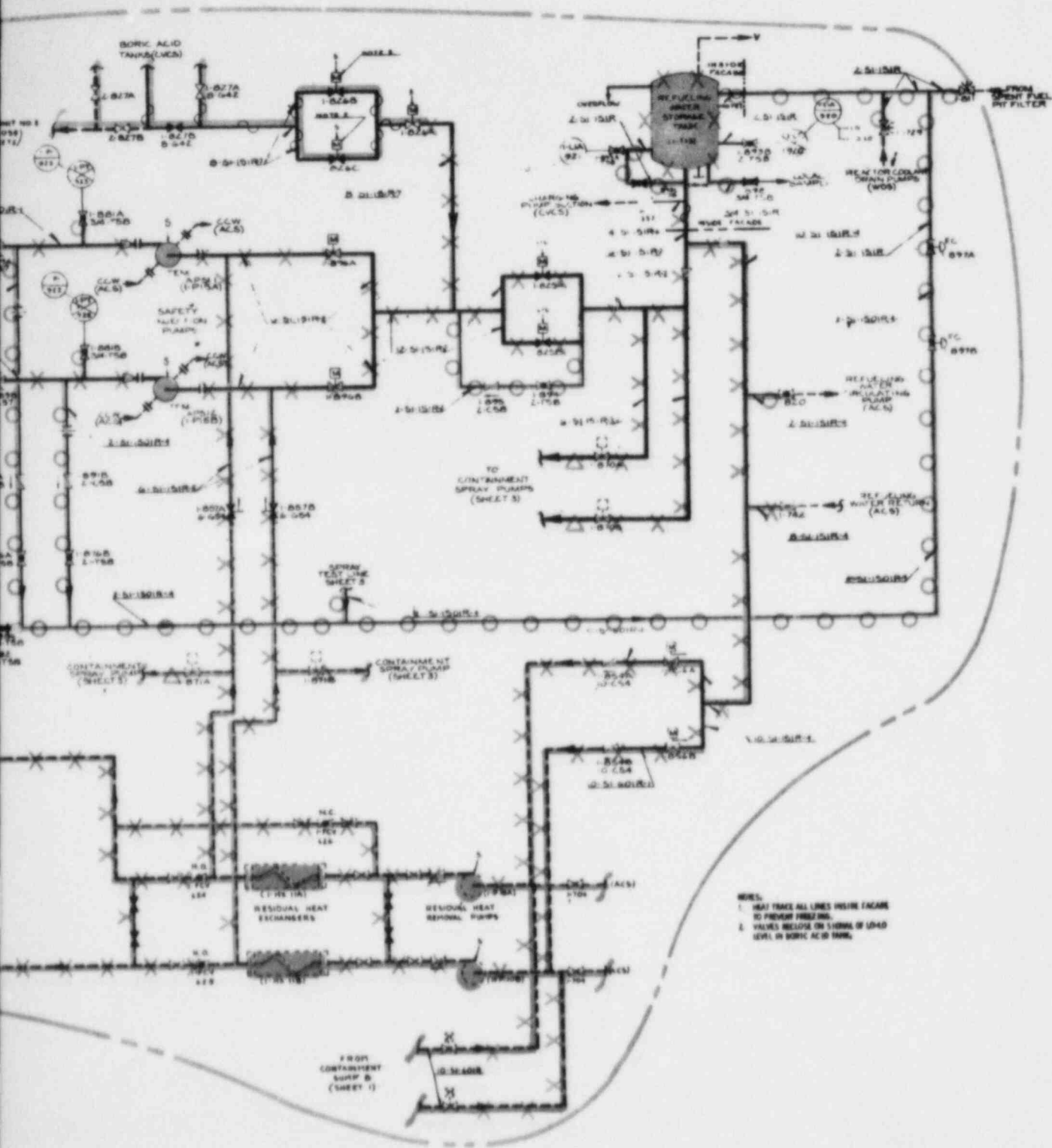
NOTES

1. SAFETY RELATED SYSTEM BOUNDARY -----
2. COMPONENTS 4 INCH AND SMALLER ○-○-○
3. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY X-X-X
4. COMPONENTS WHICH DO NOT FUNCTION DURING NORMAL REACTOR OPERATION △-△-△




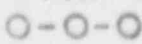

A.S.M.E. CLASS 2 IS GREEN

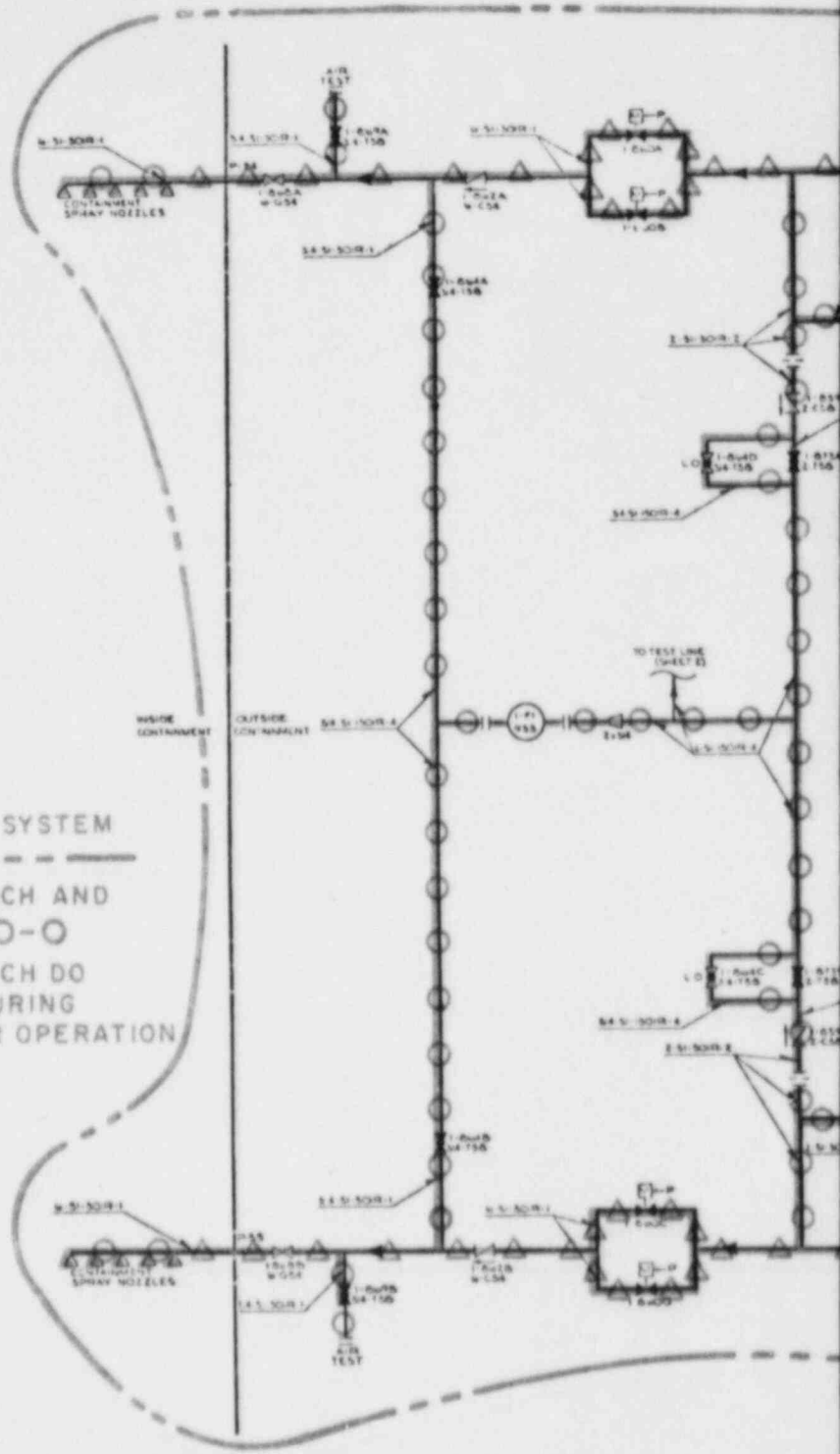
A.S.M.E. CLASS 3 IS BLUE



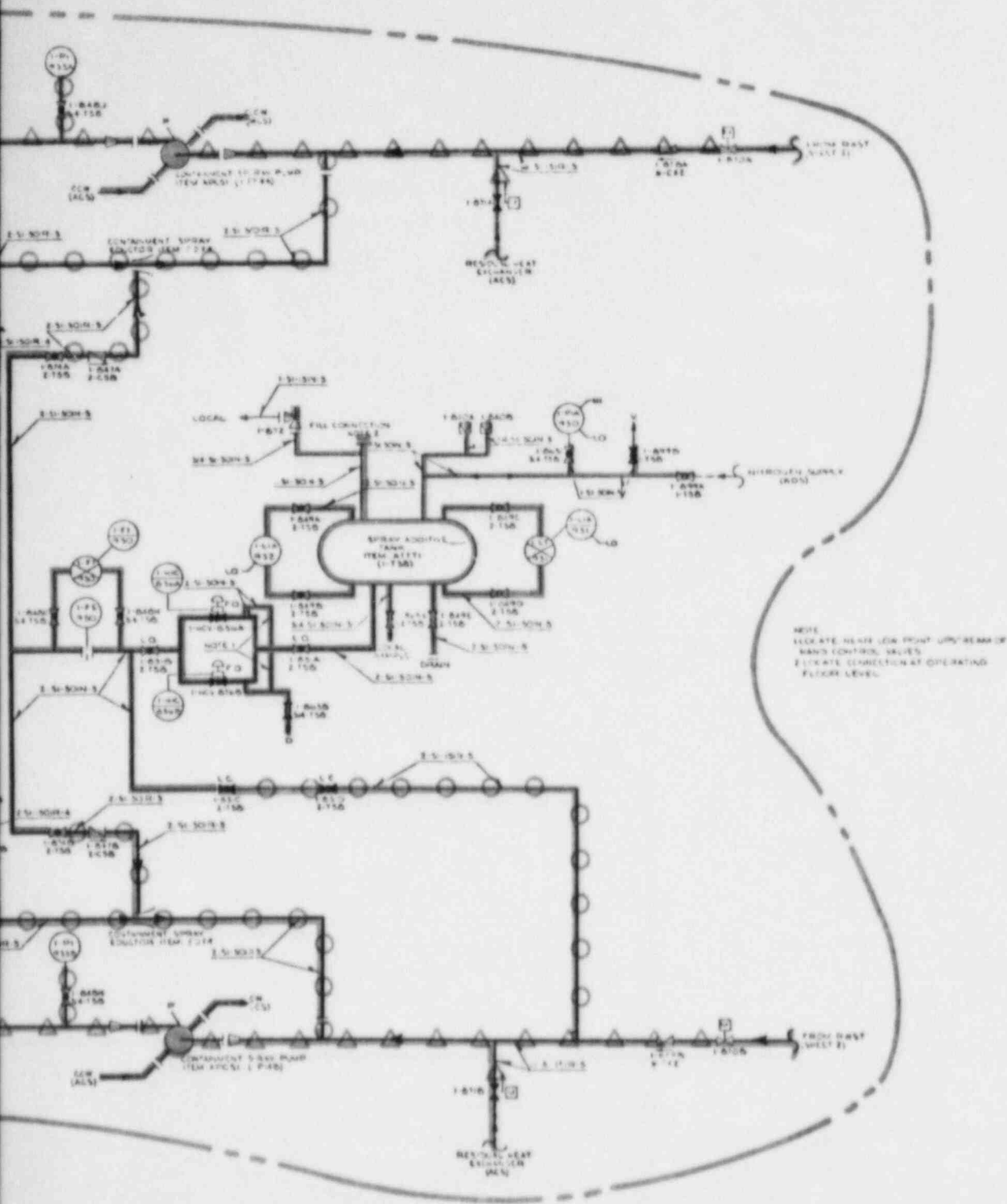
SAFETY INJECTION SYSTEM (Sheet 2)
 FIGURE 6.2-1

NOTES

1. SAFETY RELATED SYSTEM BOUNDARY 
2. COMPONENTS 4 INCH AND SMALLER 
3. COMPONENTS WHICH DO NOT FUNCTION DURING NORMAL REACTOR OPERATION 



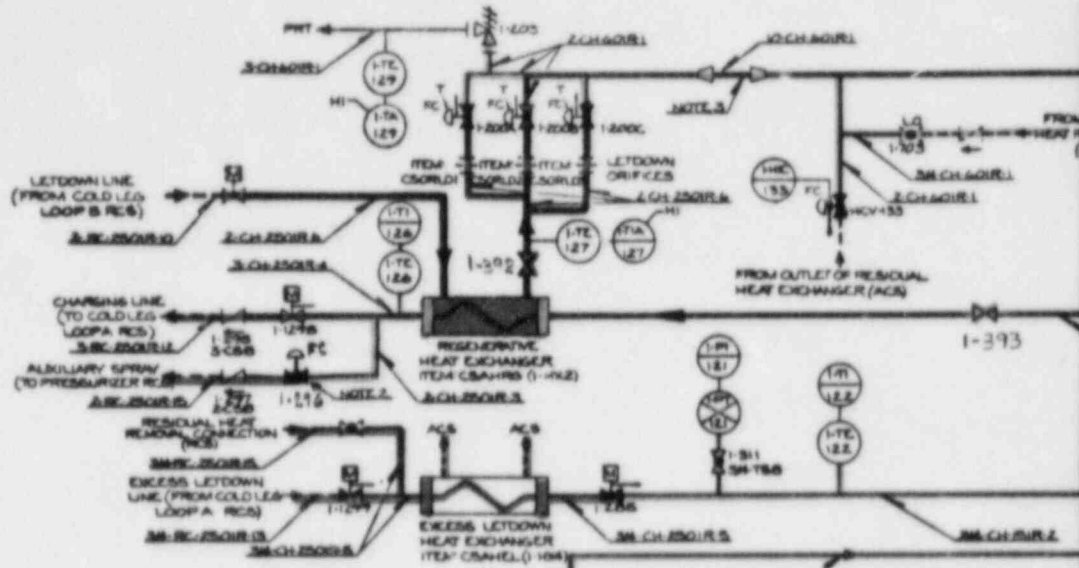
AS.ME. CLASS
AS.ME. CLASS



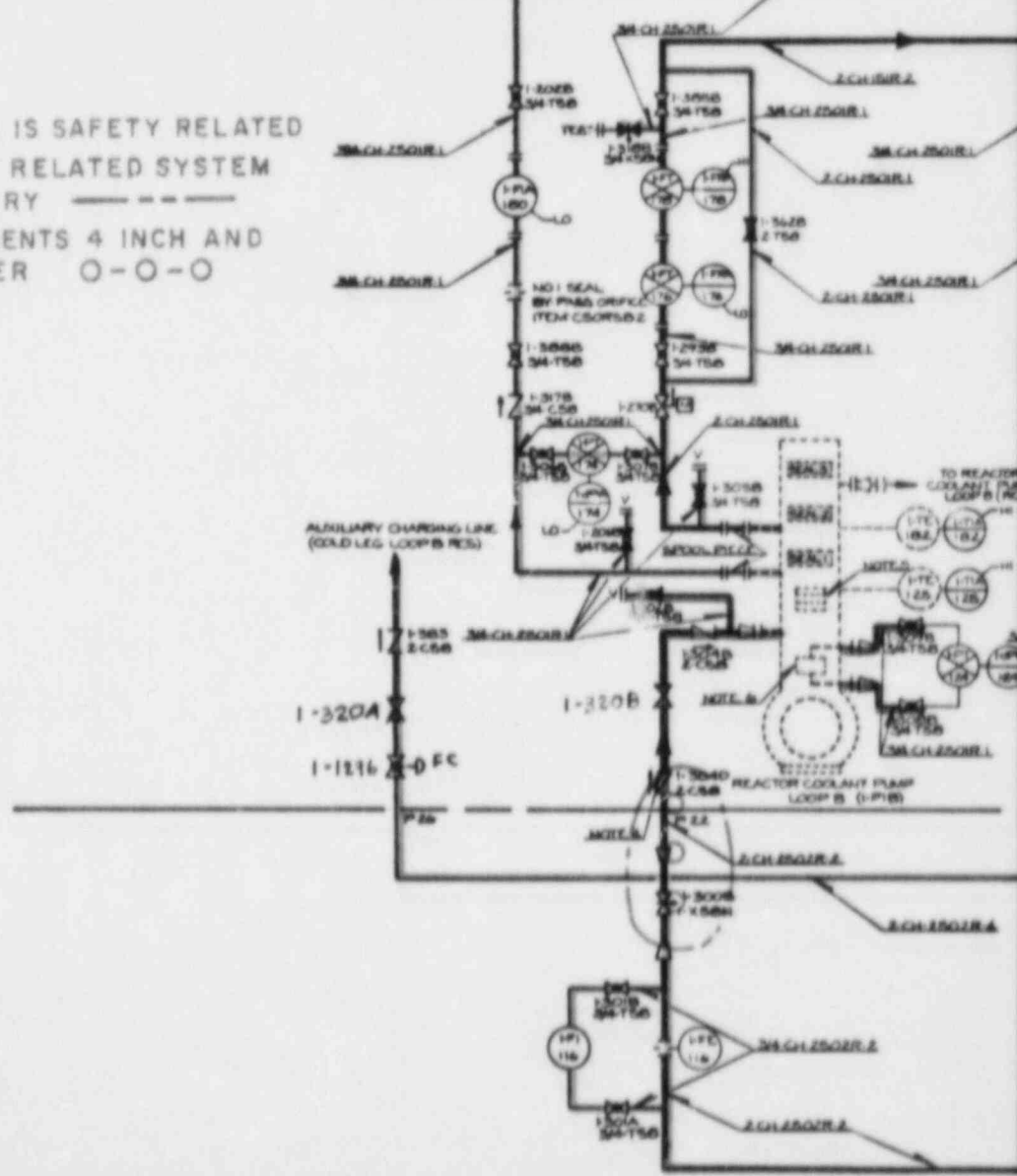
NOTE:
 1. CHECK VALVE LOW POINT UPSTREAM OF
 HAND CONTROL VALVES
 2. CHECK CONNECTION AT OPERATING
 FLOOR LEVEL

2 IN GREEN
 3 IN BLUE

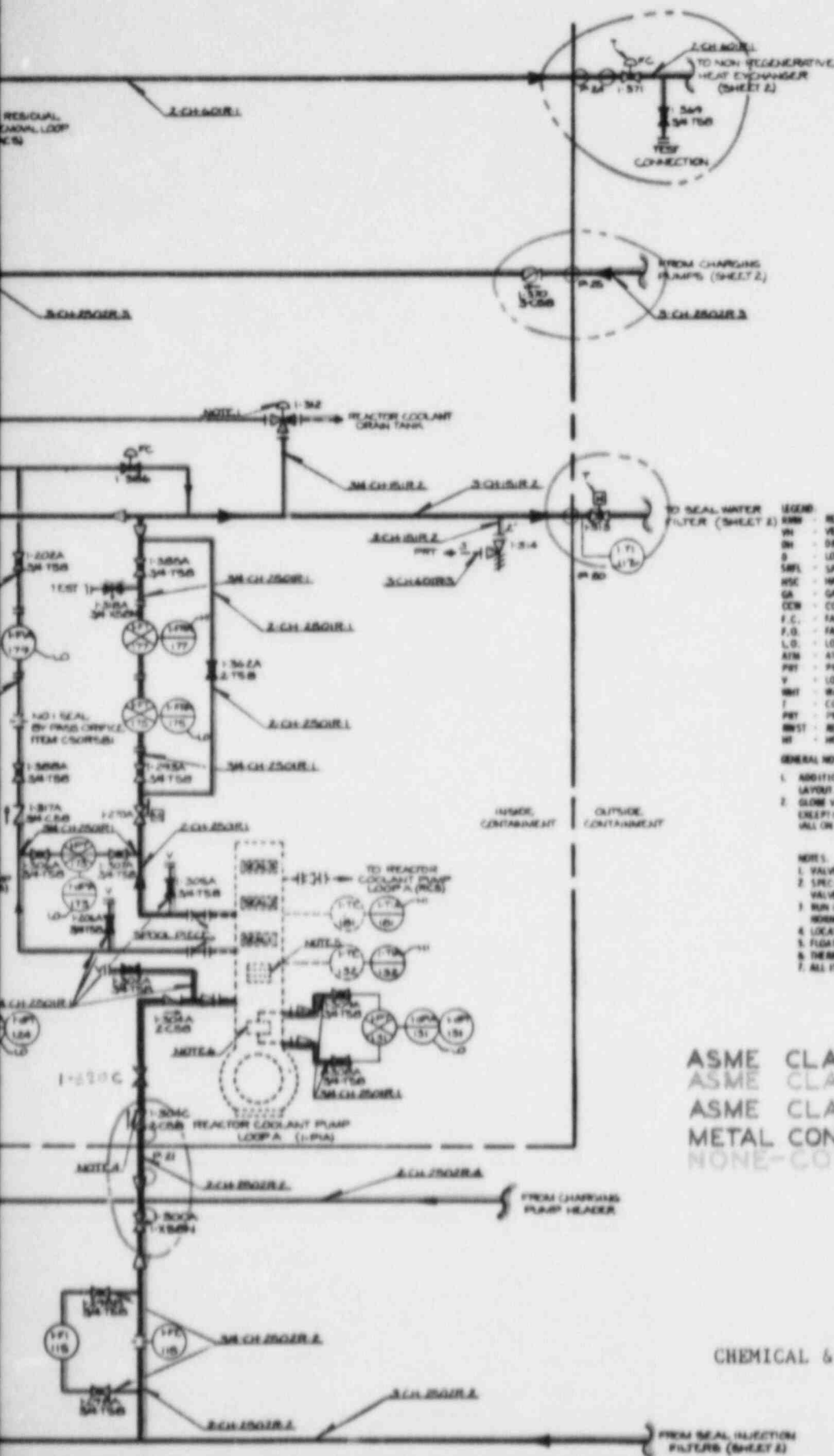
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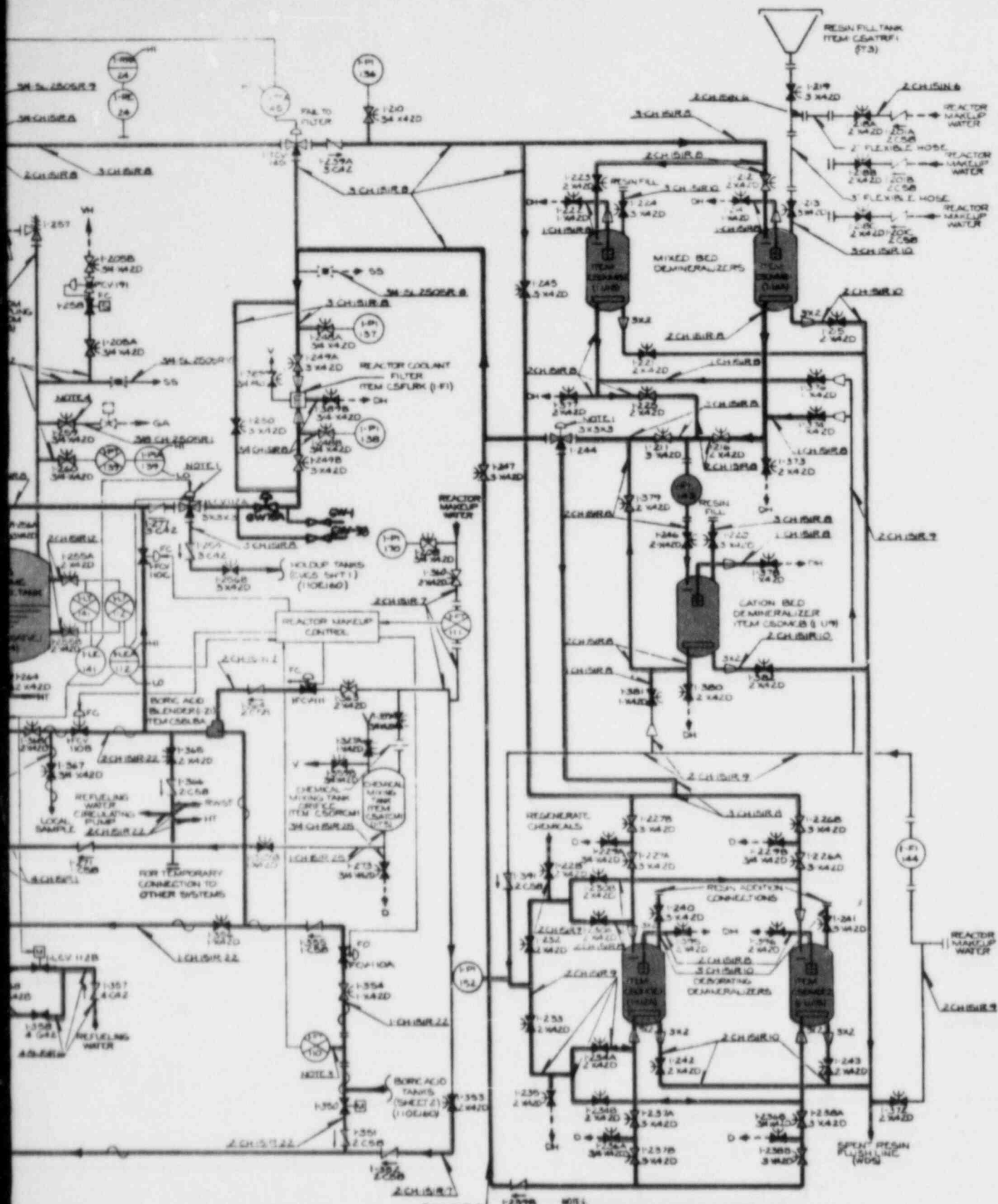
- NOTES
1. CLASS I IS SAFETY RELATED
 2. SAFETY RELATED SYSTEM BOUNDARY - - - - -
 3. COMPONENTS 4 INCH AND SMALLER ○-○-○



L



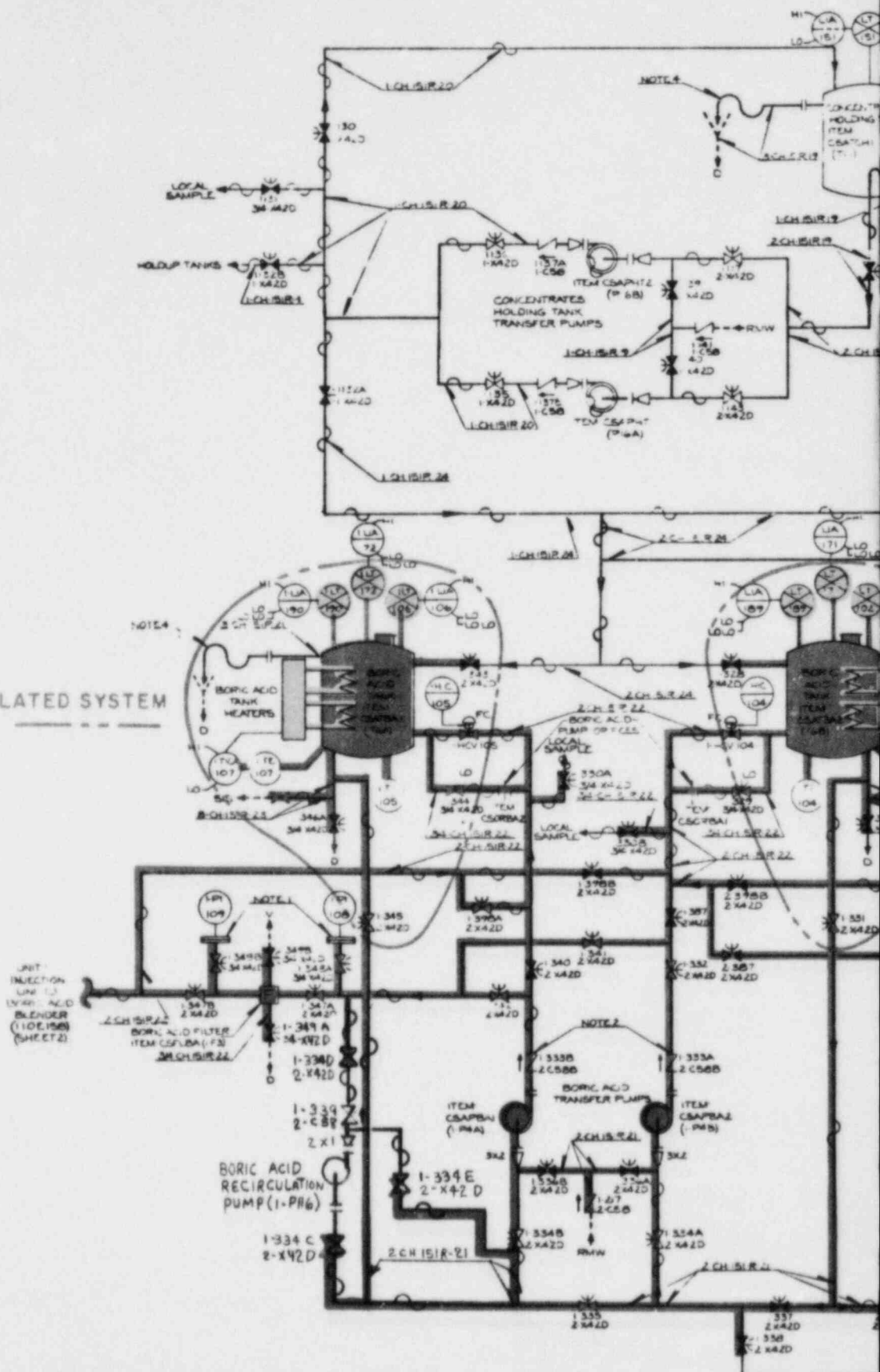
CHEMICAL & VOLUME CONTROL SYSTEM
 FIGURE 9.2-1
 PAGE 3.5



ASME CLASS 2 IS GREEN
 ASME CLASS 3 IS BLUE

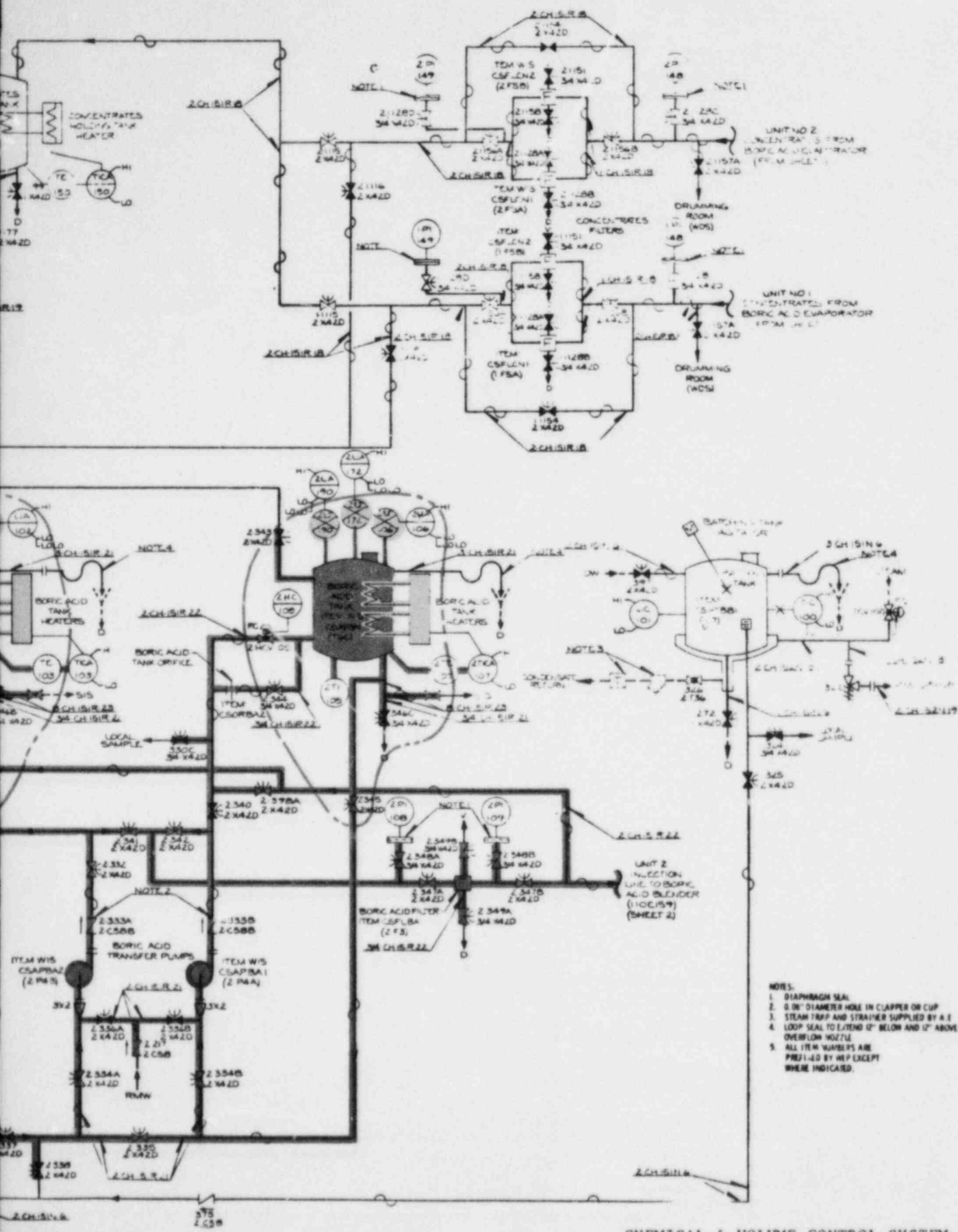
- NOTES
1. VALVE FAILS WITH FLOW TO THE VOLUME CONTROL TANK
 2. SPECIAL SPRING LOADED CHECK VALVE
 3. ELECTROMAGNETIC LOCATE METER IN VERTICAL PIPE RUN
 4. 3/8" NOMINAL PIPE O.D. 3/8" TUBING INSERT
 5. DRA IN FROM STUFFING BOX LEAKOFF
 6. ALL ITEM NUMBERS INCLUDE THE PREFIX WEP

CHEMICAL & VOLUME CONTROL SYSTEM
 FIGURE 9.2-2
 PAGE 3.6



NOTE
 I. SAFETY RELATED SYSTEM
 BOUNDARY - - - - -

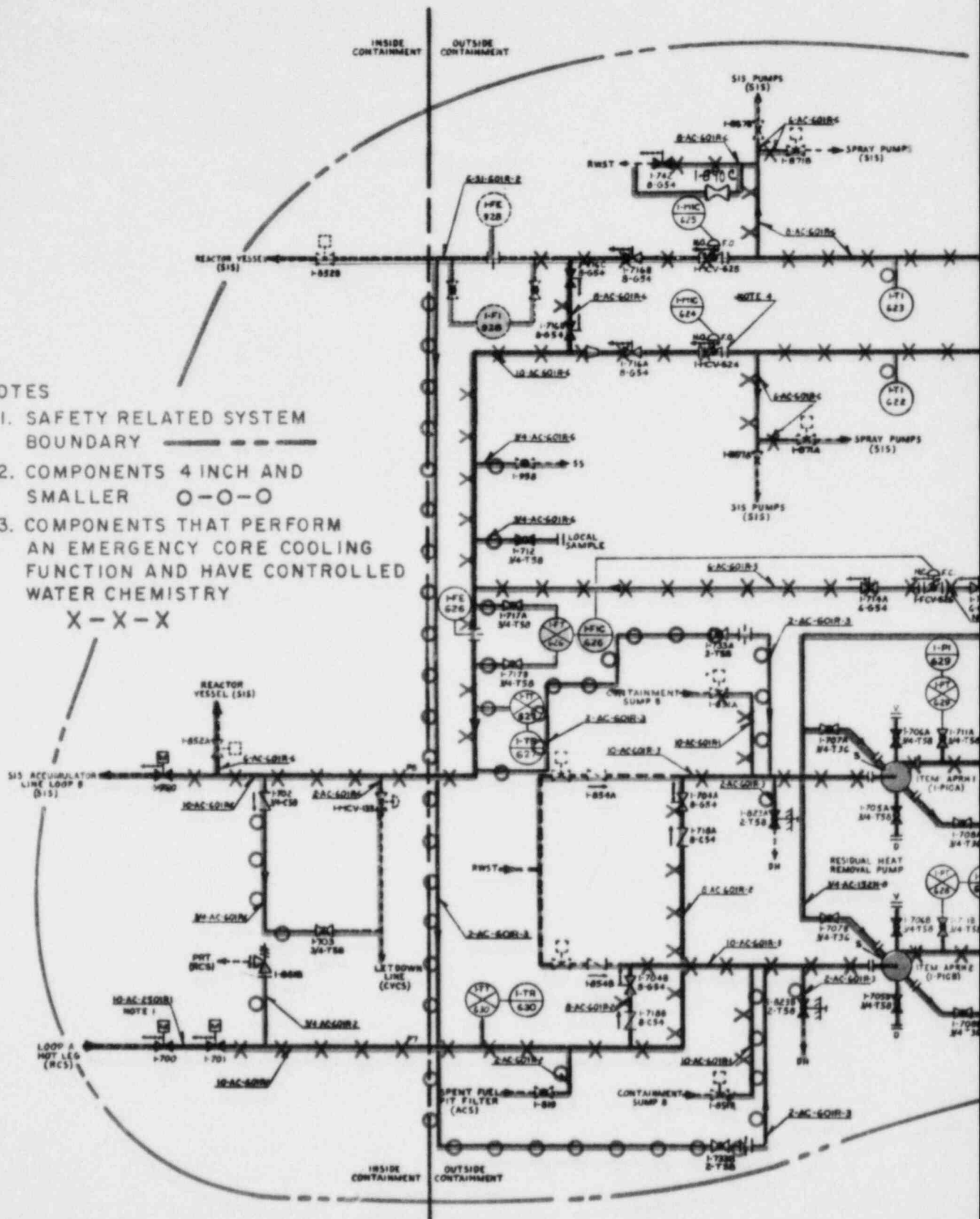
A.S.M.E. CLASS 3 IS BLUE
 NON-CODE Q.A. IS YELLOW

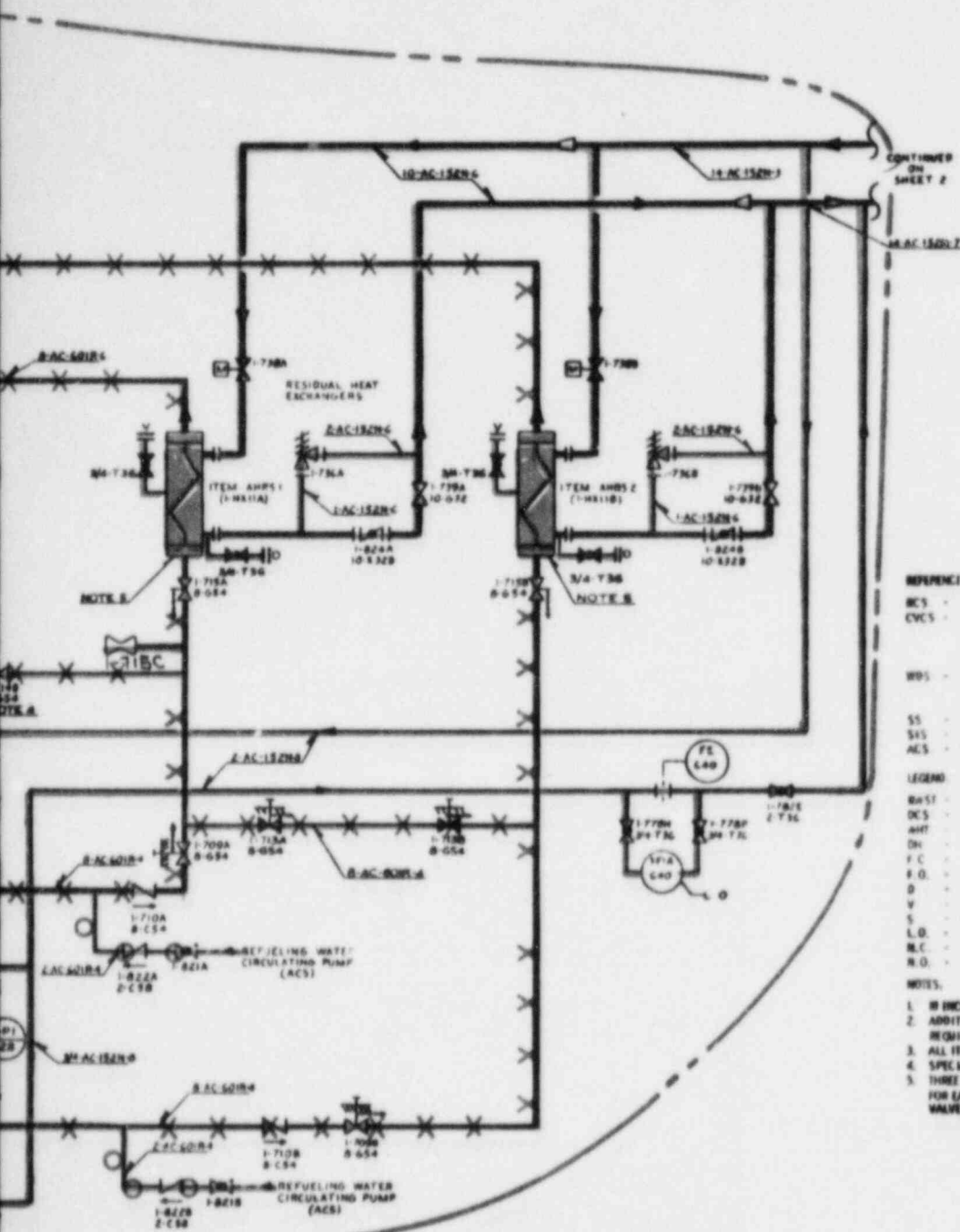


CHEMICAL & VOLUME CONTROL SYSTEM
FIGURE 9.2-4

NOTES

1. SAFETY RELATED SYSTEM BOUNDARY
2. COMPONENTS 4 INCH AND SMALLER
3. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY





CONTINUED
ON
SHEET 2

REFERENCE DRAWINGS:

- RC'S - REACTOR COOLANT SYSTEM & DRG 50 F 08
- CVCS - CHEMICAL & VOLUME CONTROL SYSTEM
SHEET H & D, DRG 00 J 00
SHEET K & V, DRG 00 J 00
SHEET M & W, DRG 50 F 04
- WDS - WASTE DISPOSAL SYSTEM
SHEET N & Q, DRG 00 J 01
SHEET R & X, DRG 00 J 02
- SS - SAMPLING SYSTEM & DRG 50 F 02
- SAS - SAFETY INJECTION SYSTEM & DRG 00 E 07
- ACS - AUXILIARY COOLANT SYSTEM & DRG 00 E 02 (UNIT 2)

LEGEND:

- RWST - REFUELING WATER STORAGE
- DCS - DRAIN TO CONFINEMENT SUMP
- WHT - WASTE HOLDUP TANK
- DN - DRAIN HEADERS
- FC - FAIL CLOSED
- FO - FAIL OPEN
- D - LOCAL DRAIN
- V - LOCAL VIEW
- S - SAFETY INJECTION SIGNAL
- L.O. - LOCKED OPEN
- N.C. - NORMALLY CLOSED
- N.O. - NORMALLY OPEN

NOTES:

1. SEE SCHEDULE 08.
2. ADDITIONAL VENTS AND DRAINS MAY BE REQUIRED BASED ON LAYOUT.
3. ALL ITEM PUMPS INCLUDE PUMPS W/SLAC.
4. SPECIAL FLANGE 3000 TYPE 300.
5. THREE LOCAL DRAINS TO BE PROVIDED FOR EACH HO BEHIND WITH 3/4" FN VALVES AND BLIND FLANGES.

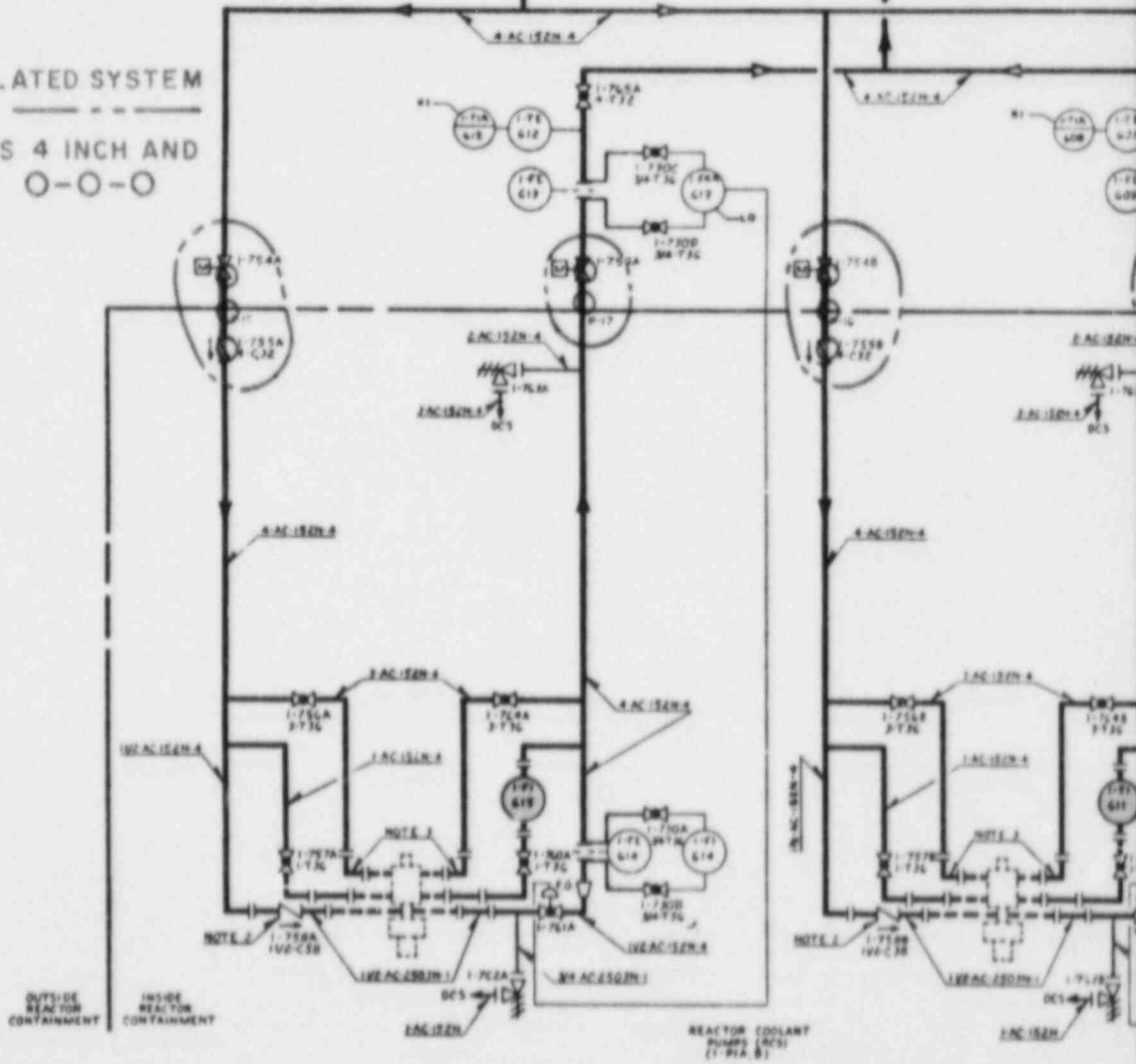
ASME CLASS 1 IS RED
ASME CLASS 2 IS GREEN
ASME CLASS 3 IS BLUE
NON CODE QA IS YELLOW

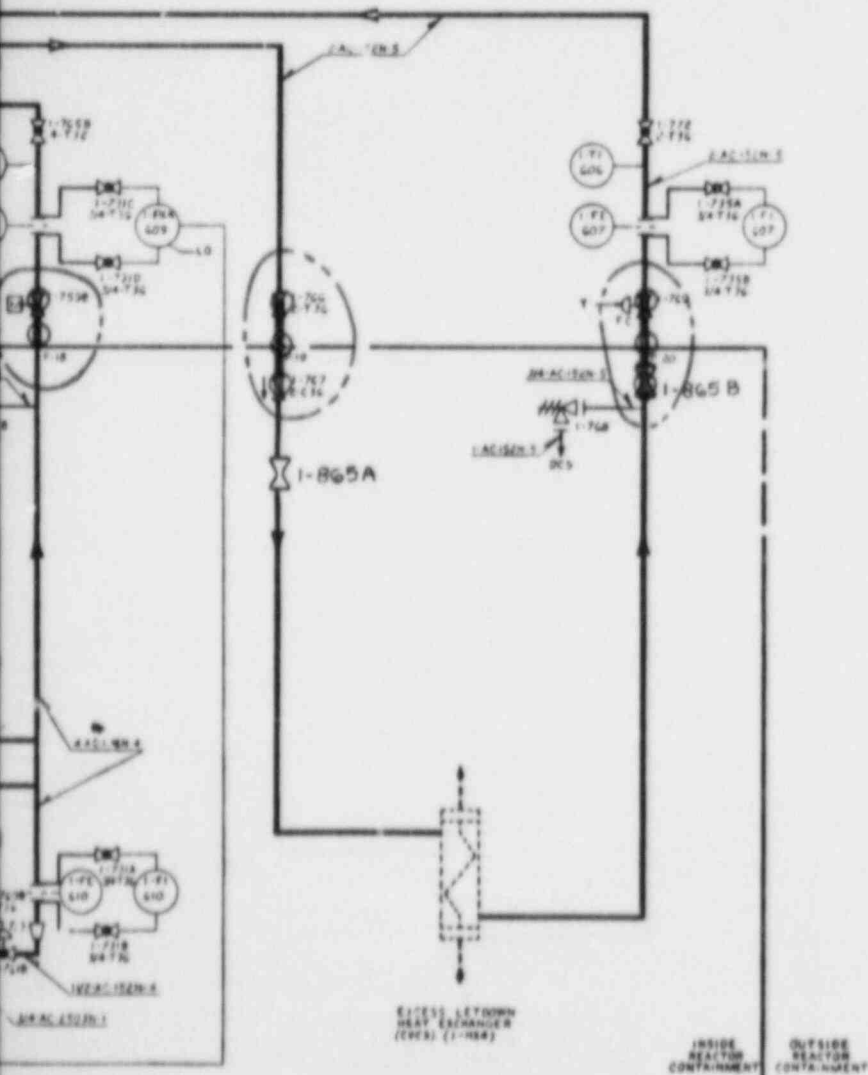
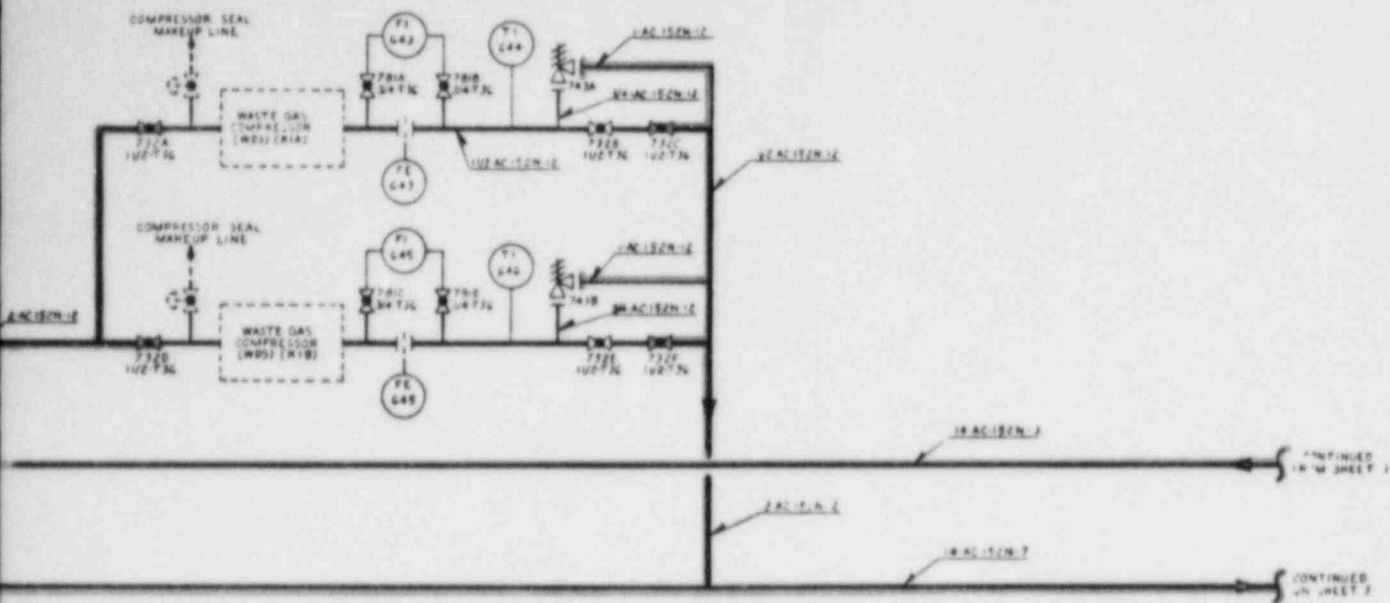
AUXILIARY COOLANT SYSTEM
FIGURE 9.3-1
PAGE 3.8



NOTES

1. SAFETY RELATED SYSTEM BOUNDARY - - - - -
2. COMPONENTS 4 INCH AND SMALLER ○-○-○





NOTE:

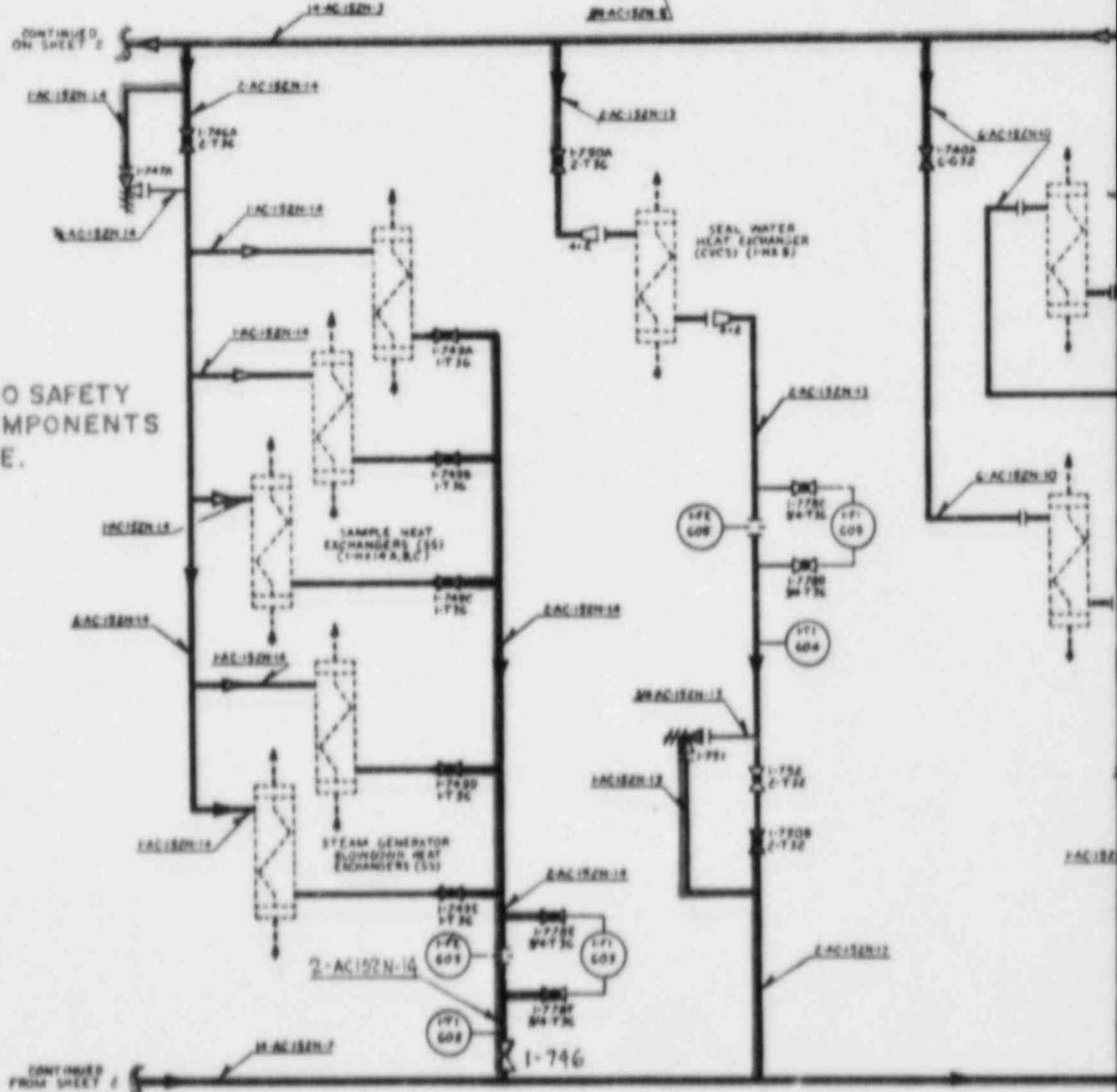
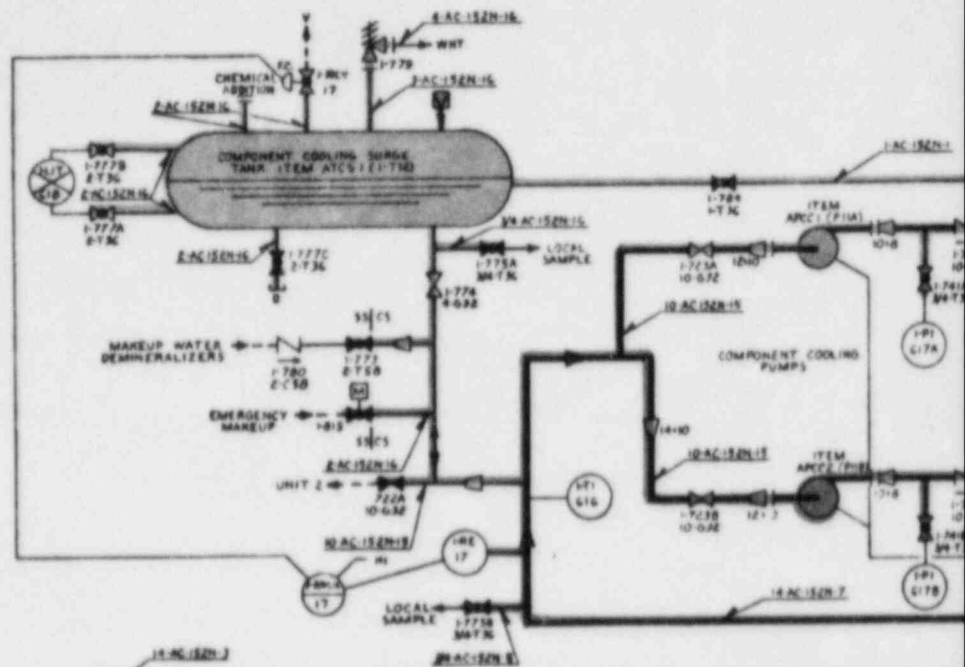
- 1 ALL ITEM NOT INCLUDE PREFIX WEPAC
- 2 SPRING LOADED CHECK VALVE
- 3 SPOOL PIECE FOR MAINTAINABLE

A.S.M.E. CLASS 3 IN BLUE

NON-CODE Q.A. IS YELLOW

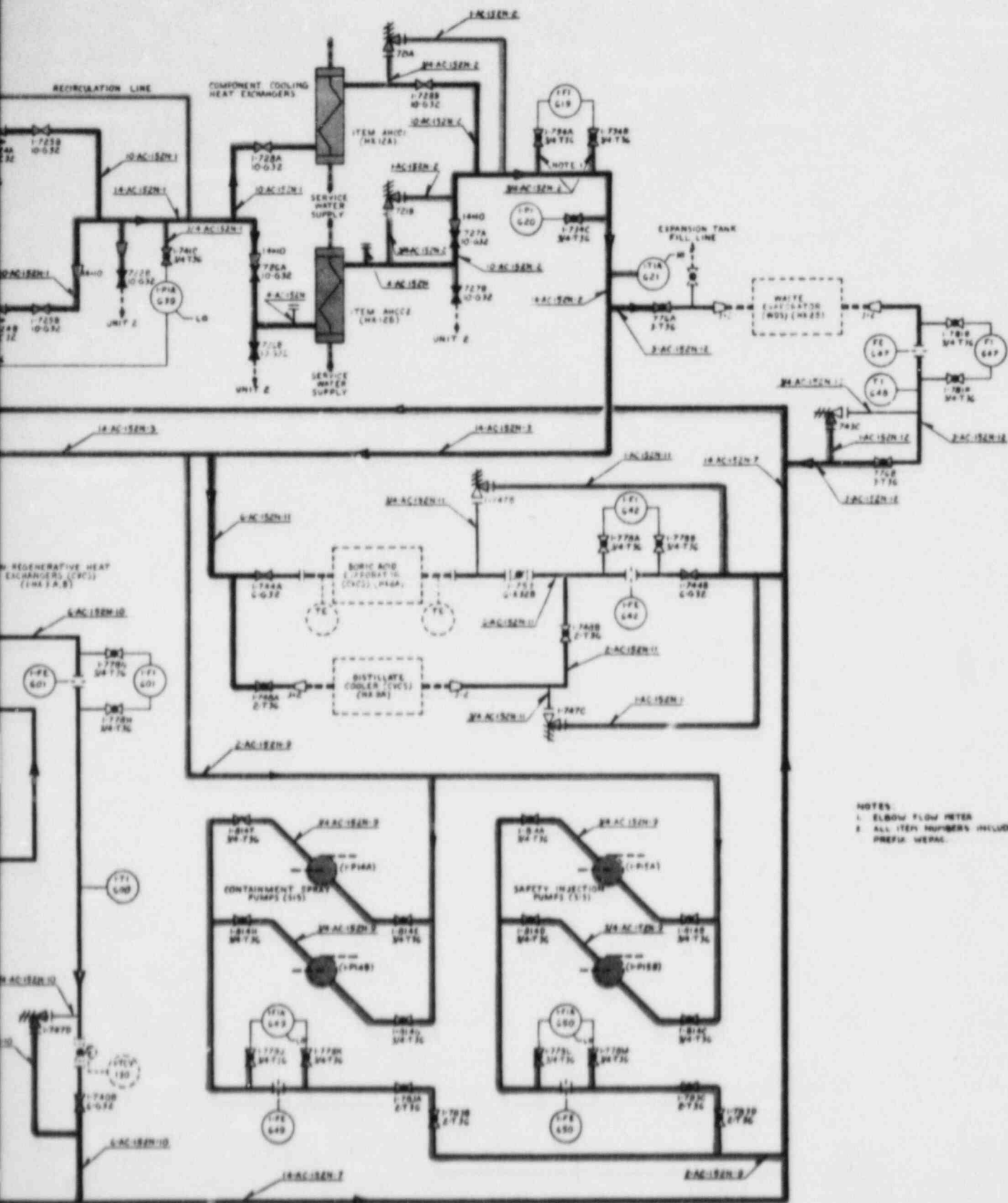
METAL CONTAINMENT IS BROWN

AUXILIARY COOLANT SYSTEM
 FIGURE 9.3-2
 PAGE 3.9



NOTE
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE.

CONTINUED FROM SHEET 2

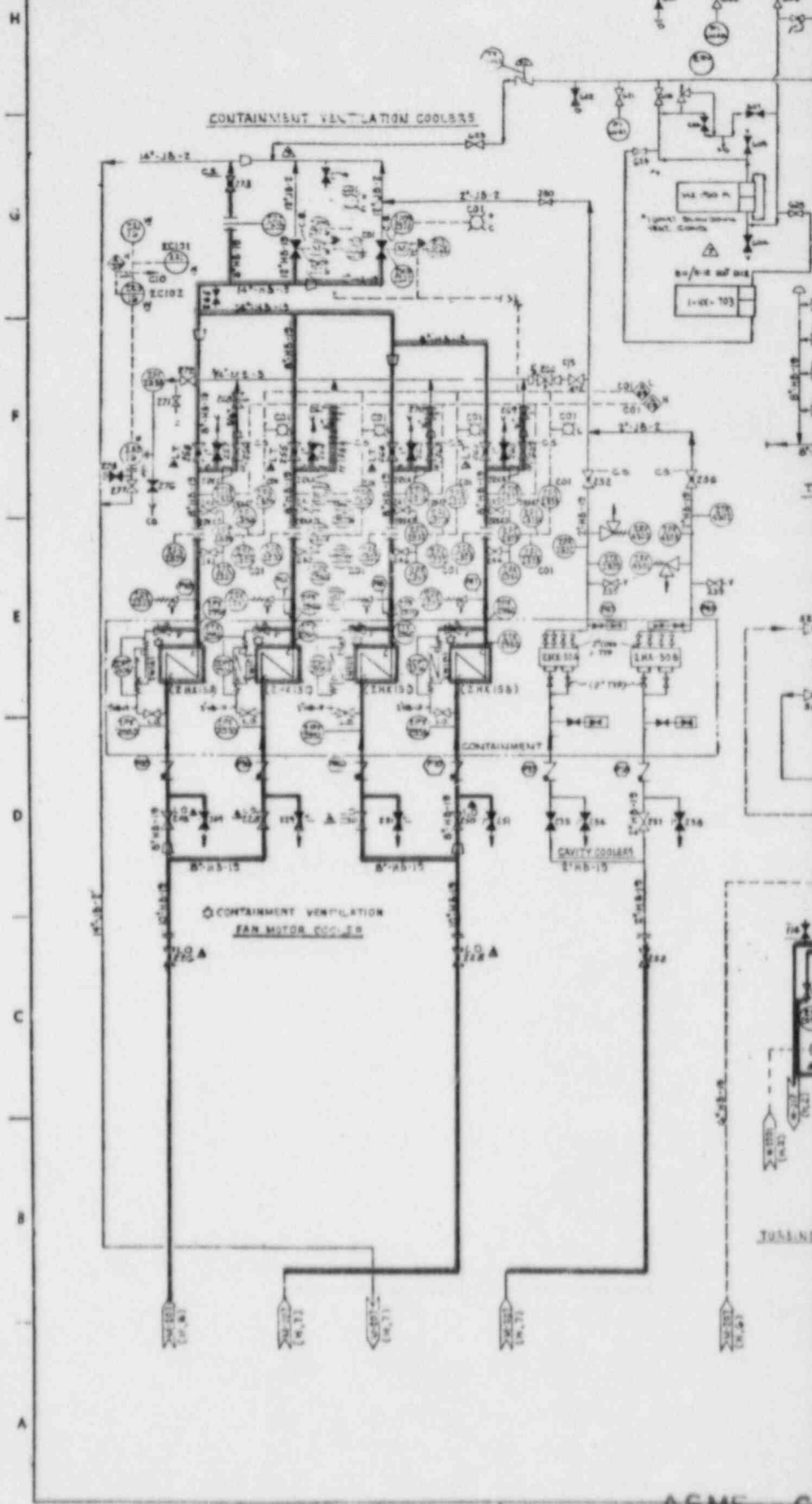


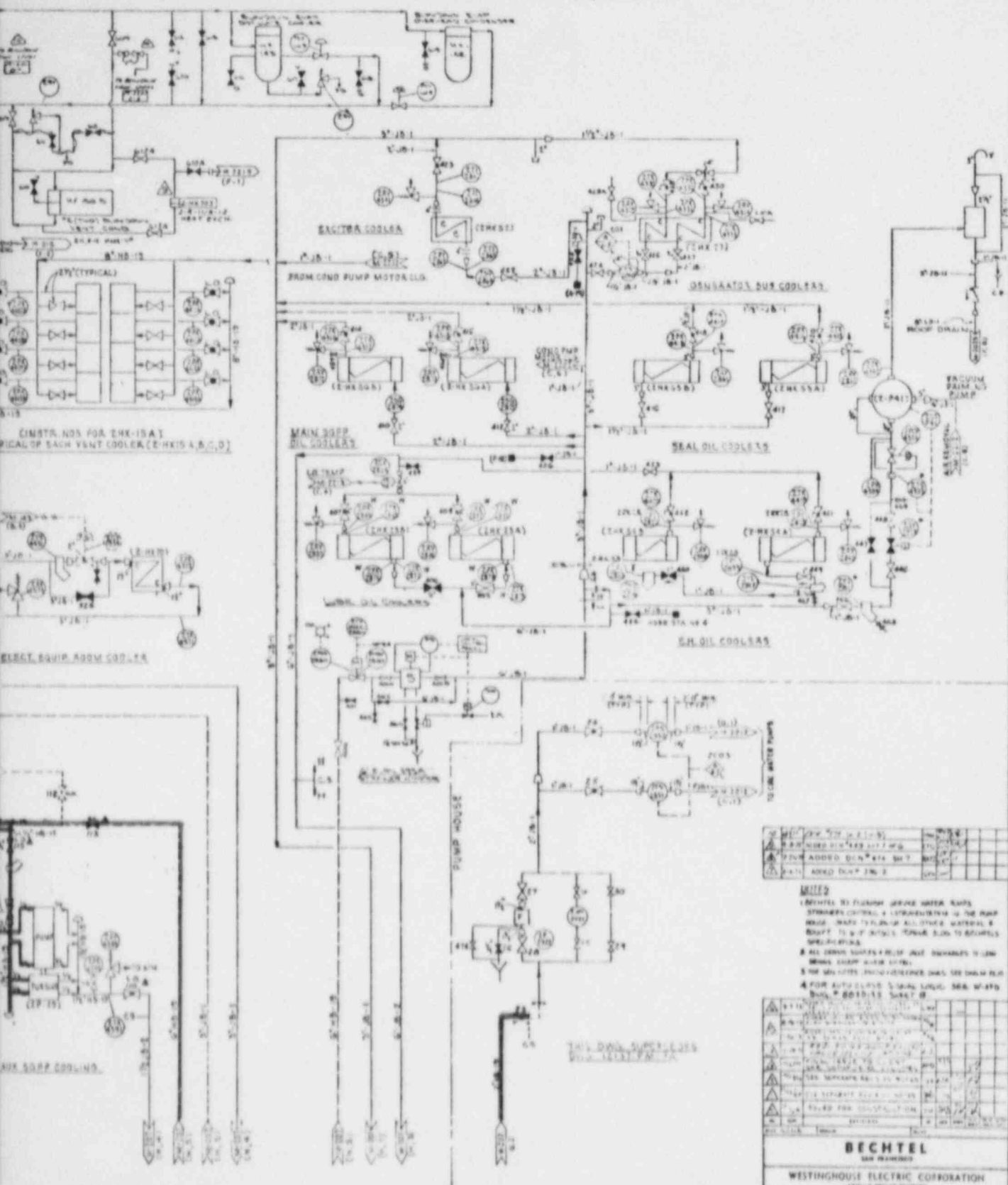
NOTES:
 1. ELBOW FLOW METER
 2. ALL ITEM NUMBERS INCLUDE PREFIX WEPAC

A.S.M.E. CLASS 3 IS BLUE
 NON-CODE QA IS YELLOW

AUXILIARY COOLANT SYSTEM
 FIGURE 9.3-3
 PAGE 3.10

M-2207





1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8

- NOTES**
1. REFER TO FLUORINE DRIVE WATER PUMPS, STRAINER CONTROL & INSTRUMENTATION IN THE PUMP ROOM. MAKE TYPICAL OF ALL OTHER MATERIAL & SHUFFLE TO 6" PIPING. FORMER 3.06 TO BE REPLACED SPECIFICALLY.
 2. ALL DRY COOLERS & OIL COOLERS SHOWN IN LOW PRESSURE GROUP WATER SYSTEM.
 3. THE VACUUM PUMP MOTOR CLO. SEE DRAWING PLAN # 6010-15 SHEET 2.
 4. FOR ADDITIONAL SIZING LOGS, SEE DRAWING PLAN # 6010-15 SHEET 2.

1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8

BECHTEL
SAN FRANCISCO

WESTINGHOUSE ELECTRIC CORPORATION
ATOMIC REACTOR DIVISION

POINT BEACH NUCLEAR PLANT
REACTOR SYSTEMS POWER CO. 2011
REACTOR SYSTEMS POWER CO. 2011

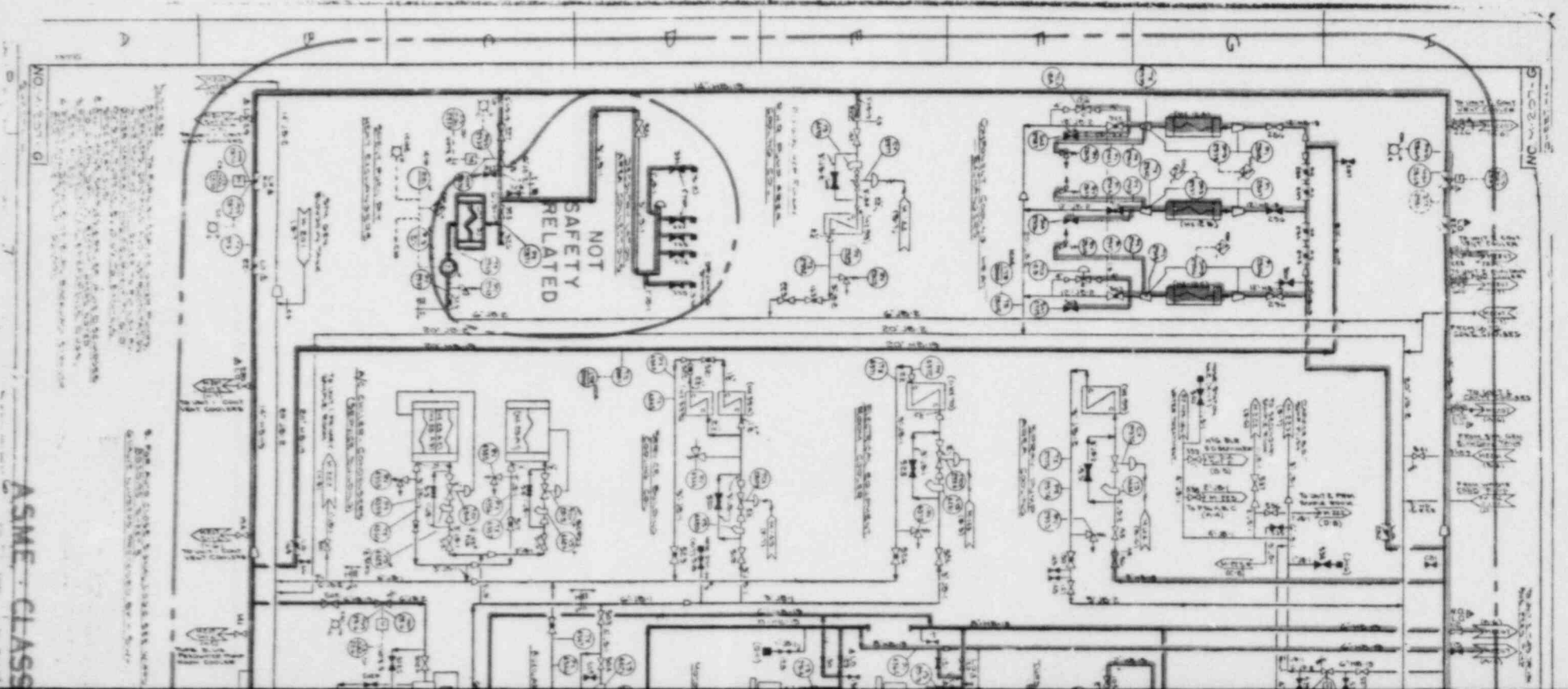
REV. 1-71
PIPING & INSTRUMENT DIAGRAM
S.S.V. 15 WATER

6118	1-2207	87
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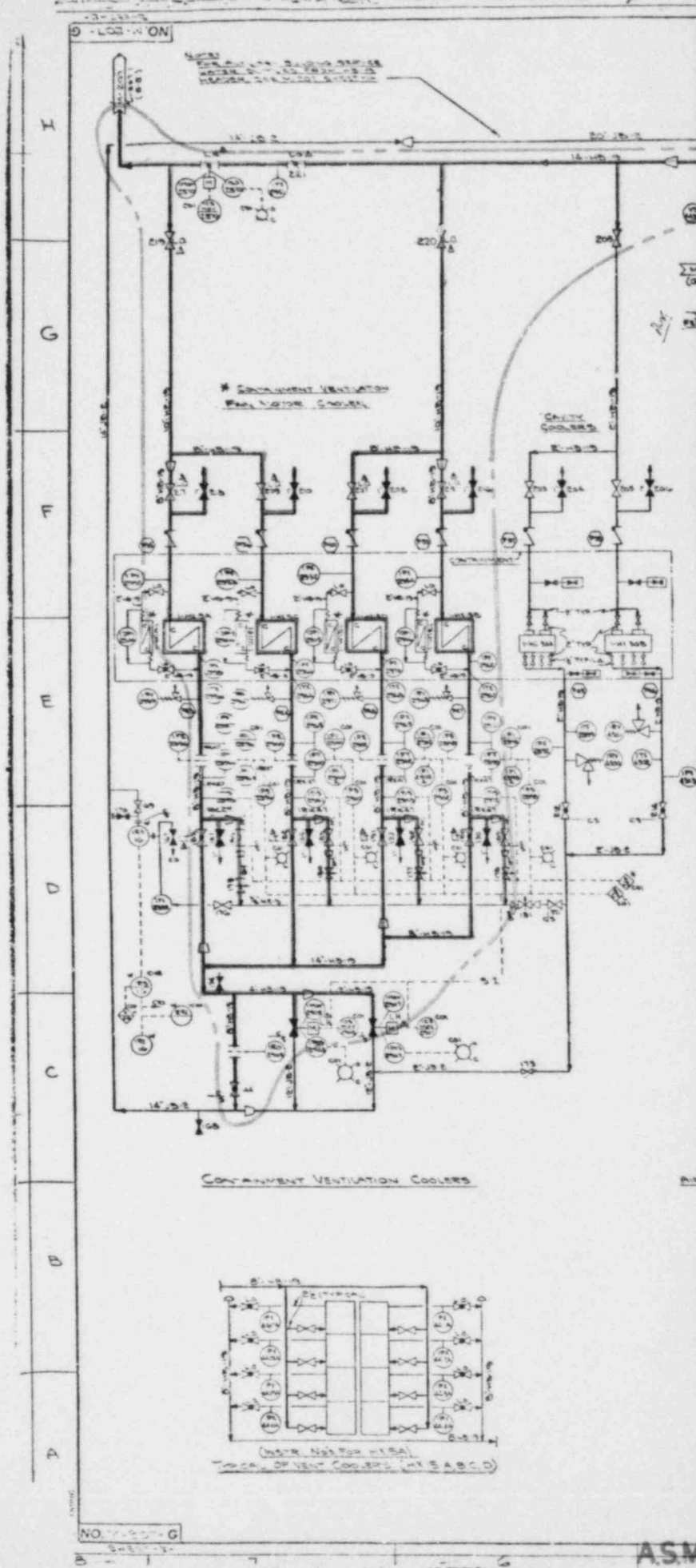
CLASS 3 IS BLUE

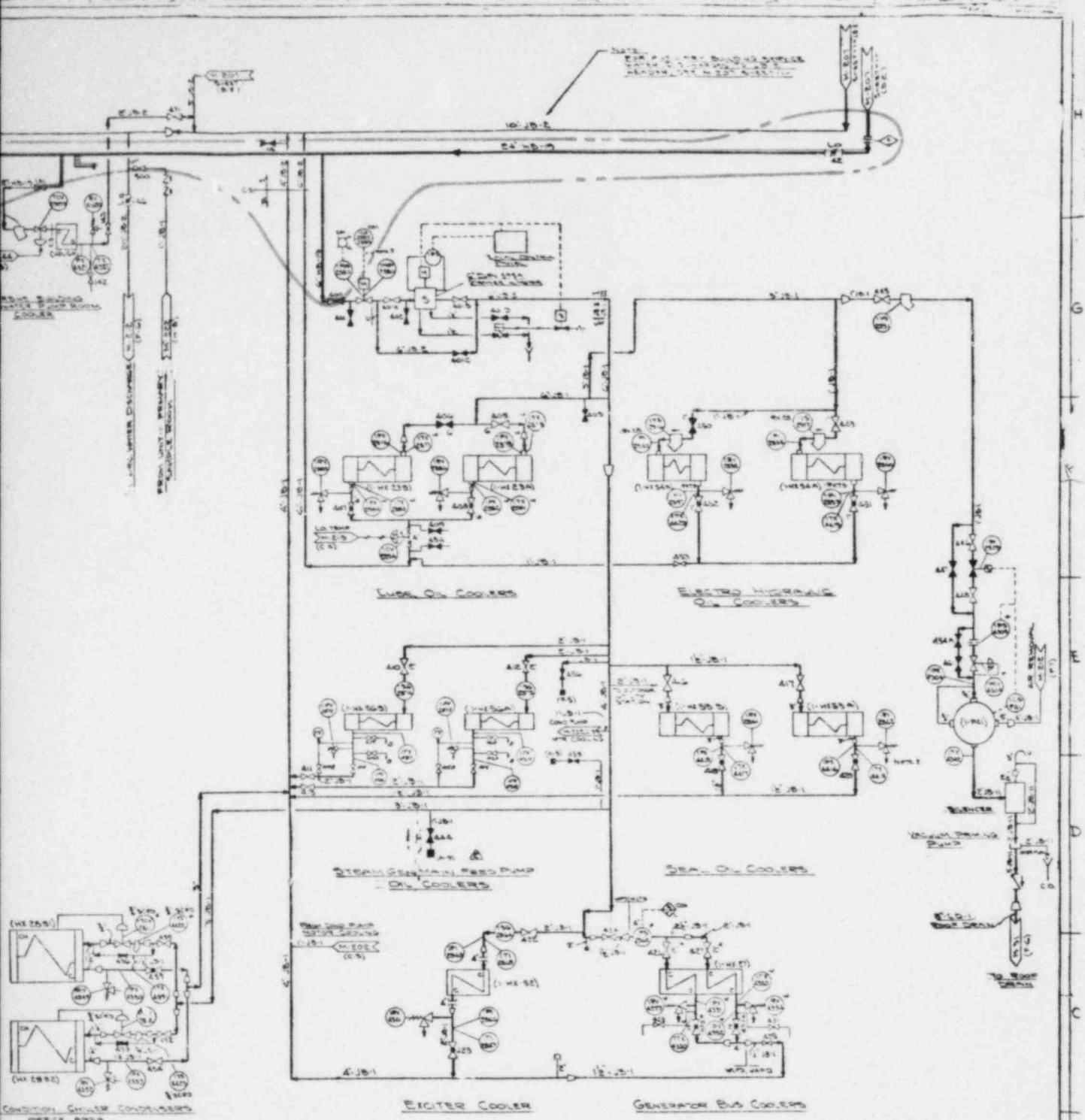
NOTES

1. SAFETY RELATED SYSTEM
BOUNDARY - - - - -
2. NON CLASS 3 LINES ARE
NOT SAFETY RELATED



NOTE
 1. SAFETY RELATED SYSTEM
 BOUNDARY





CONDENSER CIRCUIT CONTROLS
SERVICE MANUAL

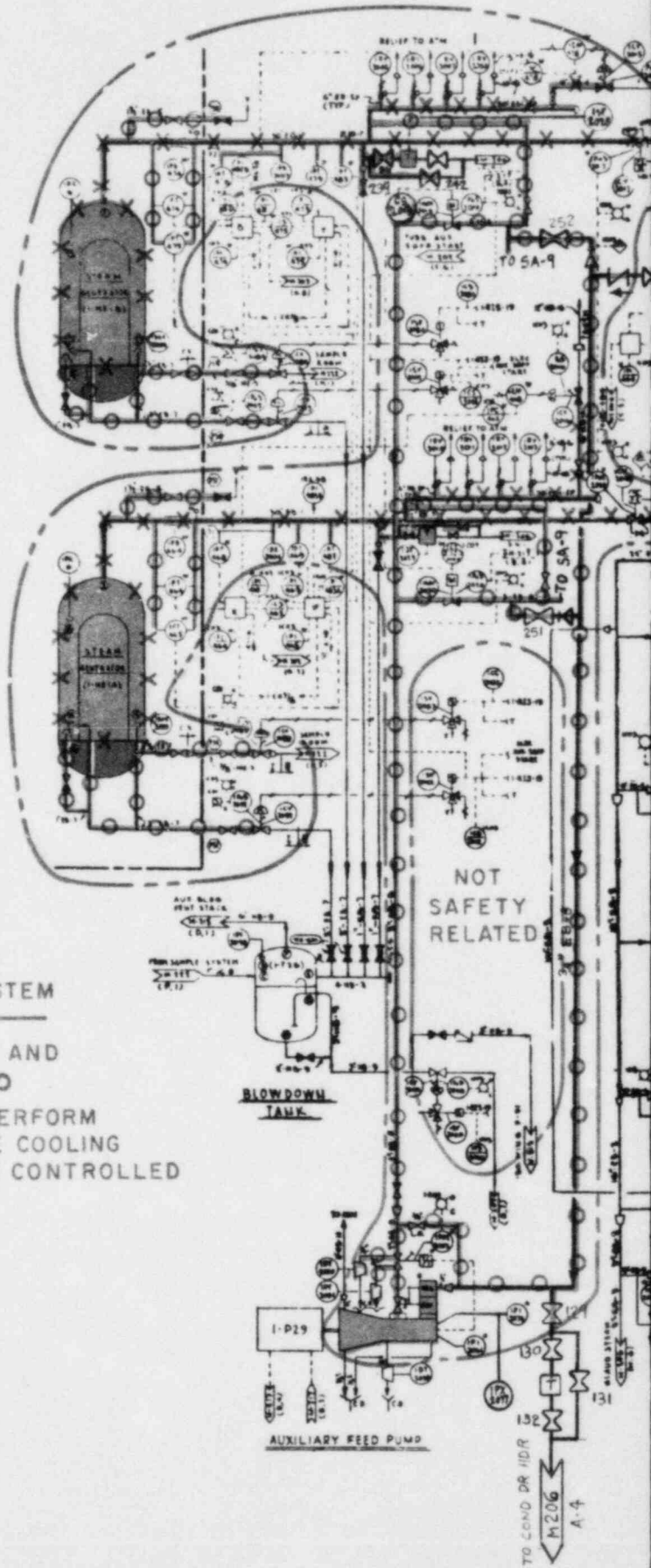
This Diagram Serves as a Guide for the
Operator and is not to be used as a
basis for design or construction.
For Notes and Corrections See
M-201, SHEET 10 OF 10 AND
INSTRUMENT DESIGN SERVICE WORK

NOTE: FOR OTHER DATA SEE M-201
(OR DRAWING NO.)

REVISION				WISCONSIN ELECTRIC POWER COMPANY			
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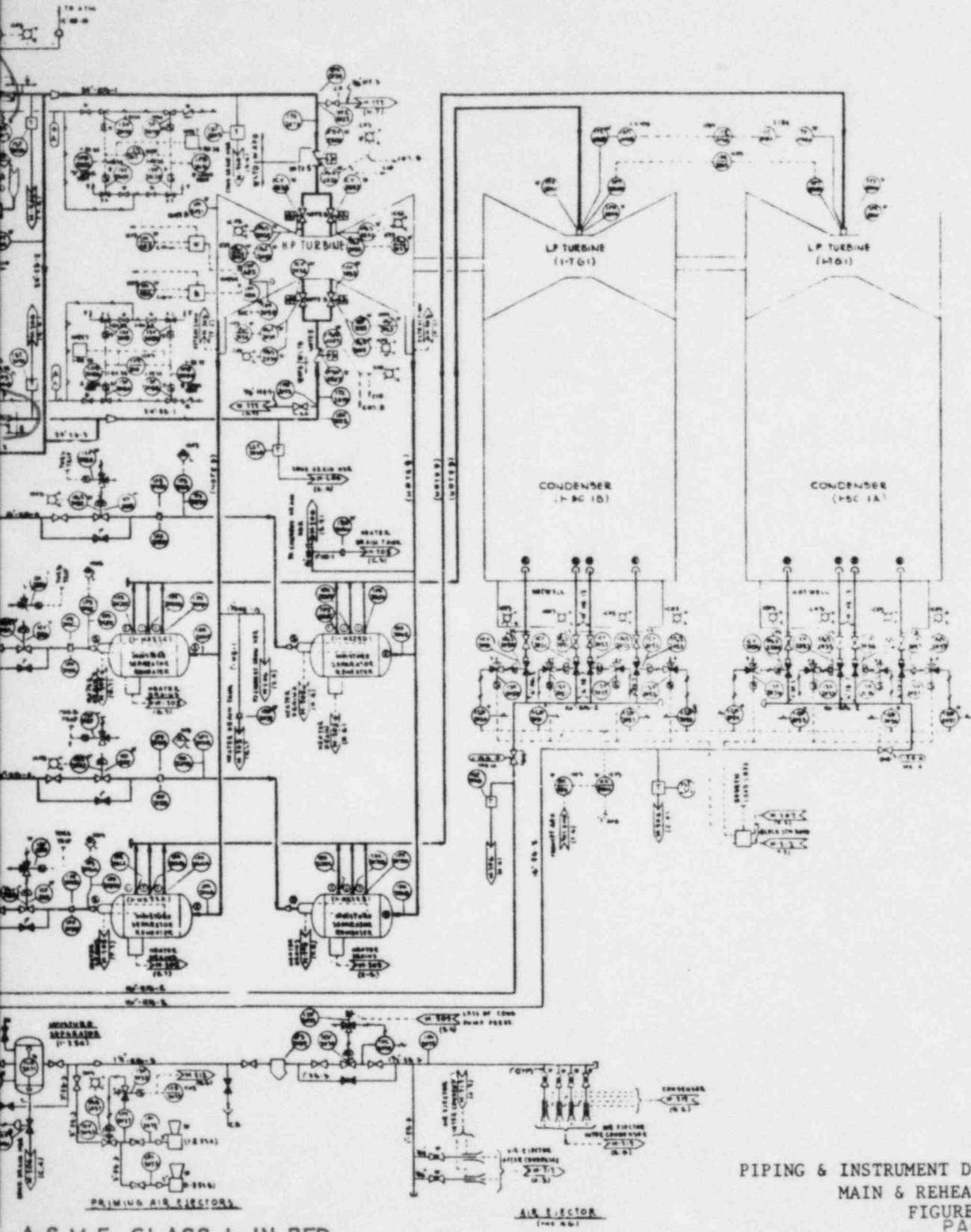
E. CLASS 3 IS BLUE

NO. W-201-G



NOTES

- 1. SAFETY RELATED SYSTEM BOUNDARY -----
- 2. COMPONENTS 4 INCH AND SMALLER ○-○-○
- 3. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY X-X-X

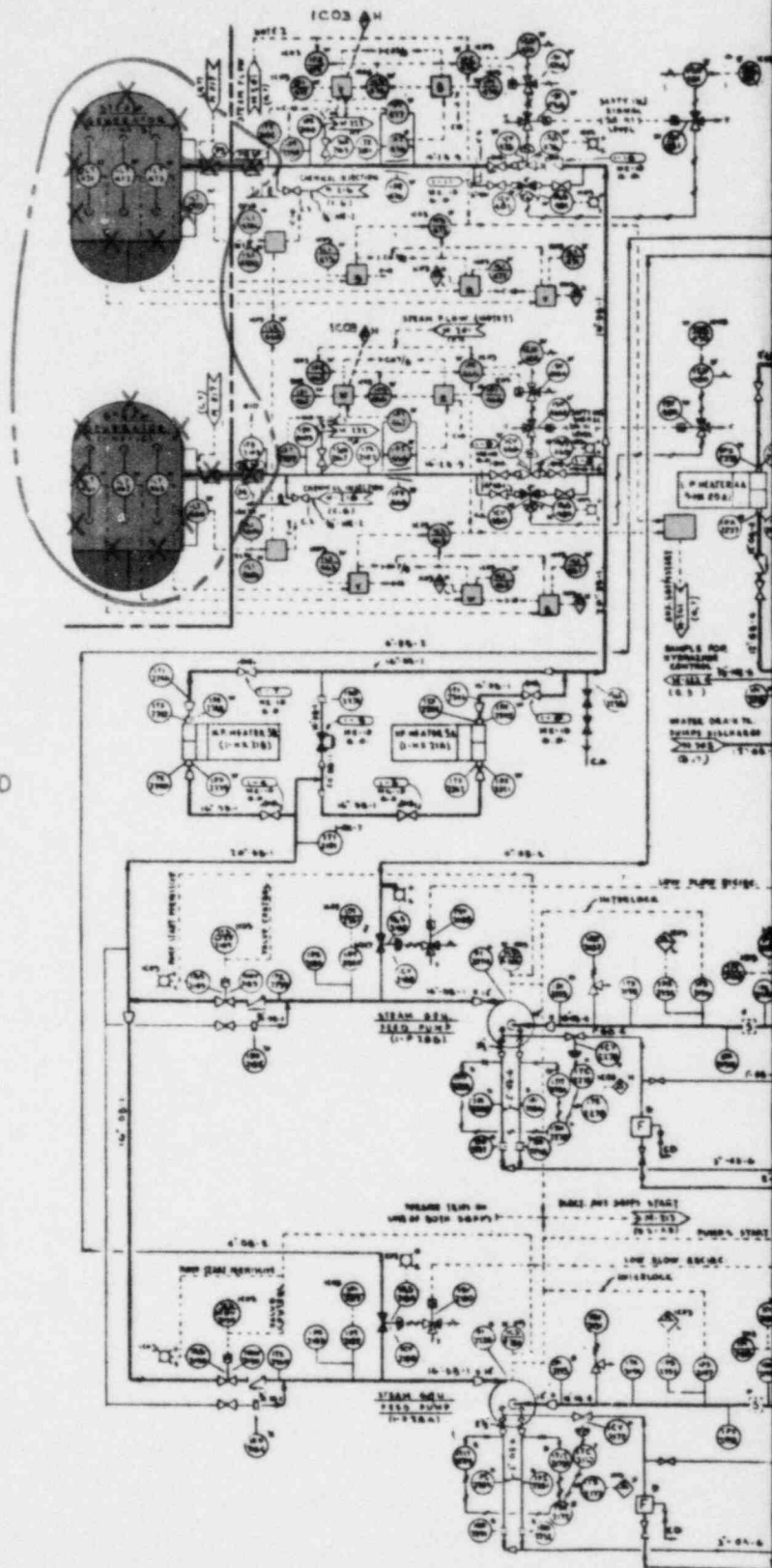


PIPING & INSTRUMENT DIAGRAM,
 MAIN & REHEAT STEAM
 FIGURE 10.2-1
 PAGE 3.14

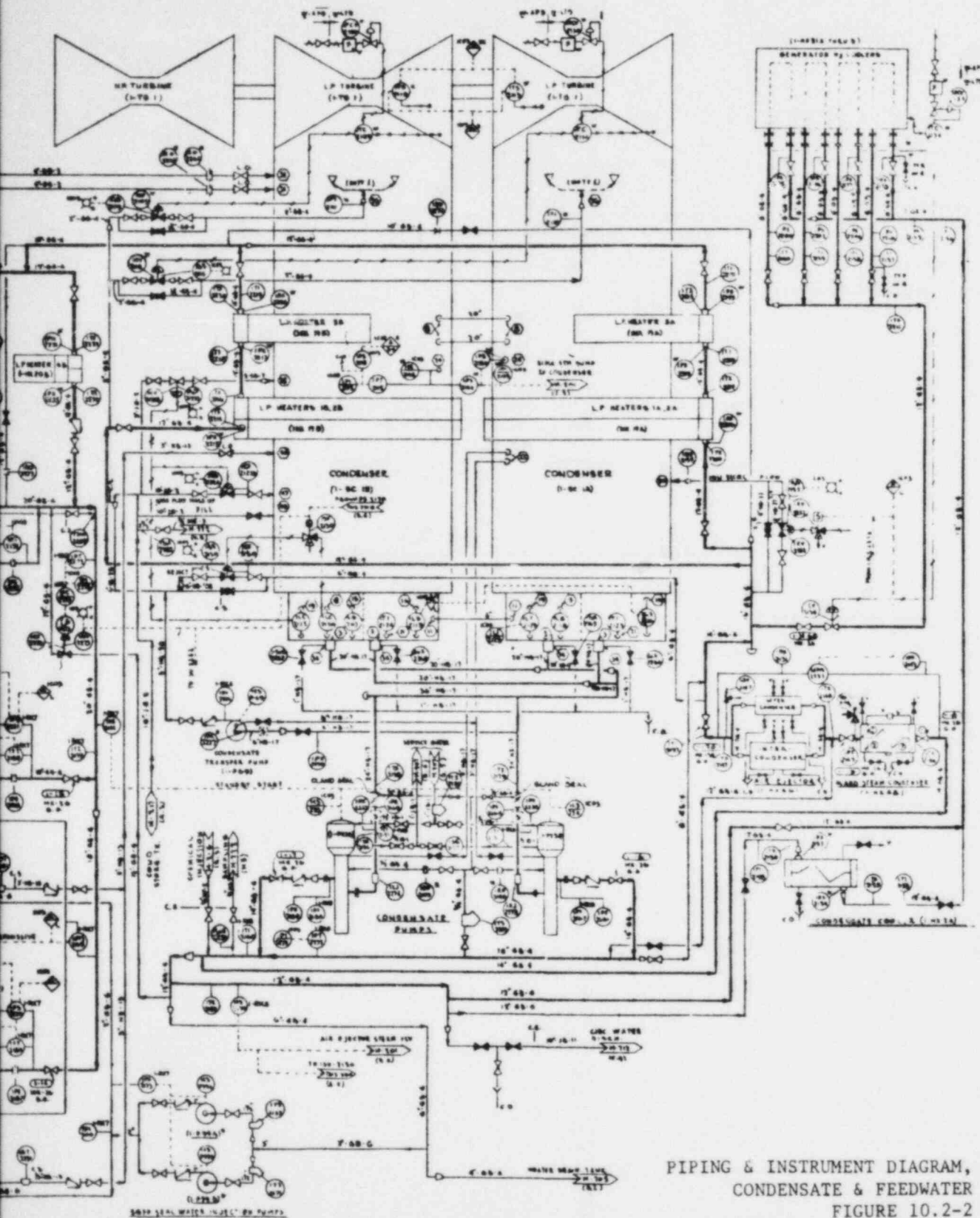
A.S.M.E. CLASS 1 IN RED
 A.S.M.E. CLASS 2 IN GREEN

NOTES

1. SAFETY RELATED SYSTEM BOUNDARY
2. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY X - X - X



ASME. CLASS 1 IS RED
 ASME CLASS 2 IS GREEN
 NON-CODE Q.A. IS YELLOW

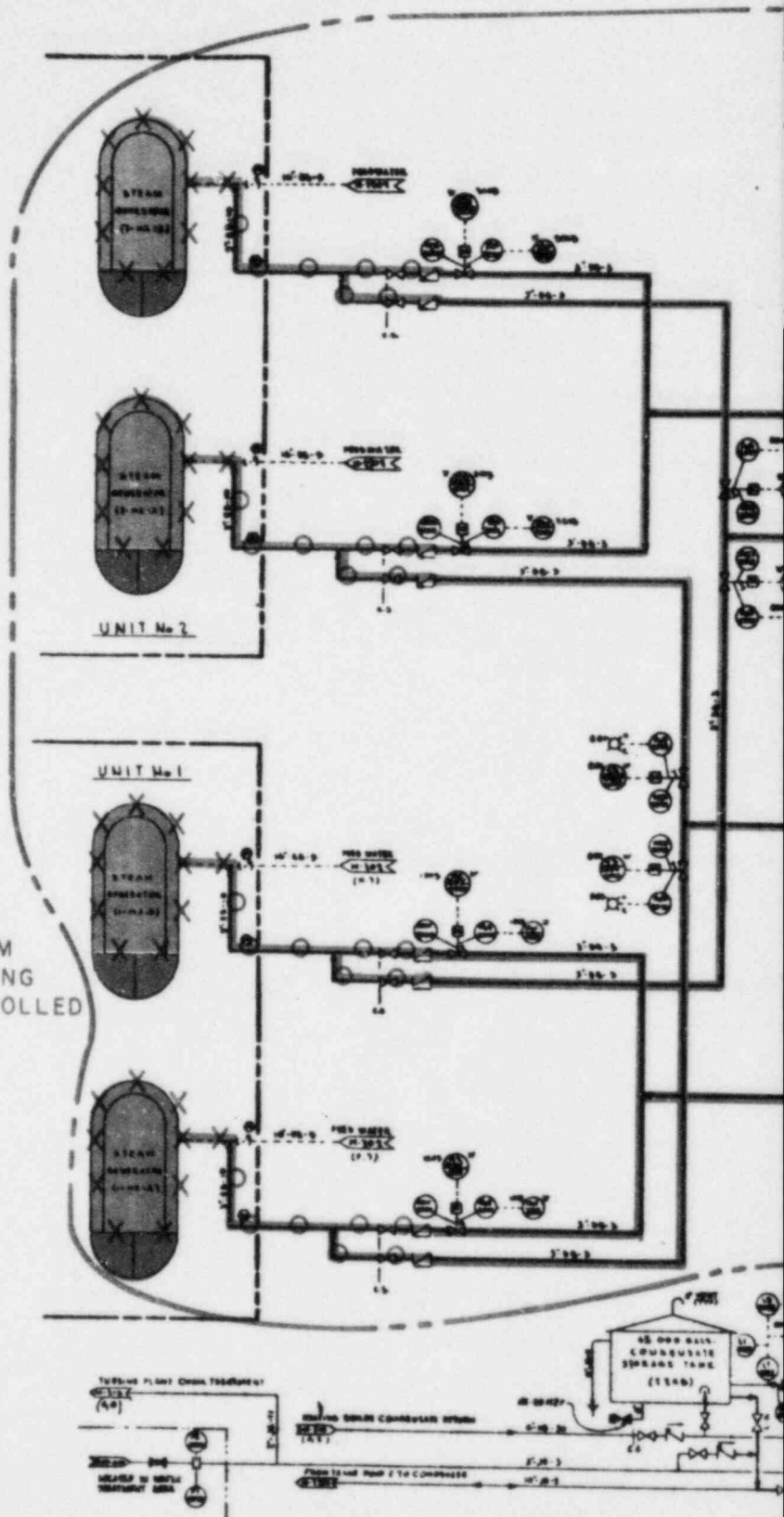


PIPING & INSTRUMENT DIAGRAM,
 CONDENSATE & FEEDWATER
 FIGURE 10.2-2
 PAGE 3.15

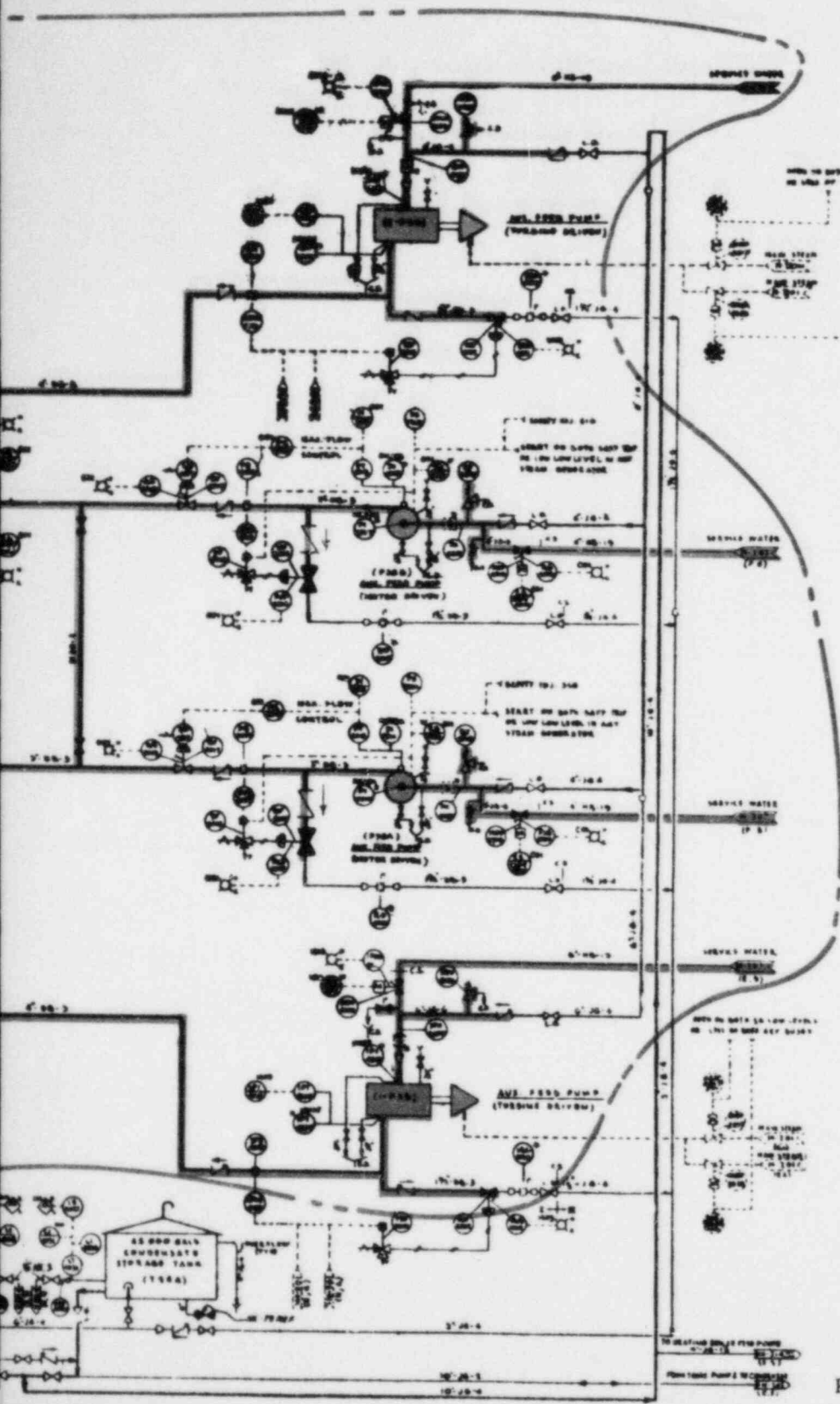
NOTES

1. SAFETY RELATED SYSTEM BOUNDARY
2. COMPONENTS 4 INCH AND SMALLER
3. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY X-X-X

X-X-X



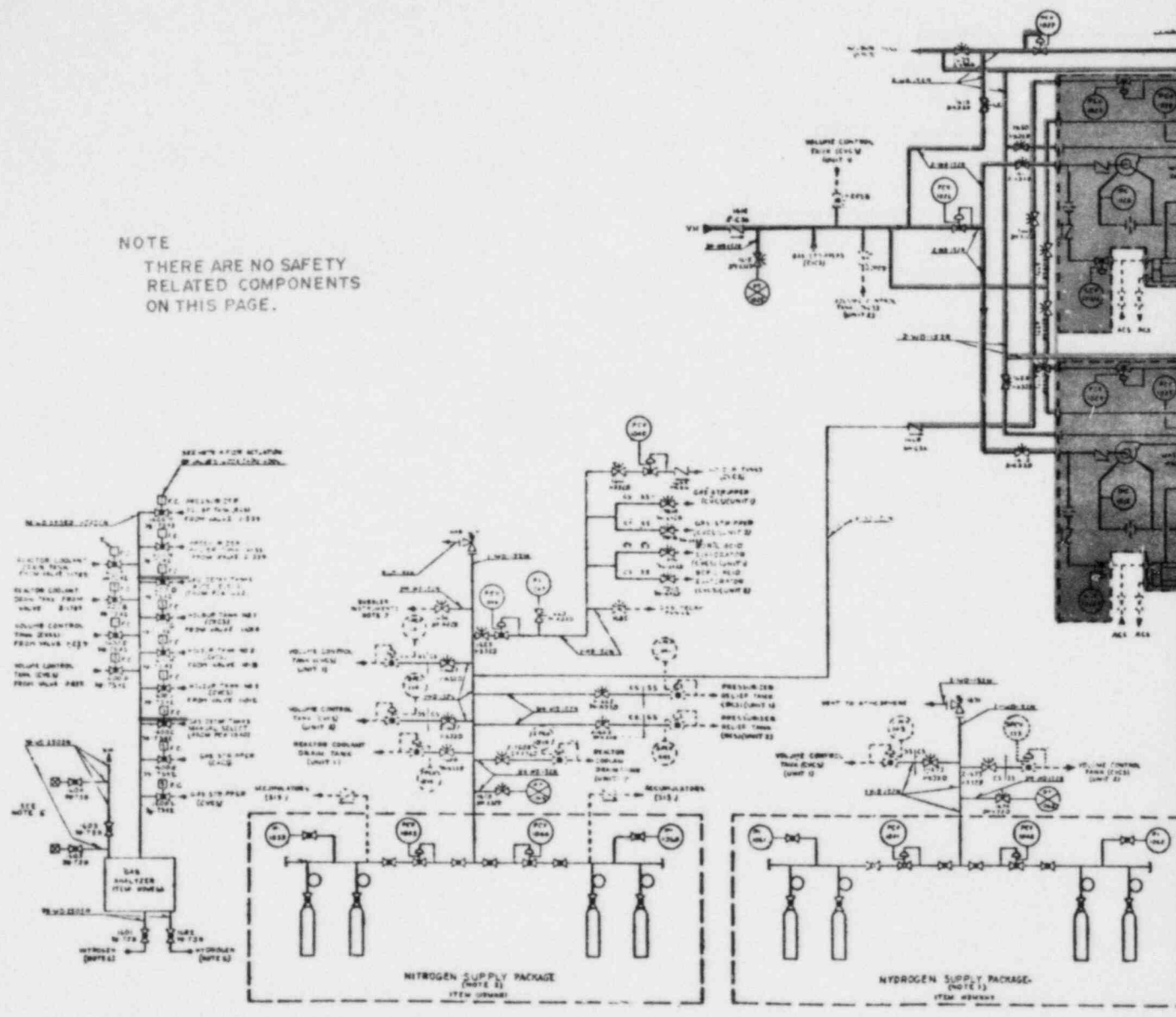
A.S.M.E. CLASS 1 IS
A.S.M.E. CLASS 2 IS
A.S.M.E. CLASS 3 IS

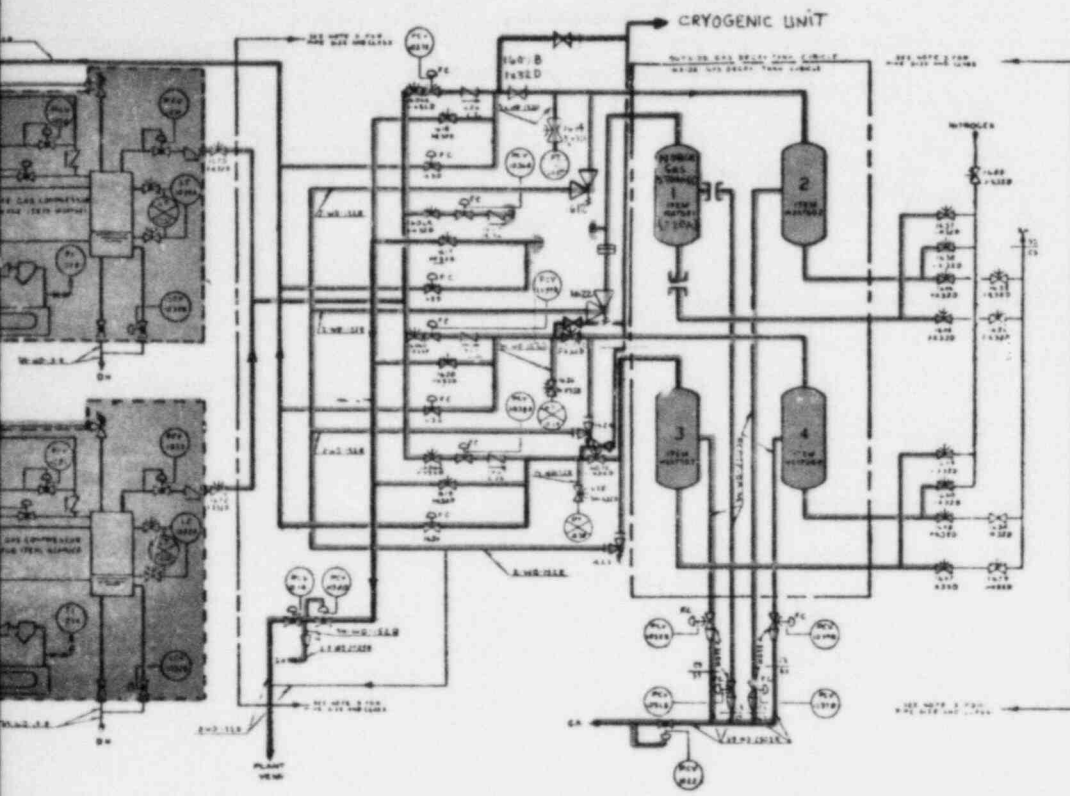


PIPING & INSTRUMENT DIAGRAM
 AUXILIARY FEEDWATER SYSTEM
 FIGURE 10.2-5
 PAGE 3.16

RED
 GREEN
 BLUE

NOTE
 THERE ARE NO SAFETY
 RELATED COMPONENTS
 ON THIS PAGE.



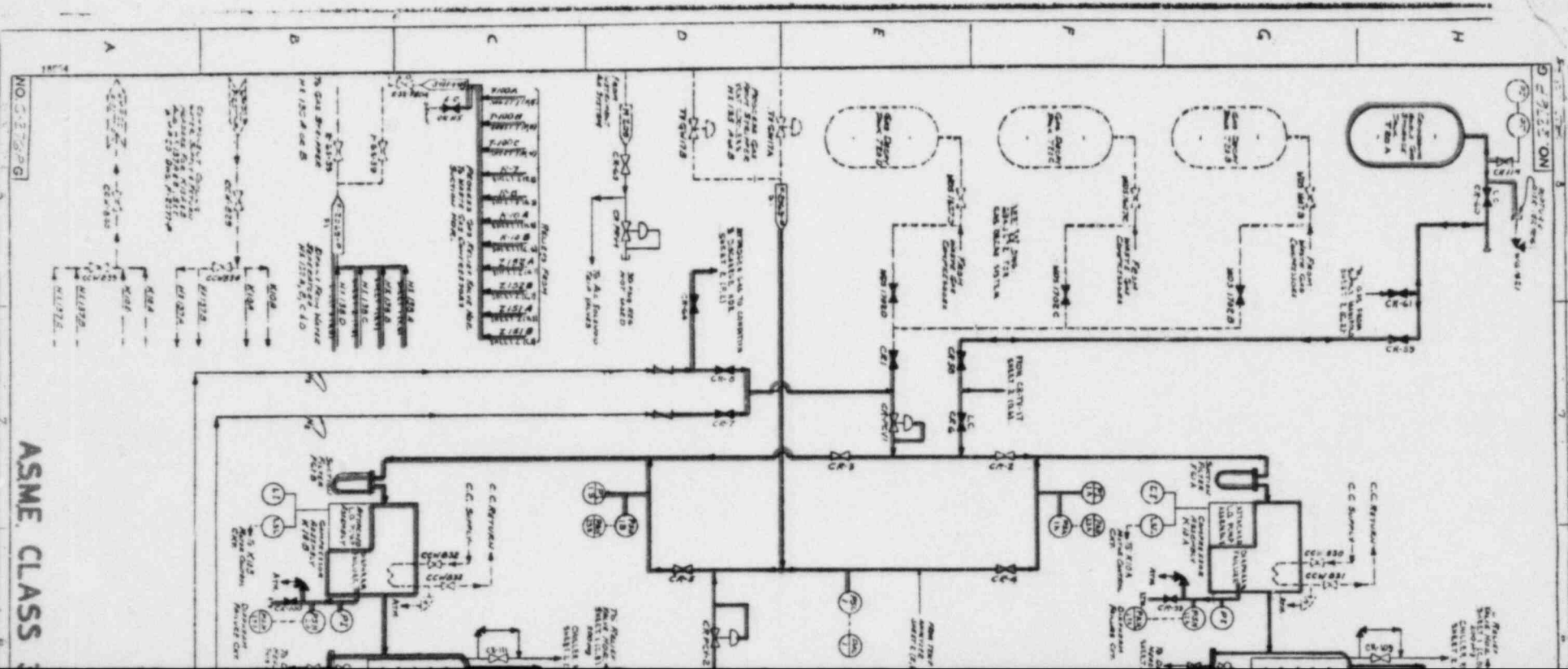


- LEGEND**
- LC - LOCKED CLOSURE
 - LC - LOCKED CLOSURE
 - BN - BURN-HAZARD
 - WH - WELD-HAZARD
 - GA - AUTOMATIC GAS ANALYZER
 - B - BURN OR EXPLOSION
 - U - UTILITY PANEL
 - WST - WASTE WATER STORAGE TANK
 - WH - WELD-HAZARD
 - LC - LOCKED CLOSURE
 - F - CONTAINMENT ISOLATION TRIP SIGNAL
- REVISIONS**
- 1. PRELIMINARY DESIGN DRAWING NO. 11-1-1-1 (1) DATE 04/11/68
 - 2. REVISION TO SYMBOLS OF LTYPE DRAWING 11-1-1-1
 - 3. INDICATIONS IN RED IN ORIGINAL DRAWING TO SYMBOLS AND APPLICATIONS FOR LTYPE DRAWING SECTION 11-1-1-1, 11-1-1-2, 11-1-1-3, 11-1-1-4
 - 4. REVISION TO INDICATIONS IN RED IN ORIGINAL DRAWING 11-1-1-1
 - 5. MATERIAL SPECIFICATIONS OF LTYPE DRAWING 11-1-1-1
 - 6. LTYPE DRAWING 11-1-1-1
- NOTES**
- 1. TYPICAL WELD-METAL JOINTS - W/STAINLESS STEEL
 - 2. TYPICAL WELD-METAL JOINTS - W/STAINLESS STEEL
 - 3. ALL PIPE JOINTS ARE TO BE WELDED TO THE STANDARD INDUSTRIAL PRACTICES
 - 4. VALVE SYMBOLS TO BE IDENTIFIED BY GAS ANALYZER INDICATIONS
 - 5. TANKS TO BE WELDED TO THE STANDARD INDUSTRIAL PRACTICES
 - 6. WELDING SHALL BE DONE TO THE STANDARD INDUSTRIAL PRACTICES
 - 7. NITROGEN SUPPLY SHALL BE GAS WITH THE FOLLOWING CHARACTERISTICS:
 - A. 99.999% NITROGEN
 - B. CONTAINMENT TO THE GAS
 - C. BURN-HAZARD FREE

ASME CLASS 3 IS BLUE

NOTE

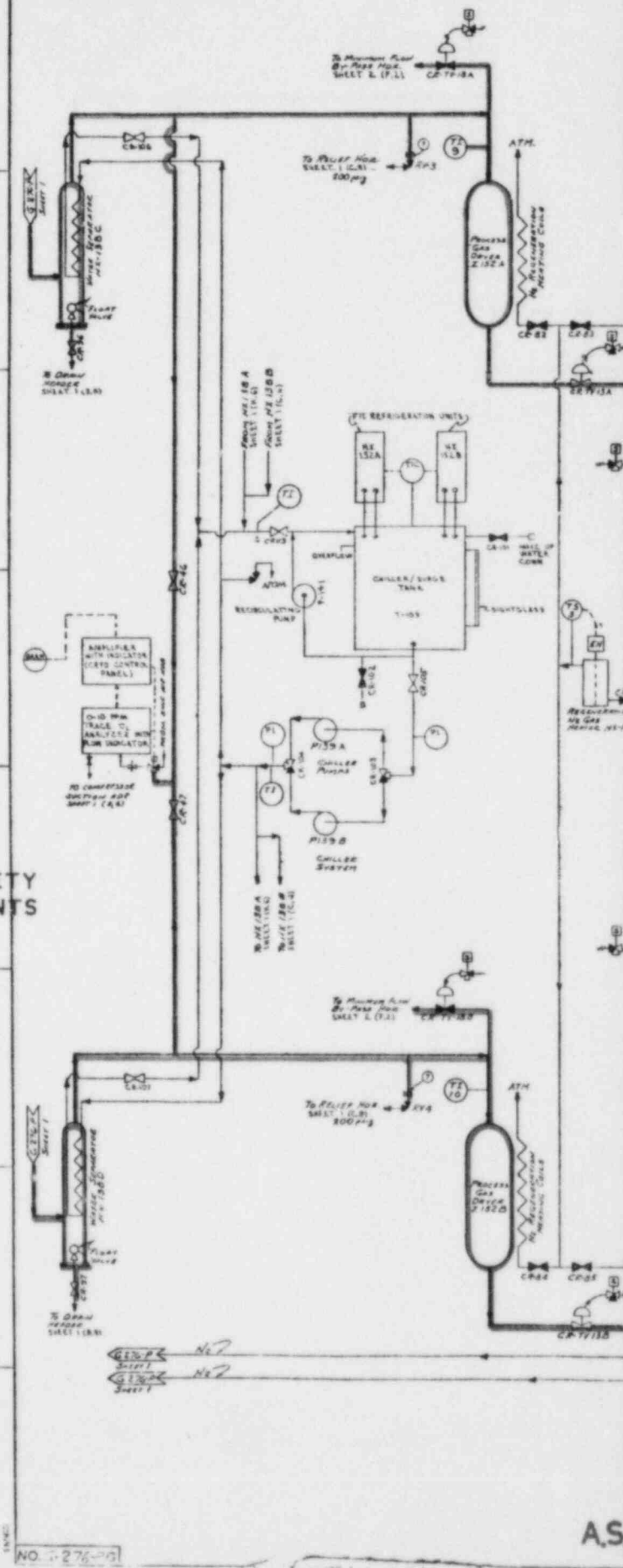
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE



ASME CLASS

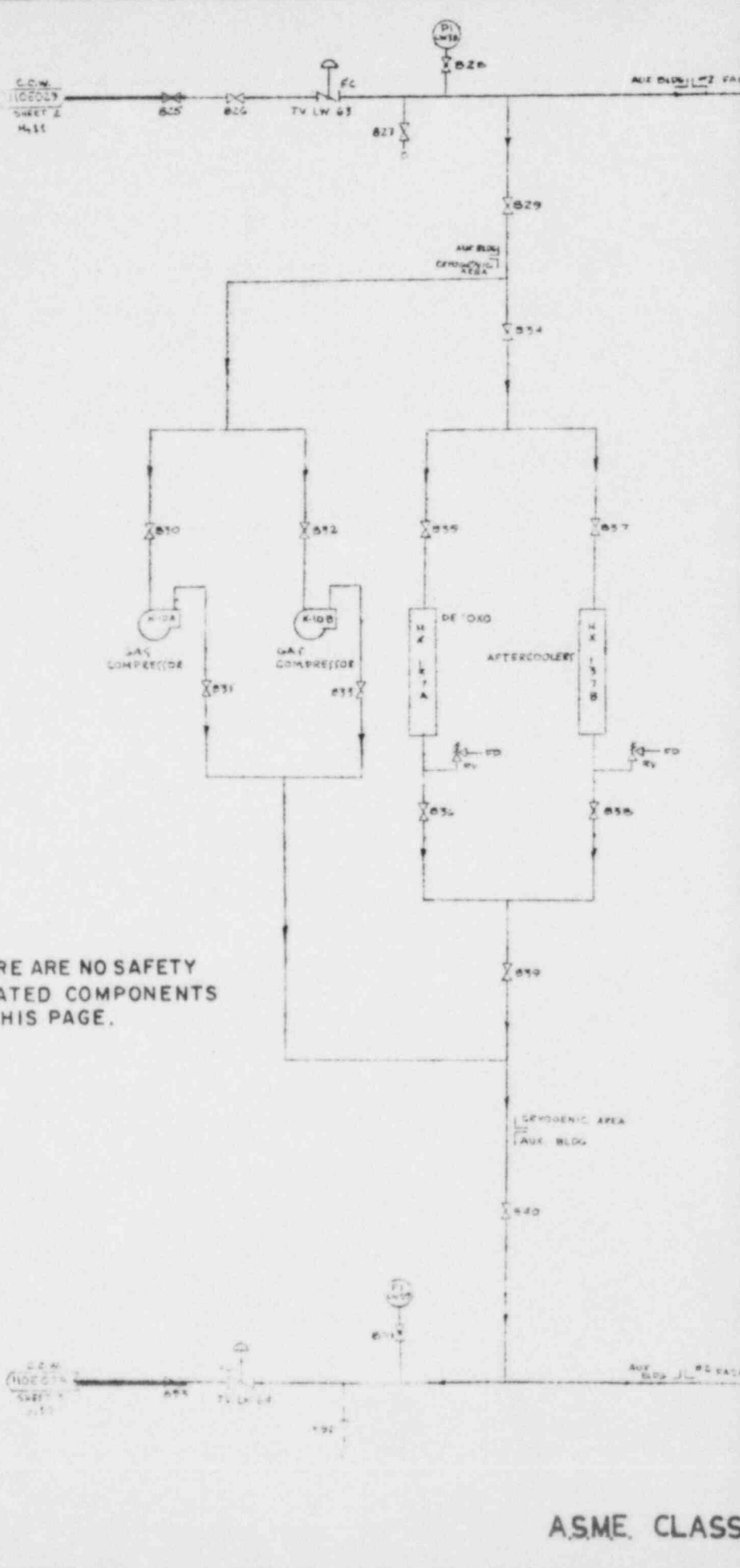
NO. 20270PG

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NOTE
 THERE ARE NO SAFETY
 RELATED COMPONENTS
 ON THIS PAGE

6
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A

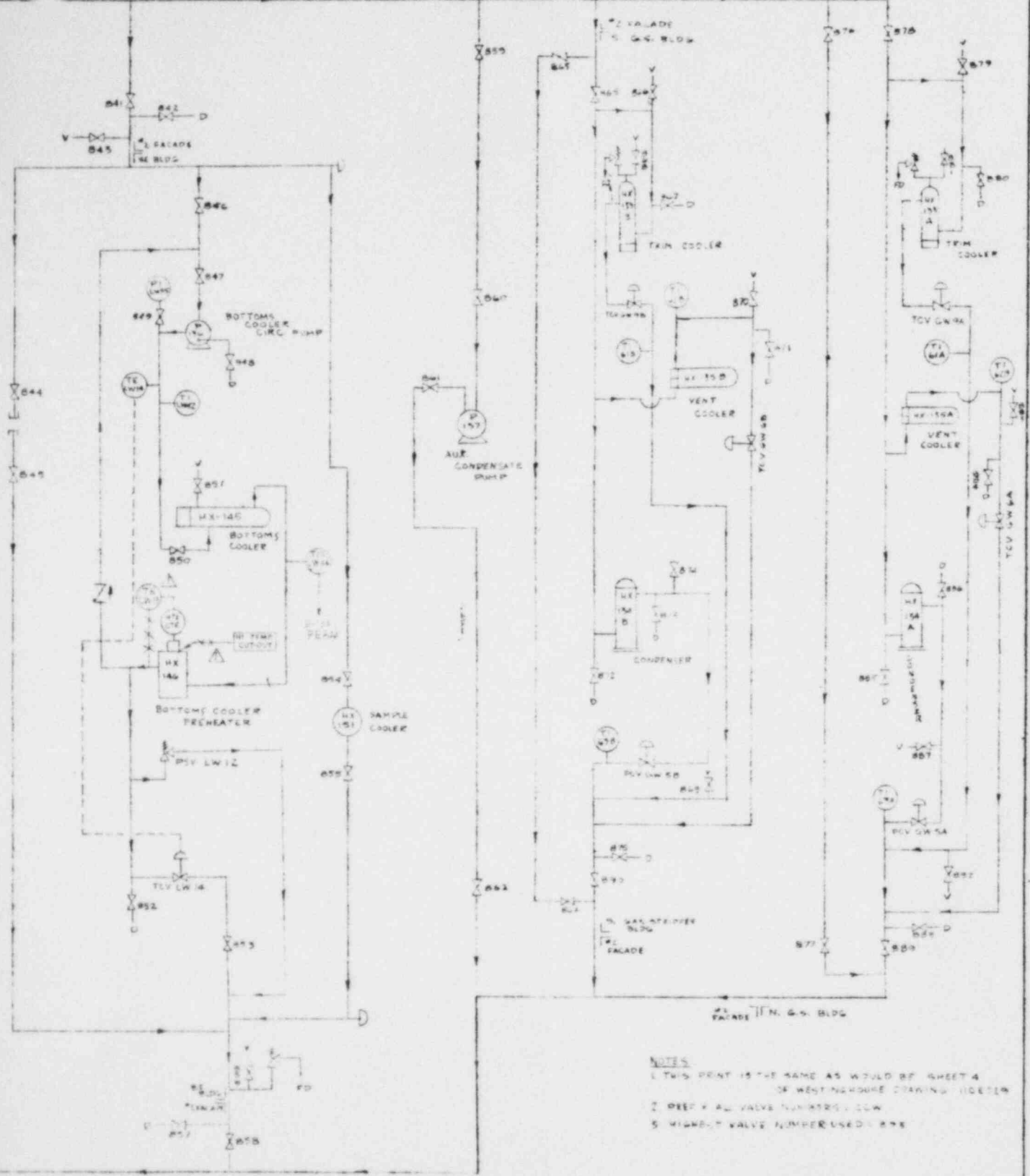


NOTE
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE.

ASME CLASS

DE

#1 FACADE N. G.S. BLDG

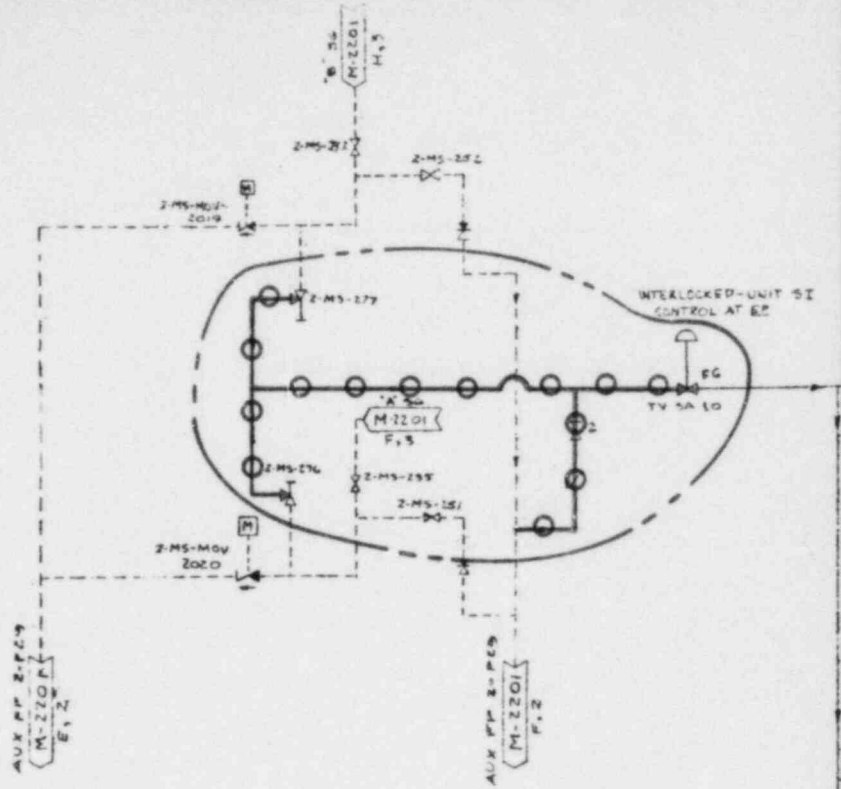


NOTES
 1 THIS PRINT IS THE SAME AS WOULD BE SHEET 4 OF WESTINGHOUSE DRAWING 1102101
 2 KEEP V ALL VALVE NUMBERS IN LW
 3 HIGH-T VALVE NUMBER USED - ONE

3 IS BLUE

WISCONSIN MICHIGAN POWER COMPANY
 DRAWING NO. 1102101
 SHEET NO. 4
 DATE 11-1-54
 APPR. BY [Signature]
 PAGE 3.29

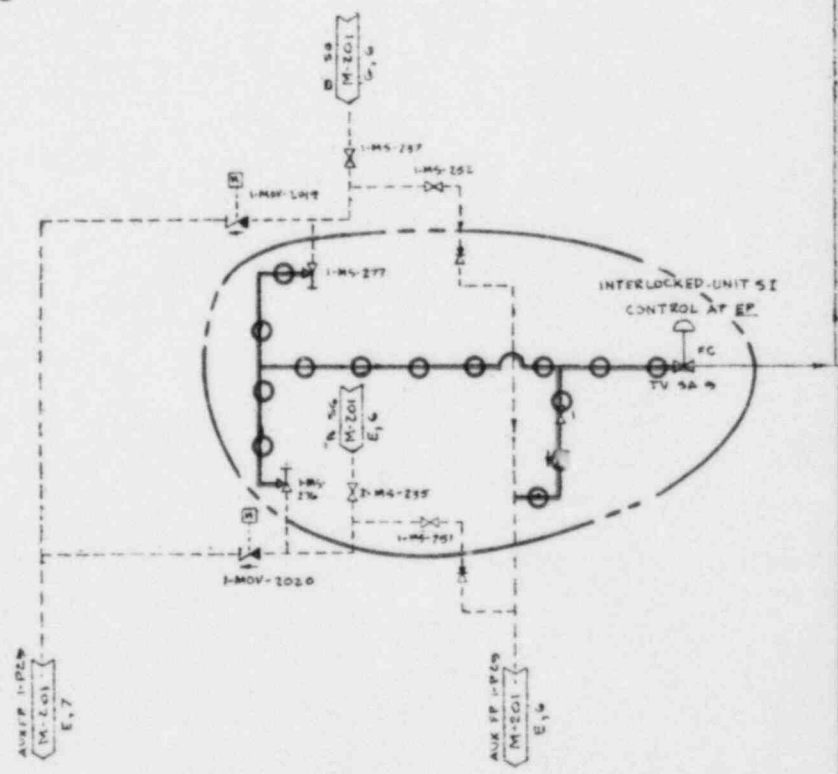
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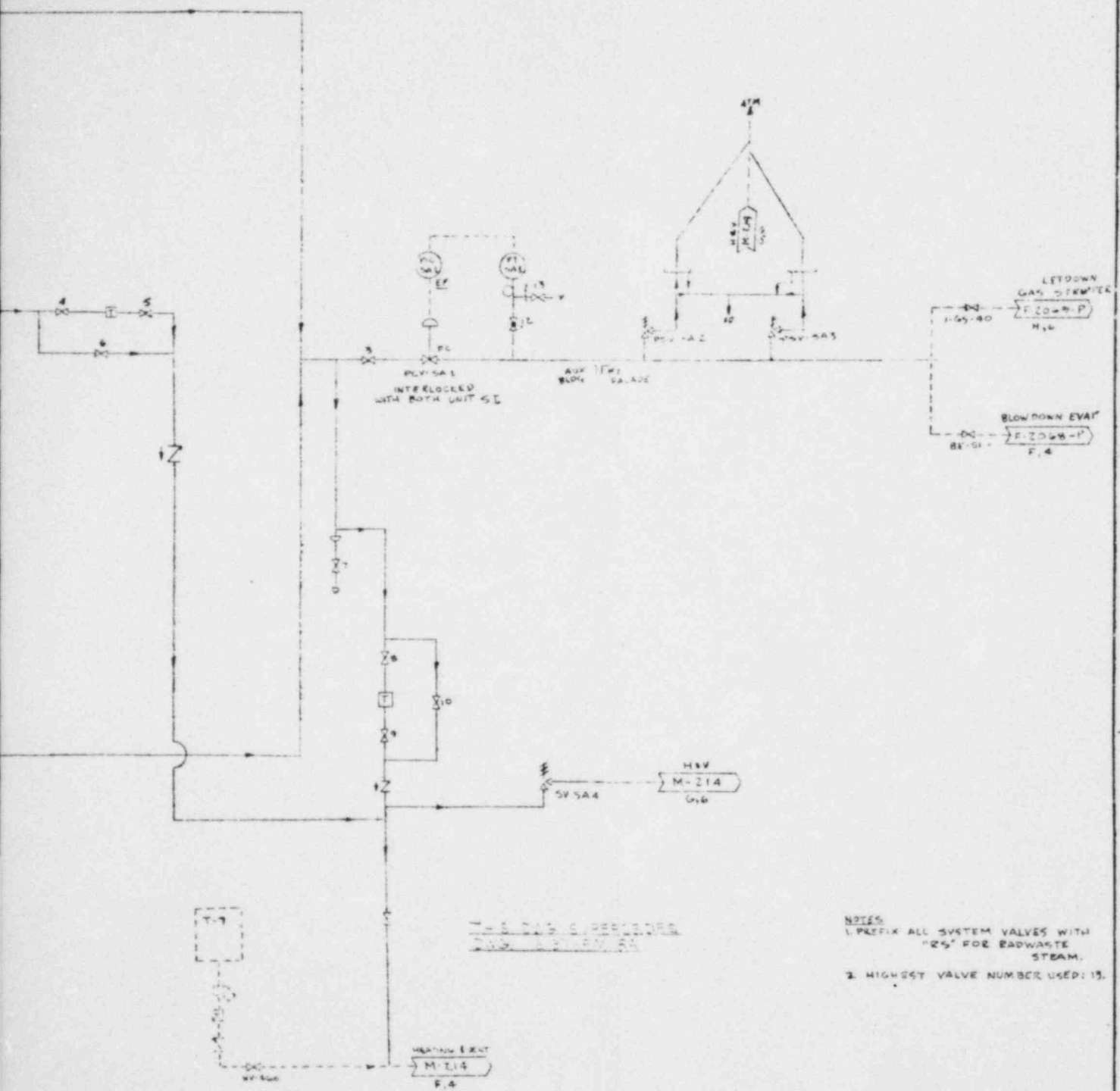


NOTES

1. SAFETY RELATED SYSTEM BOUNDARY
2. COMPONENTS 4 INCH AND SMALLER

○-○-○





SEE DISC RECORDS
FOR VALVE NO.

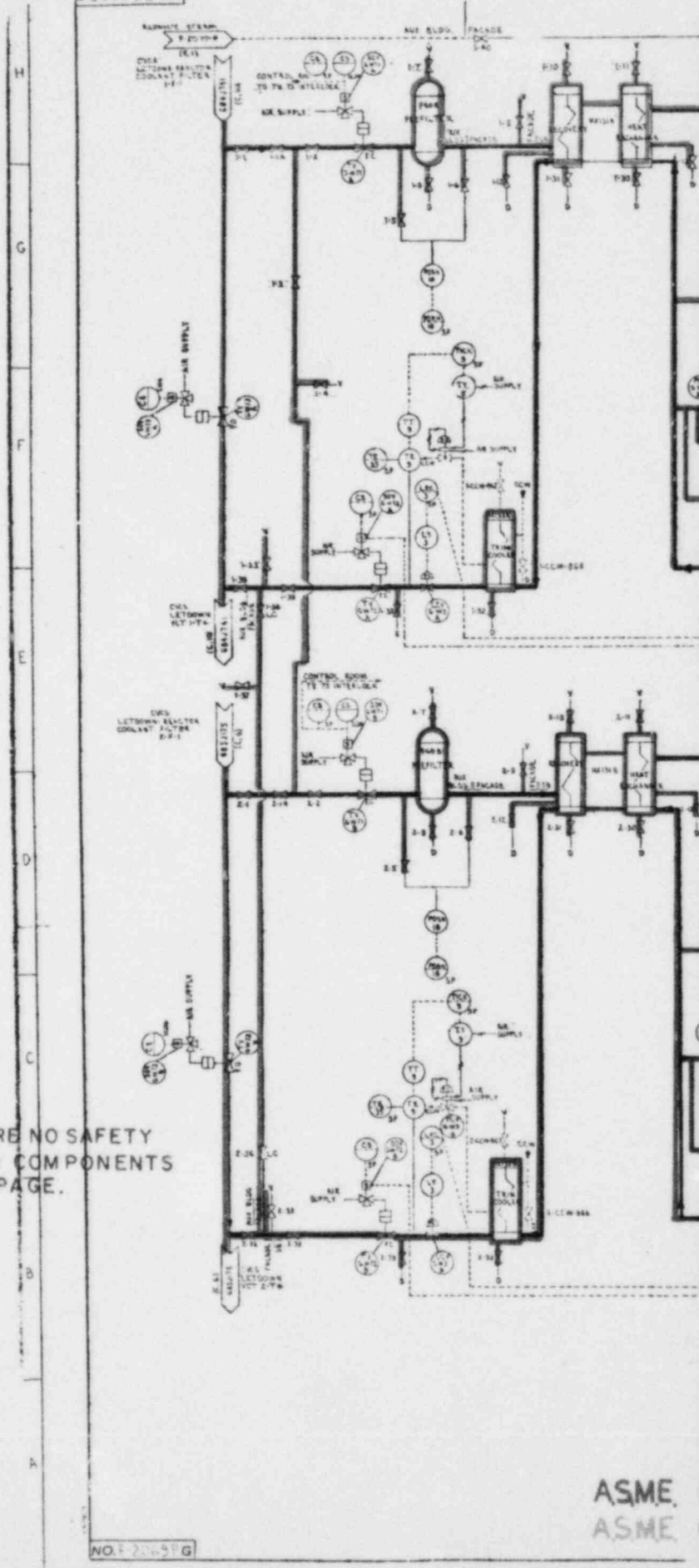
- NOTES
1. PREFIX ALL SYSTEM VALVES WITH "RS" FOR RADWASTE STEAM.
 2. HIGHEST VALVE NUMBER USED: 13.

2 IS GREEN

WISCONSIN MICHIGAN POWER COMPANY	
SHOWING: RADWASTE STEAM	DATE: 20 JUNE 1971
LOCATION: AUX. BLDG. - PAGE 3	SCALE: N/A
DRAWN BY: J. P. DICKSON	NO. F.2070-P
CHECKED BY:	APPROVED: <i>[Signature]</i>
DATE CHANGED:	

K 2070

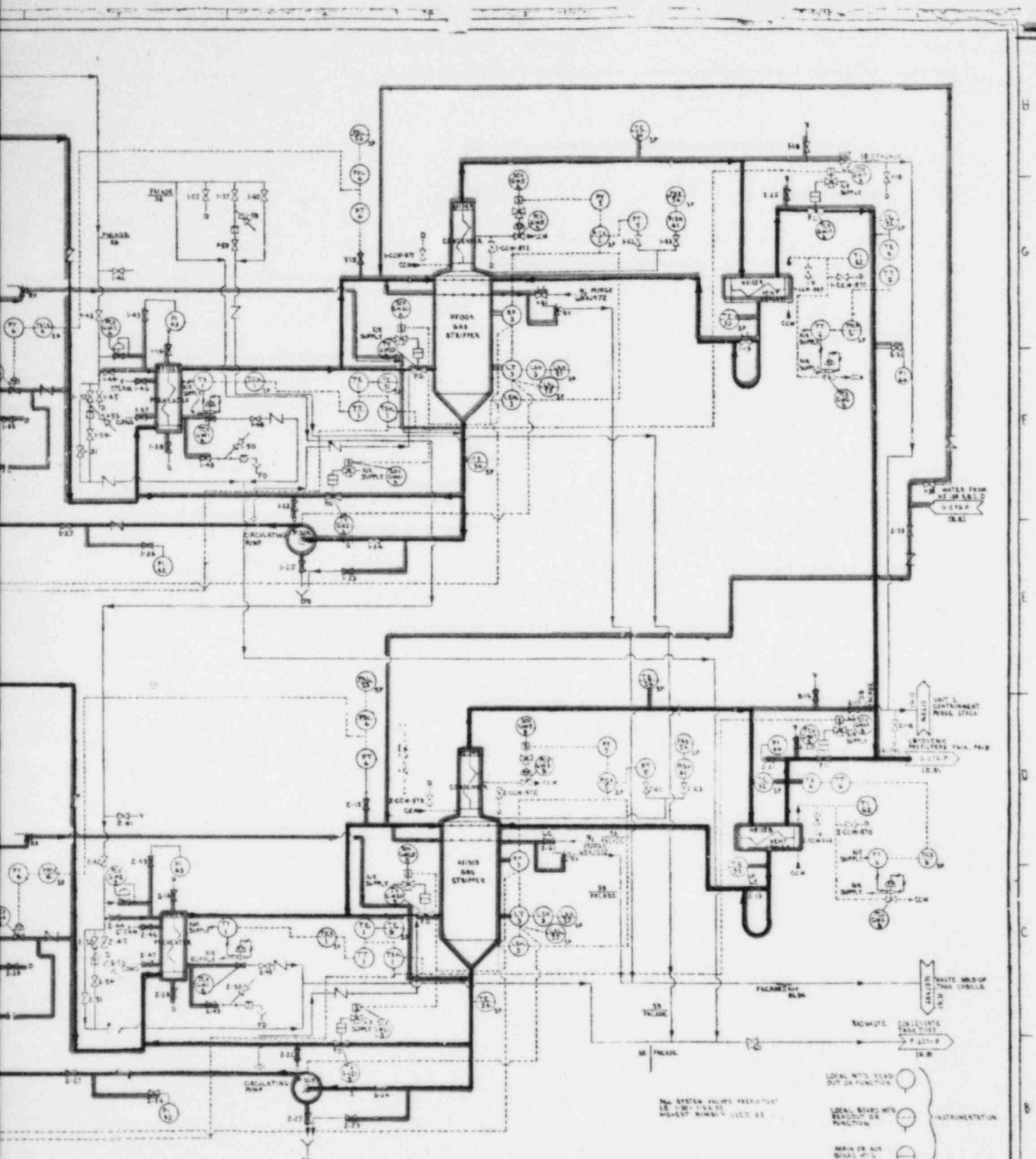
NO. 200-595G



NOTE
 THERE ARE NO SAFETY
 RELATED COMPONENTS
 ON THIS PAGE.

NO. 200-595G

ASME
ASME



THIS DWG. SUPERCEDES
 DWG. 1213-FN-23.

LOCAL WTS READ
 OUT OR FUNCTION

LOCAL BOARD WTS
 READOUT OR
 FUNCTION

MAIN OR AUX
 BOARD WTS
 READOUT OR
 FUNCTION

CLASS 3 IS BLUE
 CLASS 2 IS GREEN

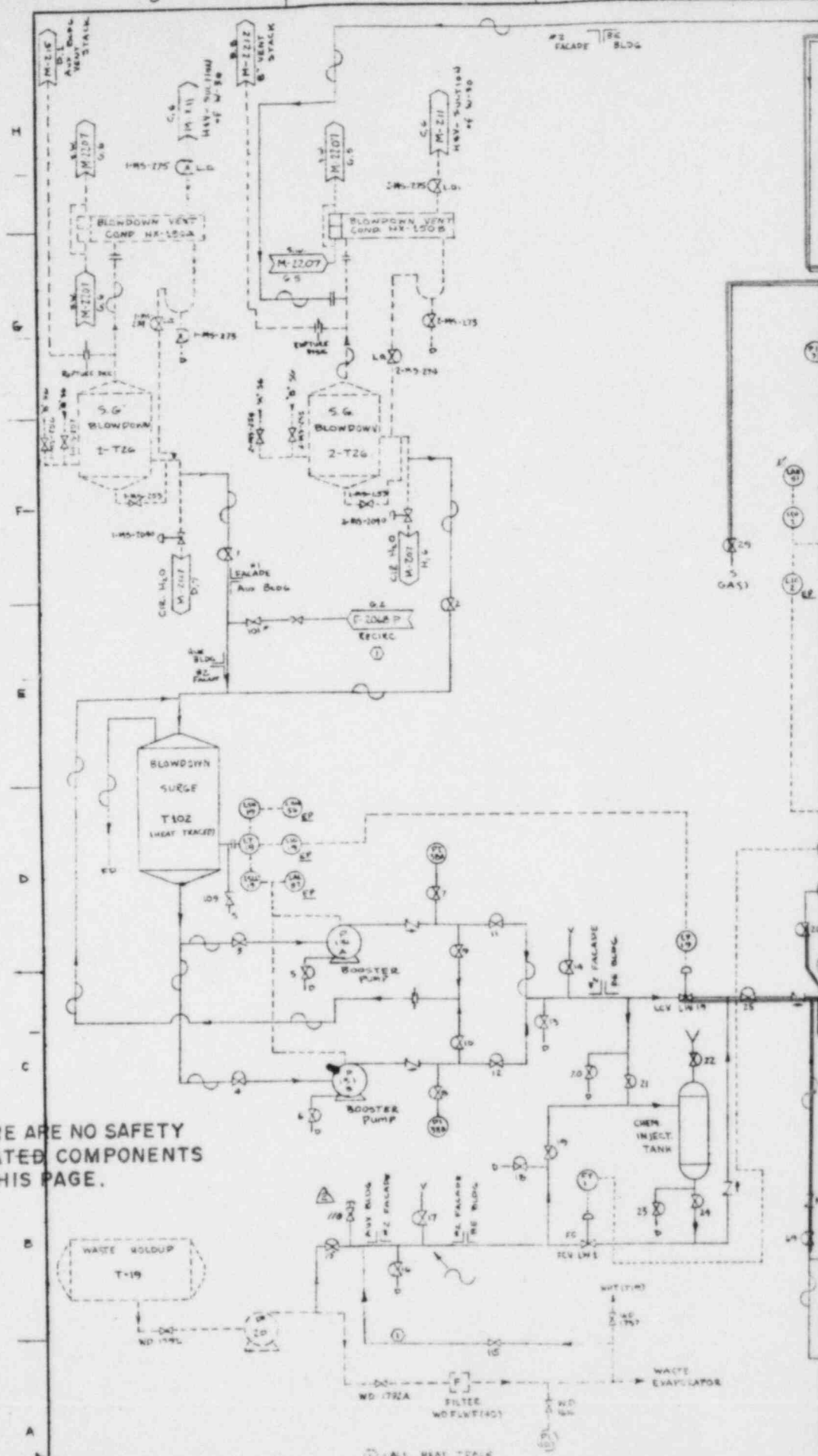
NOTE: FOR OTHER DRAWINGS SEE INDEX OR DRAWING NO.

NO.	REV.	BY	CHKD.	DATE	DESCRIPTION
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4	1				
5	1				
6	1				
7	1				
8	1				
9	1				
10	1				

WISCONSIN ELECTRIC POWER COMPANY
 POINT BEACH NUCLEAR POWER PLANT
 UNIT 1 AND 2
 WOOD GAS STRIPPER

PAGE 3 OF 2

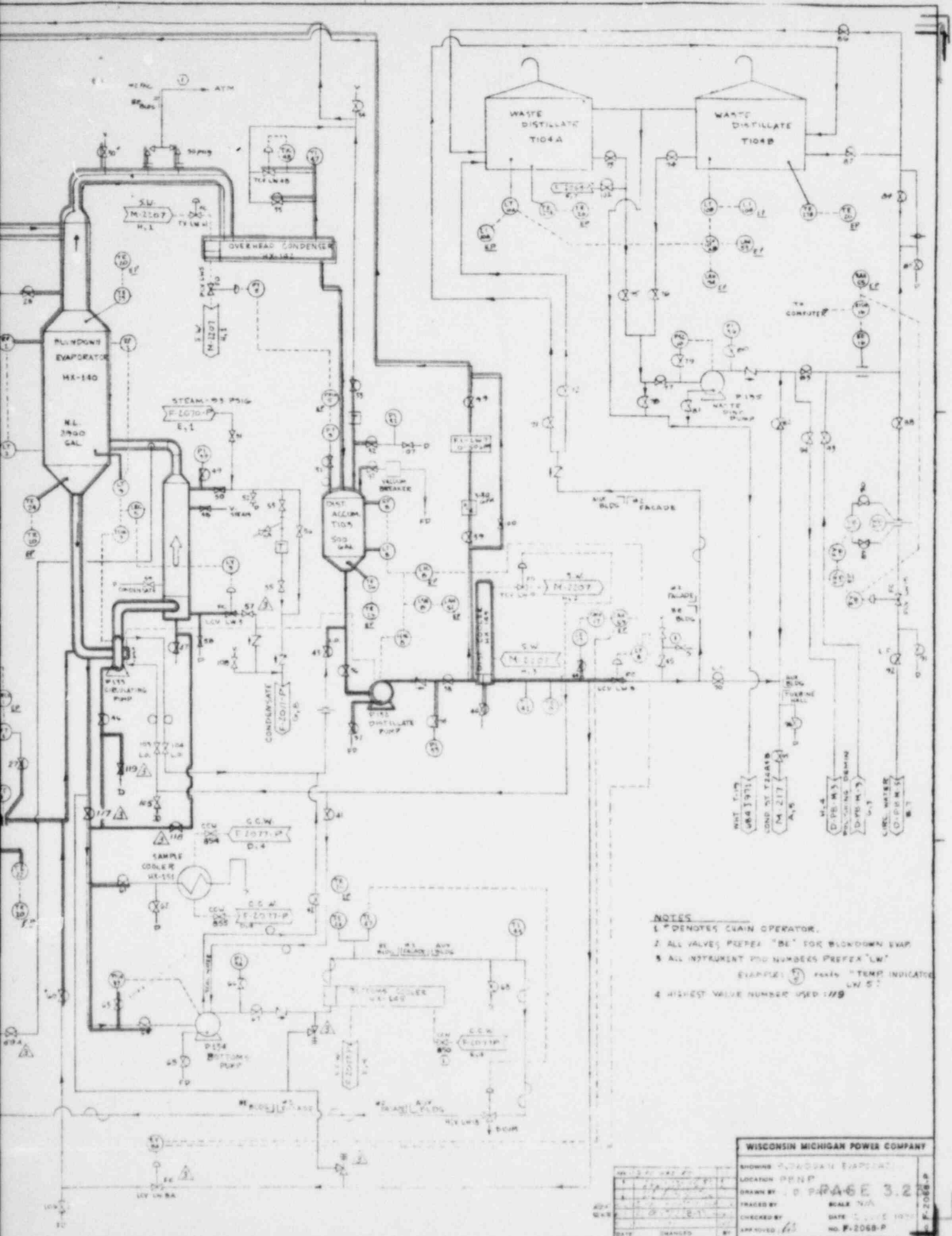
NO. 20299



NOTE
 THERE ARE NO SAFETY
 RELATED COMPONENTS
 ON THIS PAGE.

24927

ASME CLASS 3 IS BLUE



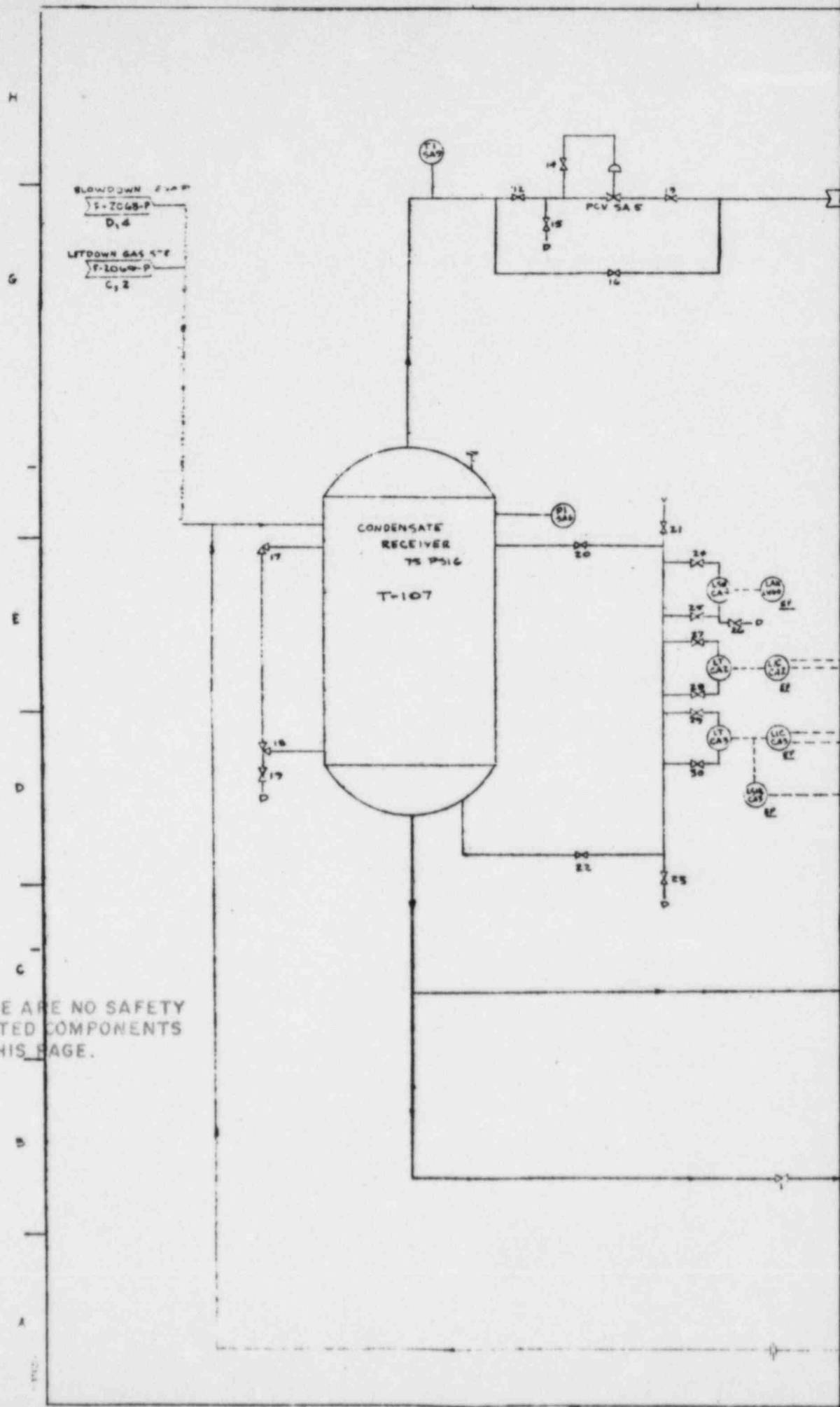
- NOTES**
- 1 DENOTES CHAIN OPERATOR.
 - 2 ALL VALVES PREFIX "BE" FOR BLINDOWN EVAP.
 - 3 ALL INSTRUMENT PID NUMBERS PREFIX "LM"
EXAMPLE: (1) reads "TEMP INDICATOR
LM 5"
 - 4 HIGHEST VALUE NUMBER USED: 179

WISCONSIN MICHIGAN POWER COMPANY

NO. 2068-P	SHOWING: BLINDOWN EVAPORATOR
DATE: 1/15/59	LOCATION: PENT
DRAWN BY: J. D. PAGE	SCALE: 7/8"
CHECKED BY: J. D. PAGE	DATE: 1/15/59
APPROVED: [Signature]	NO. 2068-P

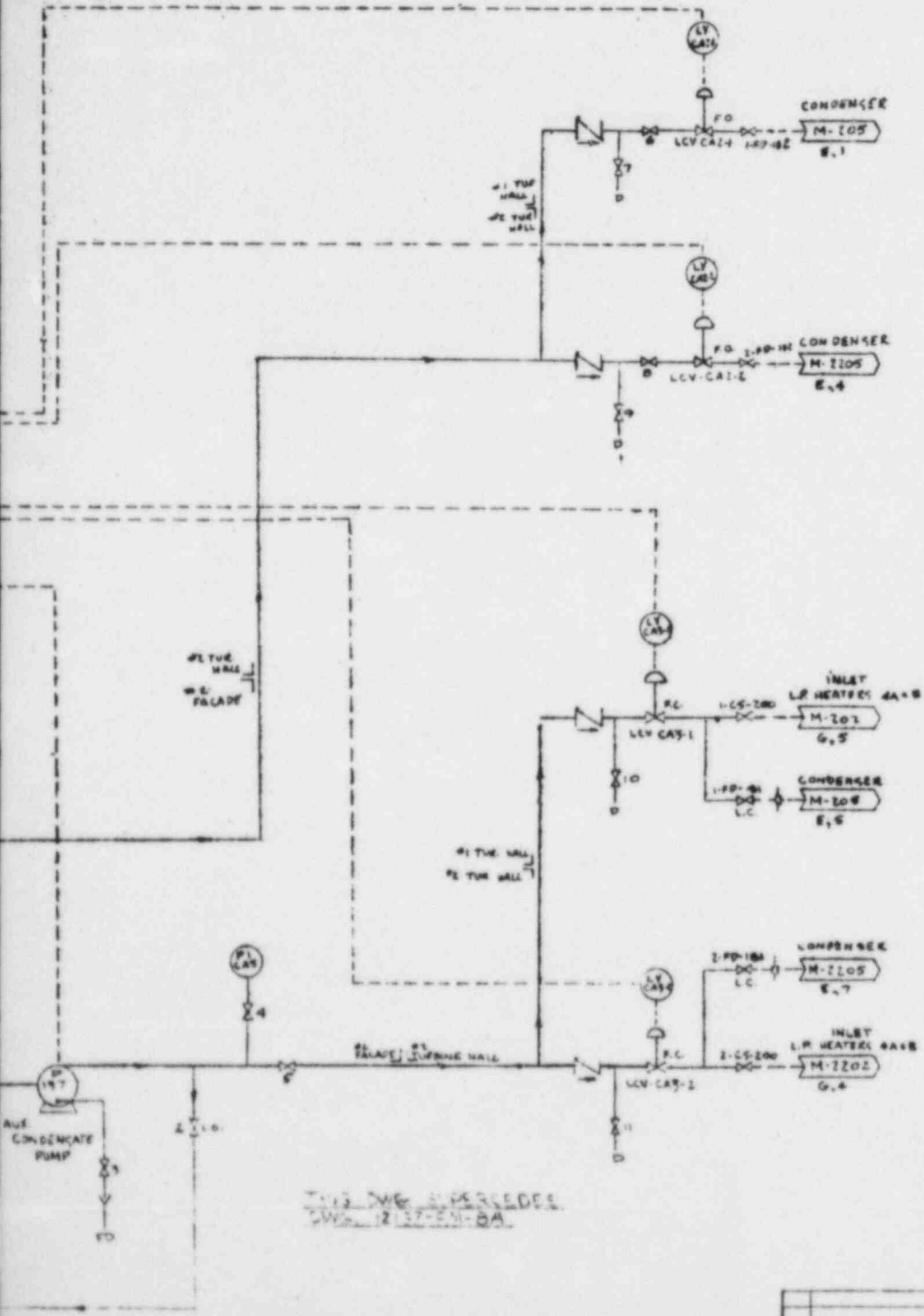
404
2068

3.2
2068



NOTE
 THERE ARE NO SAFETY
 RELATED COMPONENTS
 ON THIS PAGE.

M-214
G.6



W OF THE WALL
D OF THE WALL

W OF THE WALL
D OF THE WALL

RELAY

NOTES
1 PREFIX ALL VALVES "KW"
2 HIGHEST VALVE NUMBER USED: 30

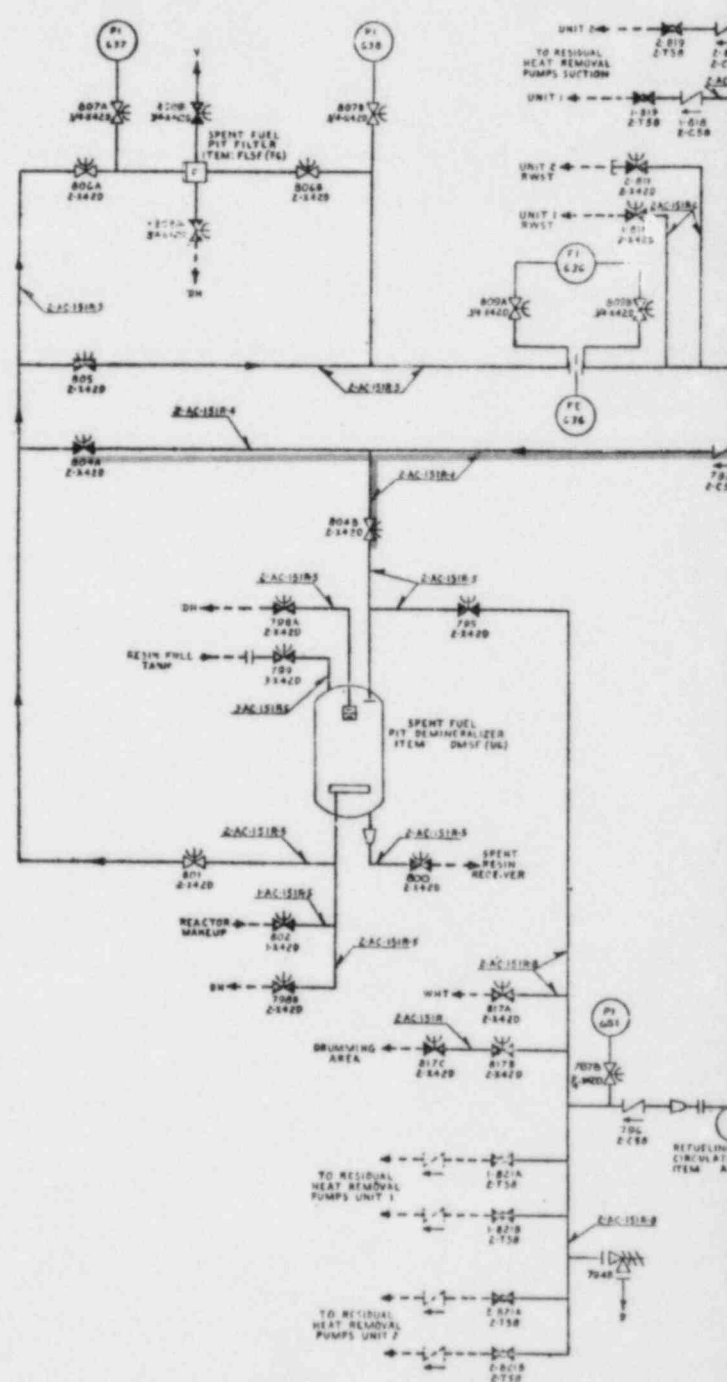
THIS DRAWING SUPERSEDES
DRAWING NO. 2137-EN-BA

WISCONSIN MICHIGAN POWER COMPANY

SHOW: CONDENSATE CONDENSATE
LOCATION: PEH
DATE: 10/10/71
TRACED BY: N/A
CHECKED BY: DATE 21 JUNE 1973
DATE: CHANGED BY: APPROVED: [Signature] NO. P-207-P

207-P

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NOTE
 THERE ARE NO SAFETY
 RELATED COMPONENTS
 ON THIS PAGE.

A.S.M.E. CLASS 3 IS BLUE

1	10/10/82	14	13	12	11	10	9	8
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13	10/10/82	14	13	12	11	10	9	8
14	10/10/82	14	13	12	11	10	9	8

