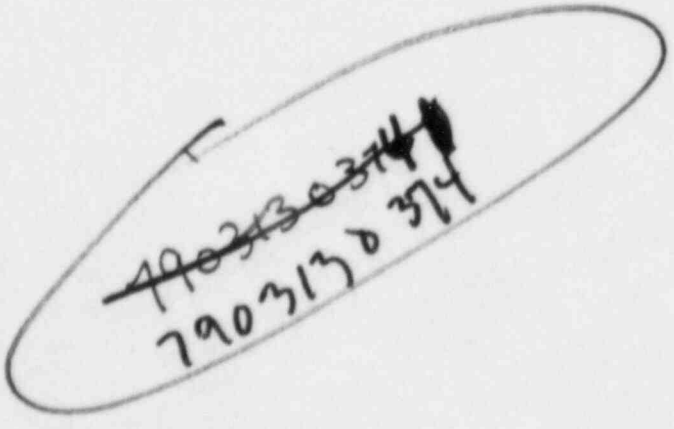
POINT BEACH NUCLEAR PLANT

UNIT NO. 2

INSERVICE TEST PLAN

FEBRUARY 1979



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.

Revision 2
February 1979

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.

Revision 2
February 1979

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

Revision 2
February 1979

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

Revision 2
February 1979

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

Revision 2
February 1979

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
1786	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

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.

1. Category C Check Valves		Tested Every 3 Months	Cold Shutdown
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

Revision 2
February 1979

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.

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

Impractical 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

Impractical 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.

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.

Revision 2
February 1979

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.

Revision 2
February 1979

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

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

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 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

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. 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 techiques

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
REACTOR PRESSURE VESSEL FIGURE 4.2-1						
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	100% of 6 patch areas each 36 sq.in.	100% of 2 patch areas	
			PT	100% of 6 patch areas each 36 sq.in.	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
PRESSURIZER FIGURE 4.2-1						
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)	

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

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 FIGURE 4.2-1						
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						
Tube Side Nozzles	B3.9	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
PIPING FIGURES 4.2-1, 6.2-1 and 9.2-1						
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

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
REACTOR COOLANT PUMPS FIGURE 4.2-1						
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.

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
			VT		#2 for pump A #1 and #3 for pump B	A visual examination will be performed in lieu of the volumetric examination.
Support Components	B5.5	B-K-2	VT	100%	33-1/3% of the support components will be examined.	
Pump Casing Welds	B5.6	B-L-1	UT	100% of one pump	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.

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
			VT		100% of weld of one pump	A visual examination will be performed in lieu of the ultrasonic examination.
Pump Casing	B5.7	B-L-2	VT	100% of one pump	100% of one pump	

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
VALVES FIGURES 4.2-1, 6.2-1 and 9.2-1						
Valve Bodies on Valves Exceeding Four Inch Diameter	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.	

CLASS 1

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

CLASS 2

COMPONENT TO BE EXAMINED	SUB PARAGRAPH	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
System Pressure Tests					
Class 2 Safety Related Components					
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	

CLASS 3

COMPONENT TO BE EXAMINED	ARTICLE	EXAM METH.	INSPECTION INTERVAL (10 YEAR) REQUIREMENT	PLANNED TESTS DURING 3RD 40 MONTH PERIOD	REMARKS
System Pressure Tests					
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	

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:

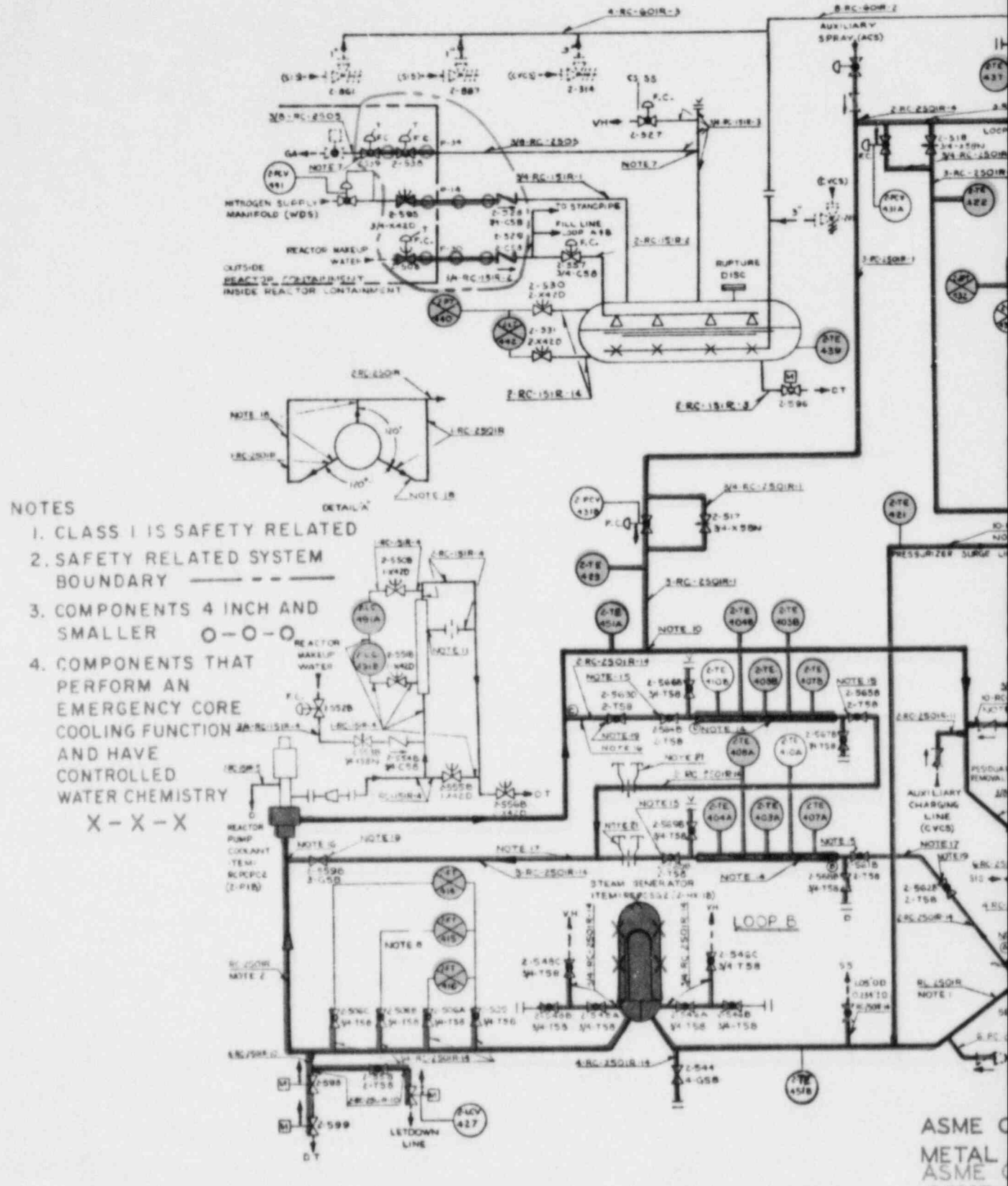
Black	Basic piping diagram
Red	Class 1 components
Green	Class 2 components
Blue	Class 3 components
Yellow	Instrumentation
Brown	Containment
Purple	Safety Related Boundary

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

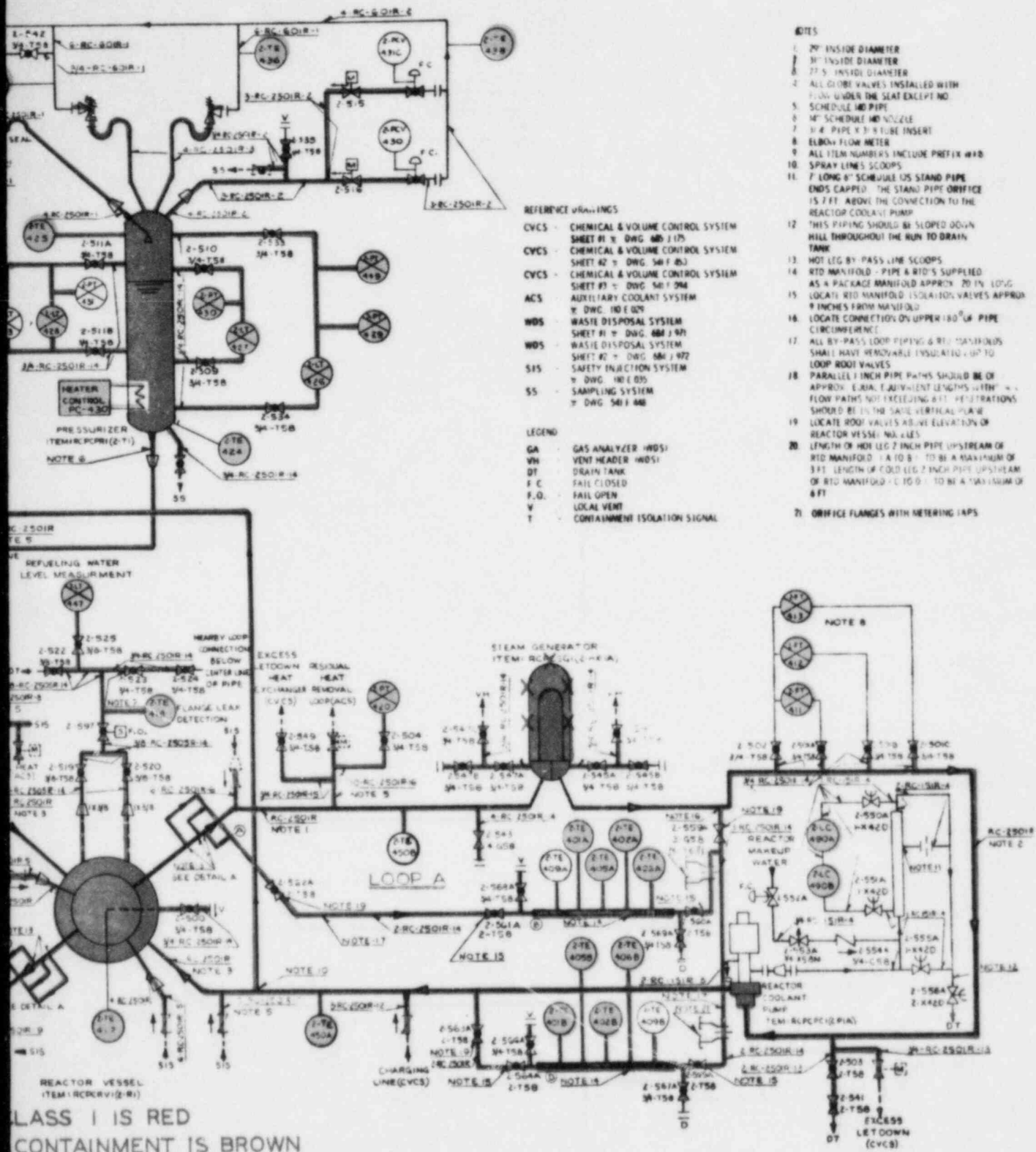
PAGE	FIGURE	DESCRIPTION
3.18	Drawing G-276-P	Cryogenic Noble Gas Removal System, Sheet 1
3.19	Drawing G-276-P	Cryogenic Noble Gas Removal System, Sheet 2
3.20	Drawing F-2077-P	Radwaste Component Cooling Water
3.21	Drawing F-2070-P	Radwaste Steam
3.22	Drawing F-2069-P	Letdown Gas Strippers
3.23	Drawing 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

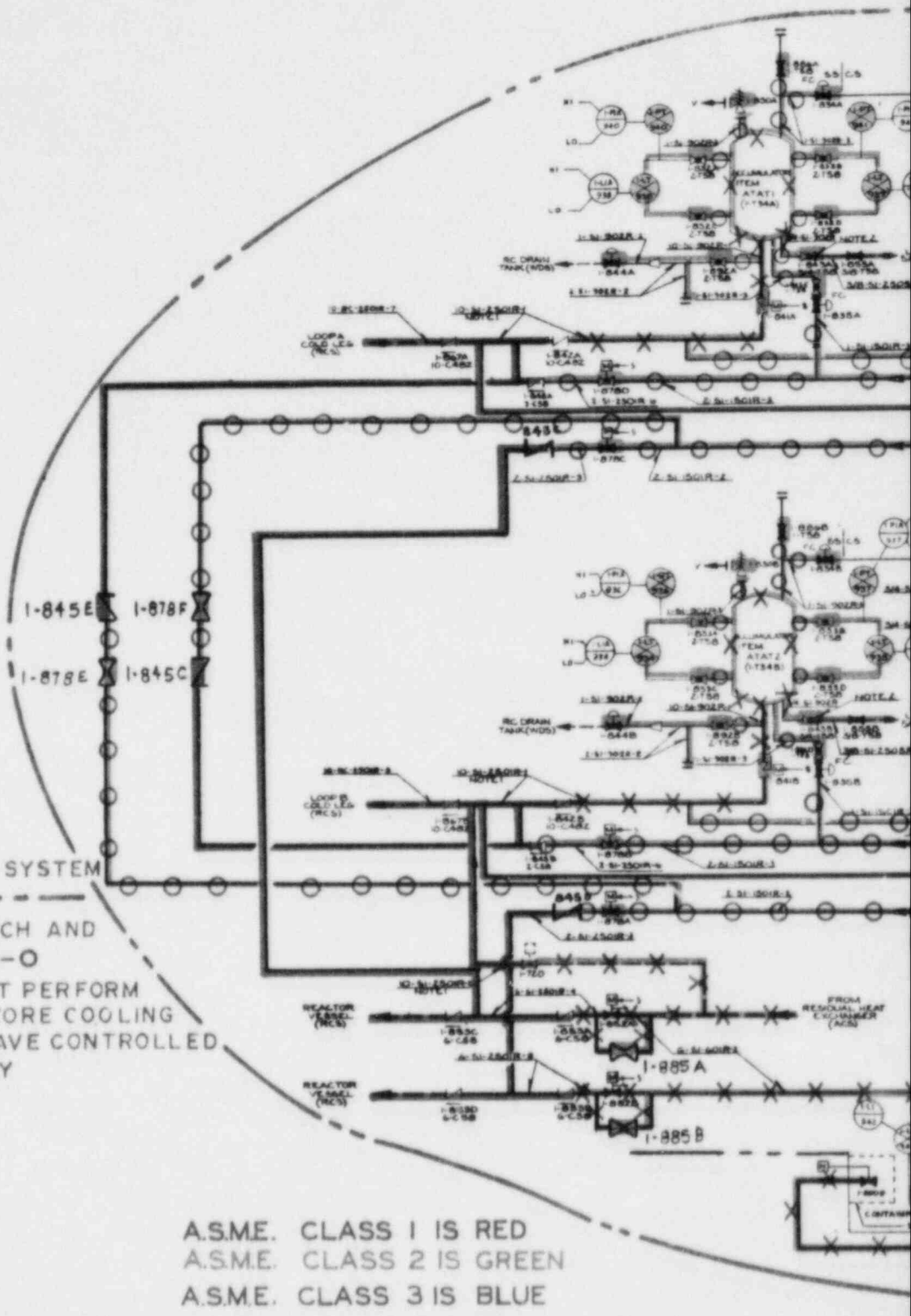
1. CLASS 1 IS SAFETY RELATED
2. SAFETY RELATED SYSTEM BOUNDARY ——— - - ———
3. COMPONENTS 4 INCH AND SMALLER O—O—O
4. COMPONENTS THAT PERFORM AN EMERGENCY CORE COOLING FUNCTION AND HAVE CONTROLLED WATER CHEMISTRY X—X—X

ASME C
METAL
ASME C
ASME
NON CO



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

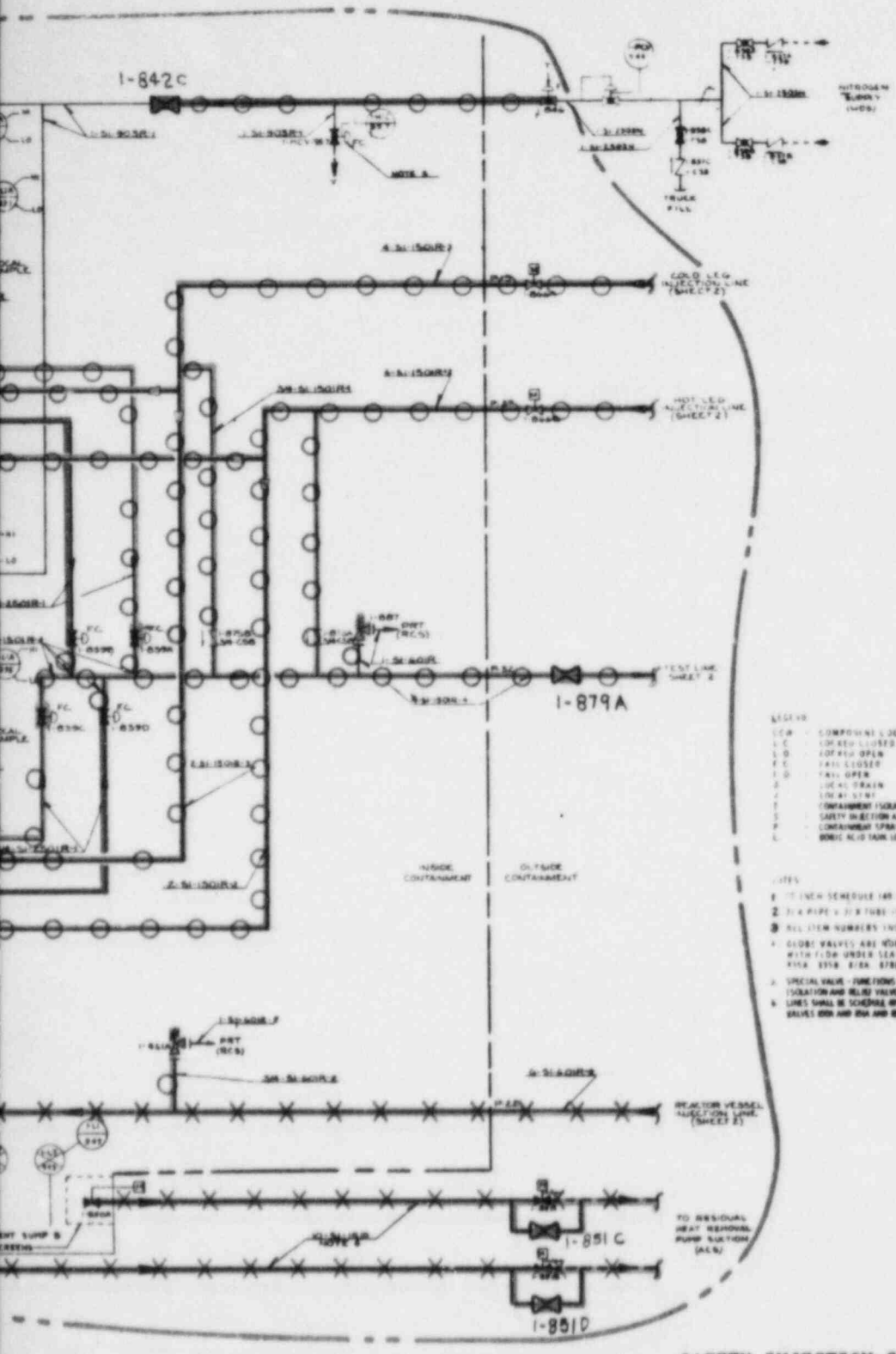
REACTOR COOLANT SYSTEM PROCESS FLOW DIAGRAM
FIGURE 4.2-1



NOTES

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

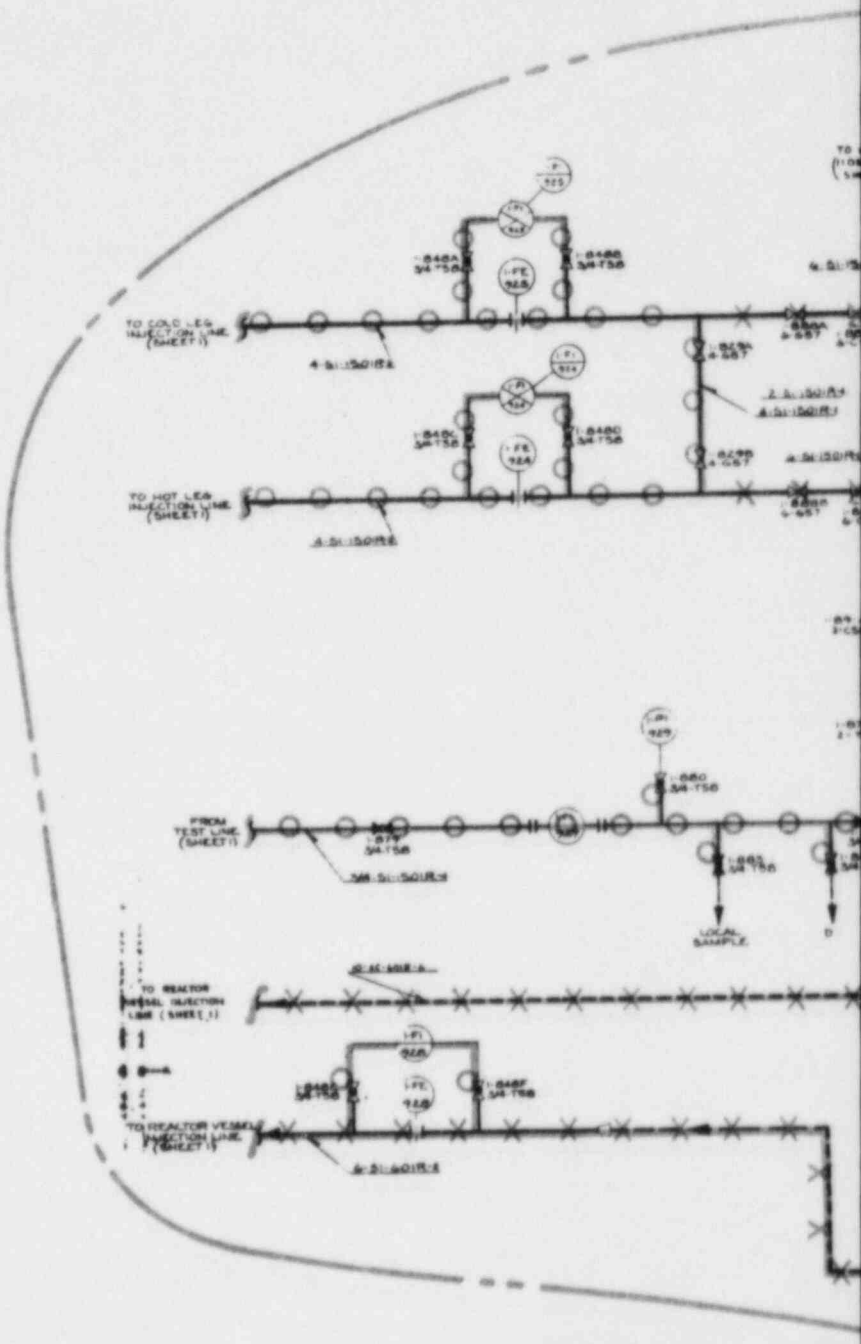
A.S.M.E. CLASS 1 IS RED
A.S.M.E. CLASS 2 IS GREEN
A.S.M.E. CLASS 3 IS BLUE
NON-CODE Q.A. IS YELLOW
METAL CONTAINMENT IS BROWN



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

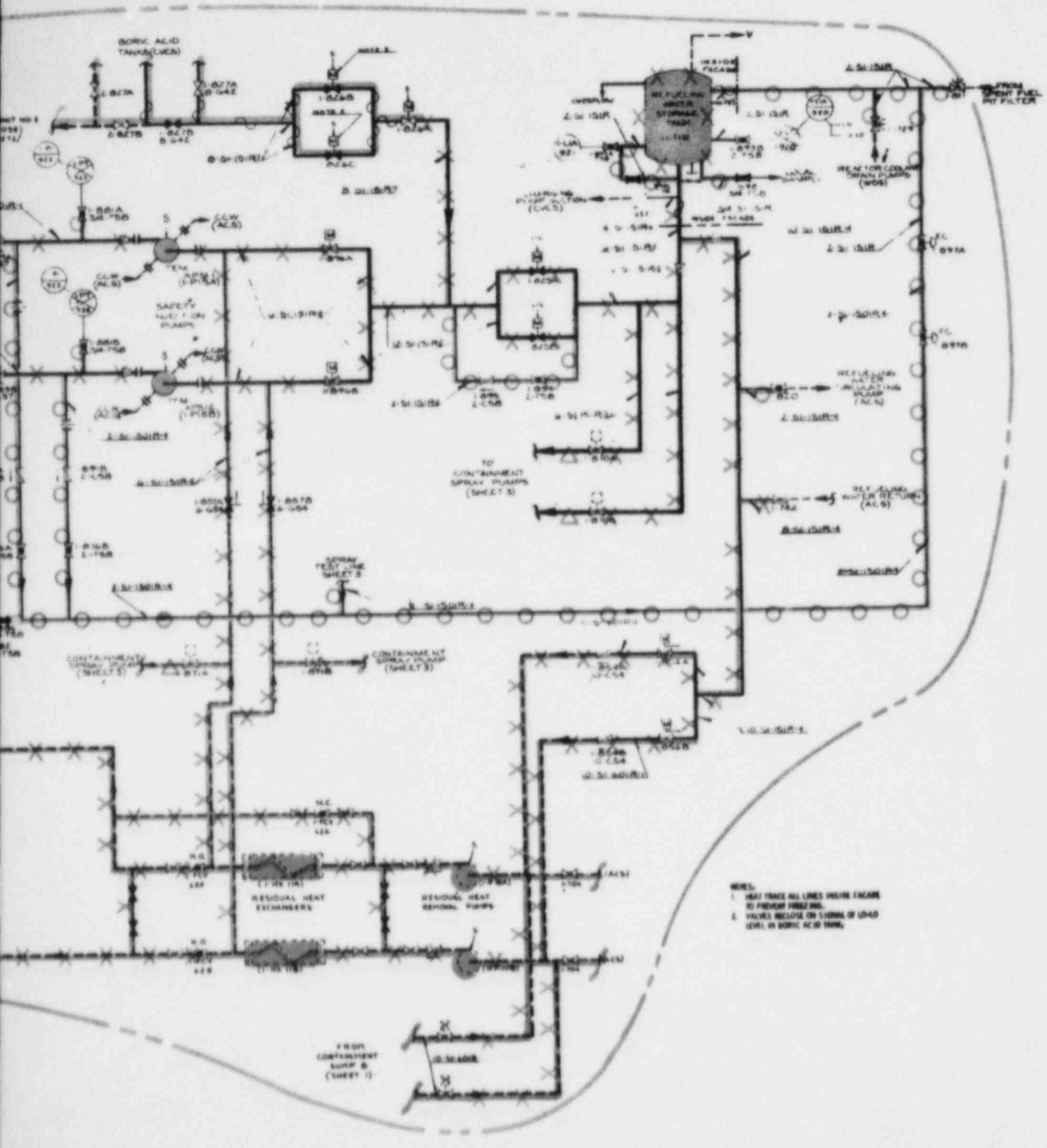
NOTES

1. SAFETY RELATED SYSTEM BOUNDARY ——— -- ———
2. COMPONENTS 4 INCH AND SMALLER O–O–O
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
   △–△–△

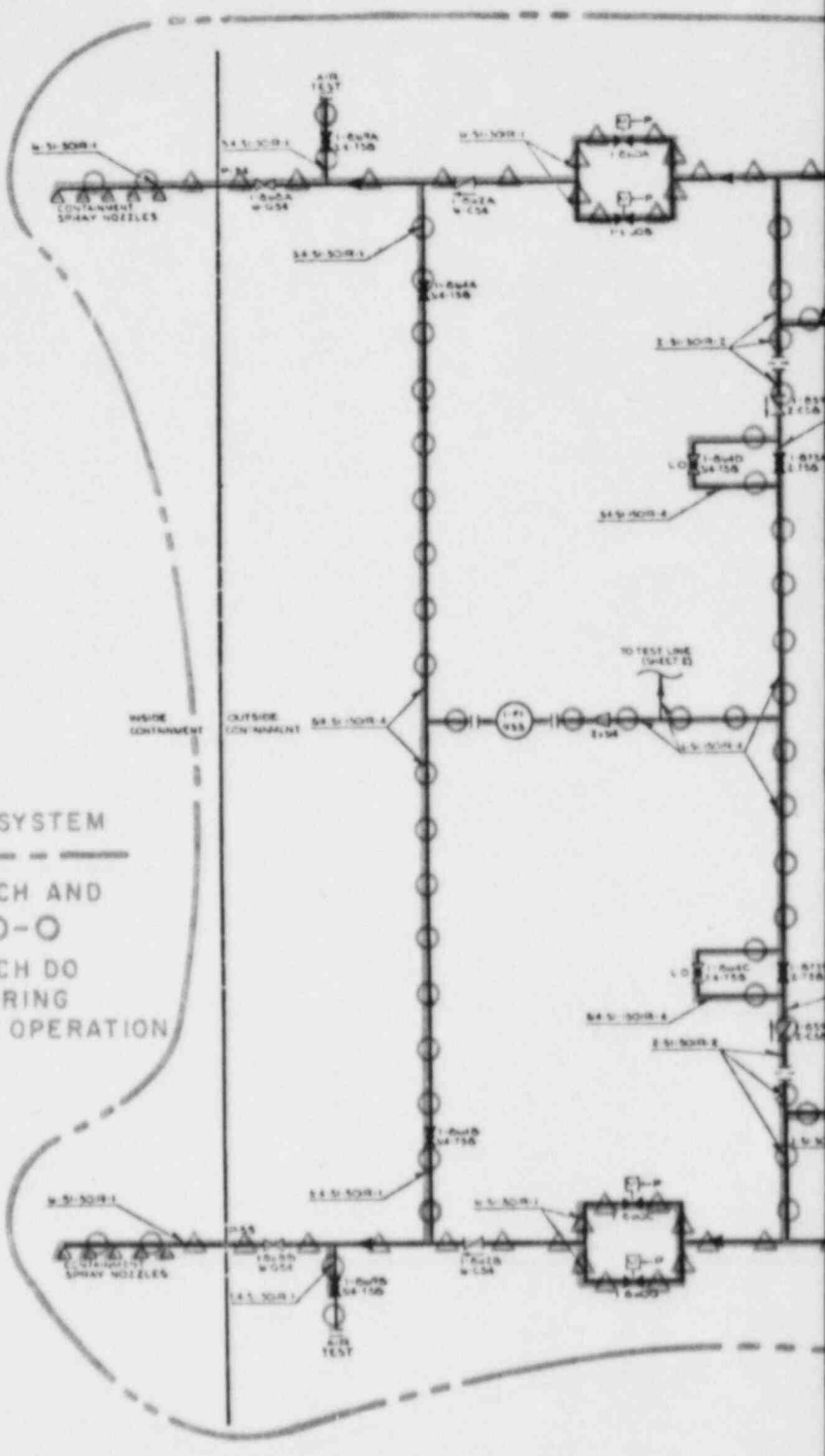


A.S.M.E. CLASS 2 IS GREEN

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



SAFETY INJECTION SYSTEM (Sheet 2)
FIGURE 6.2-1

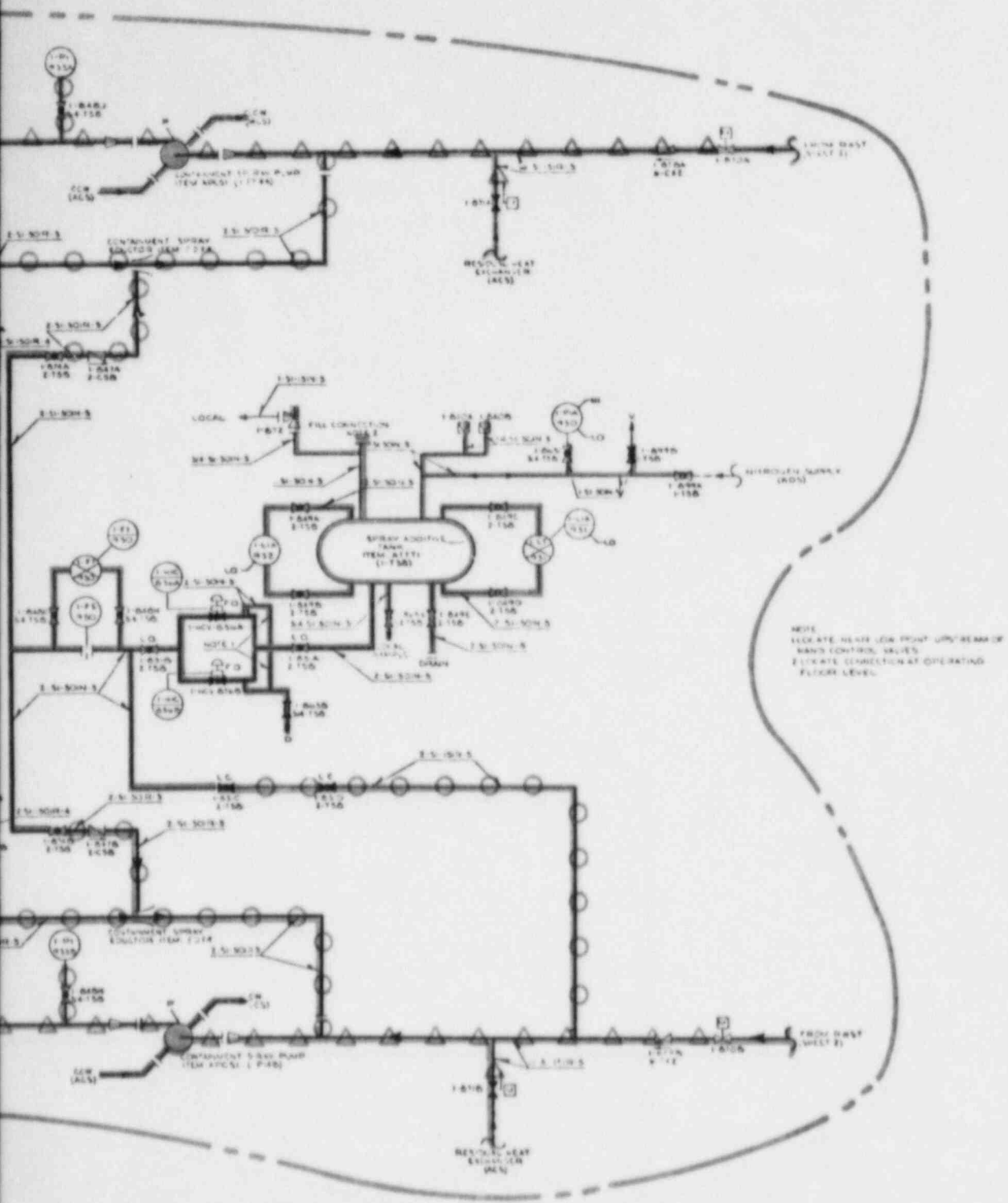


NOTES

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

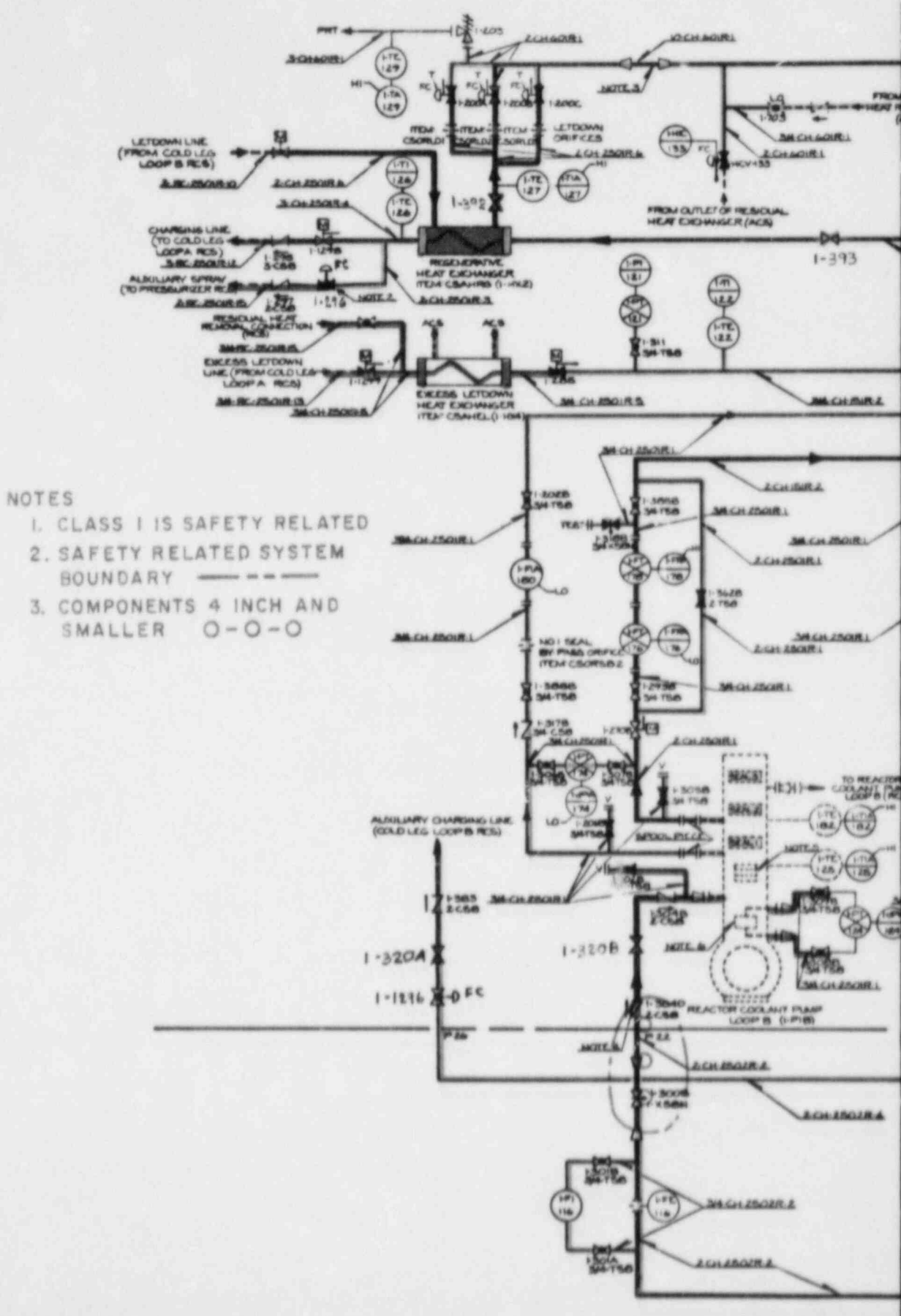
A.S.M.E. CLASS

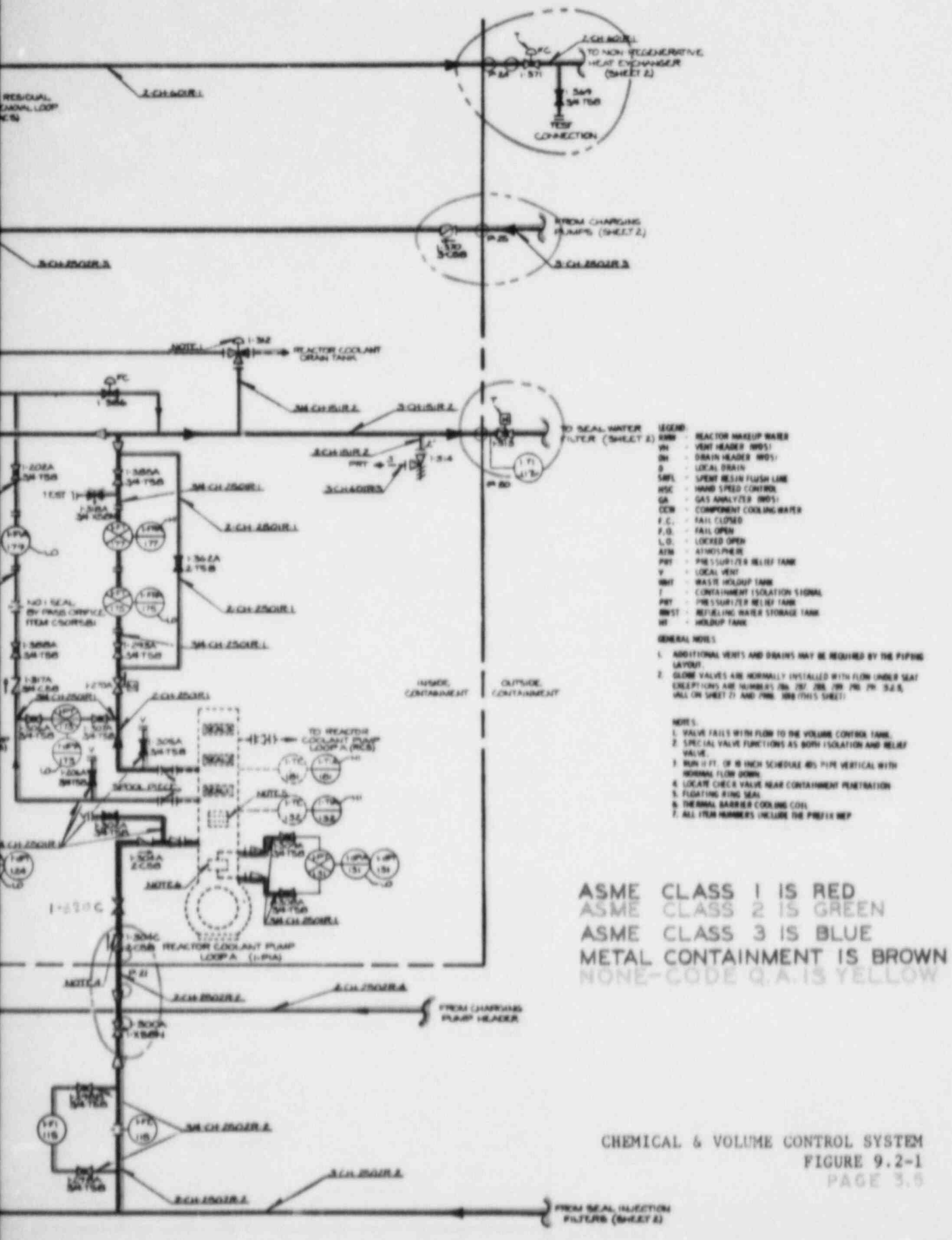
A.S.M.E. CLASS



2 IN GREEN
3 IN BLUE

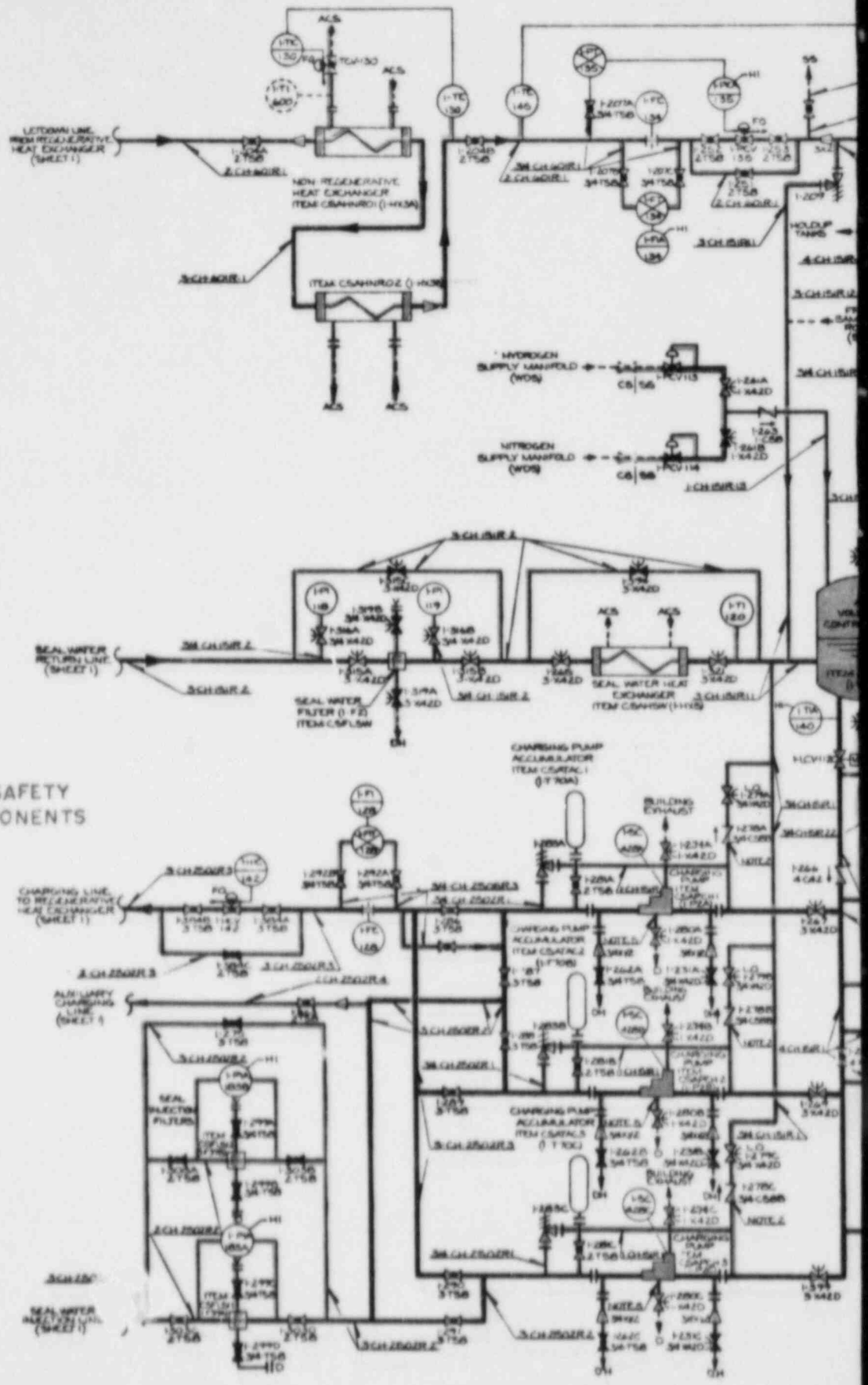
SAFETY INJECTION SYSTEM (Sheet 3)
FIGURE 6.2-1
January 16, 1970


NOTES
1. CLASS 1 IS SAFETY RELATED
2. SAFETY RELATED SYSTEM BOUNDARY
3. COMPONENTS 4 INCH AND SMALLER
1-393
1-320A
1-320B
1-1296
REGENERATIVE HEAT EXCHANGER
EXCESS LETDOWN HEAT EXCHANGER
AUXILIARY CHARGING LINE (COLD LEG LOOP B RCS)
REACTOR COOLANT PUMP LOOP B (1-P1B)
NOTE 5
NOTE 6
NOTE 7



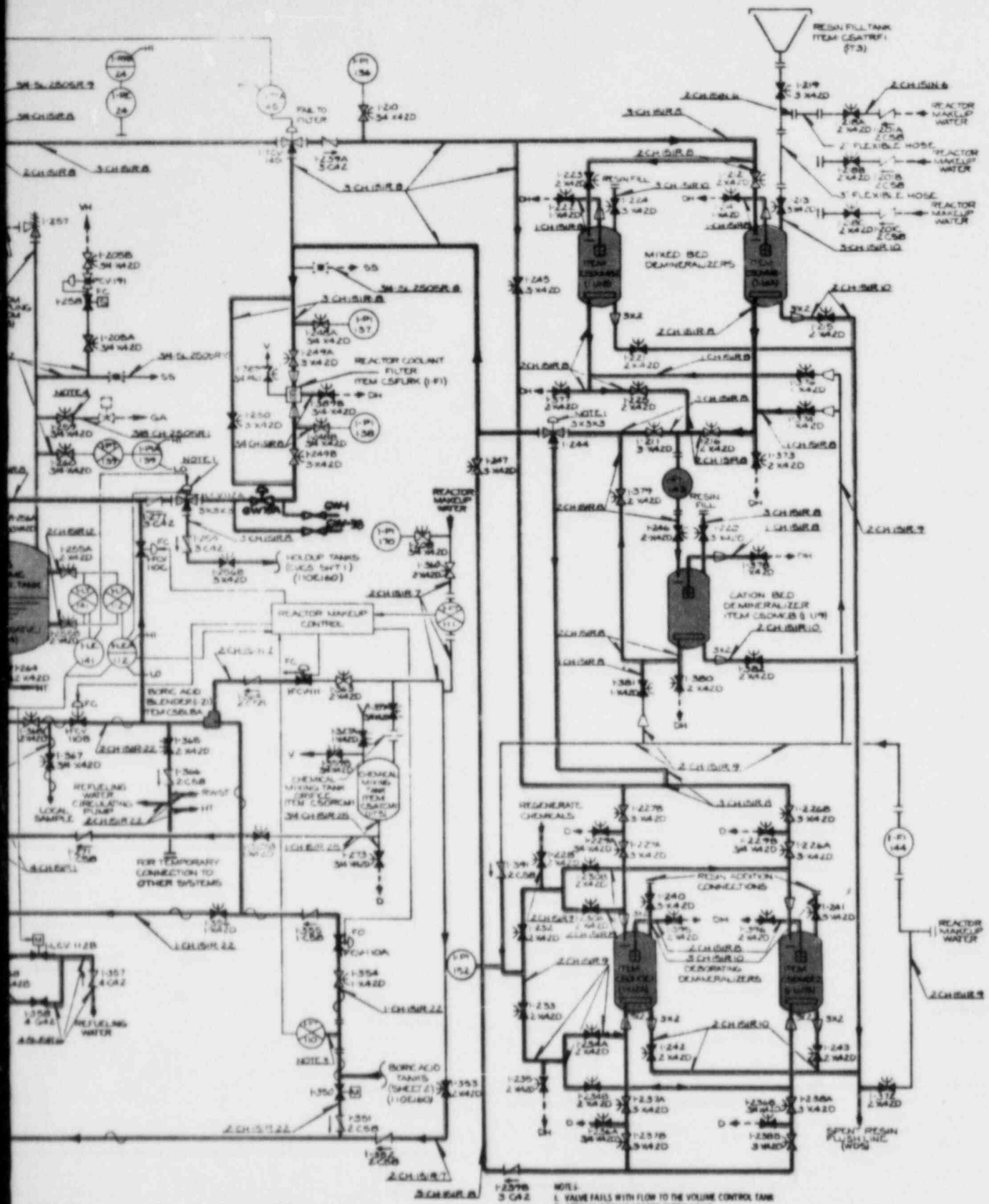
ASME CLASS 1 IS RED
ASME CLASS 2 IS GREEN
ASME CLASS 3 IS BLUE
METAL CONTAINMENT IS BROWN
NONE-CODE Q.A. IS YELLOW

CHEMICAL & VOLUME CONTROL SYSTEM
FIGURE 9.2-1
PAGE 3.6



NOTE

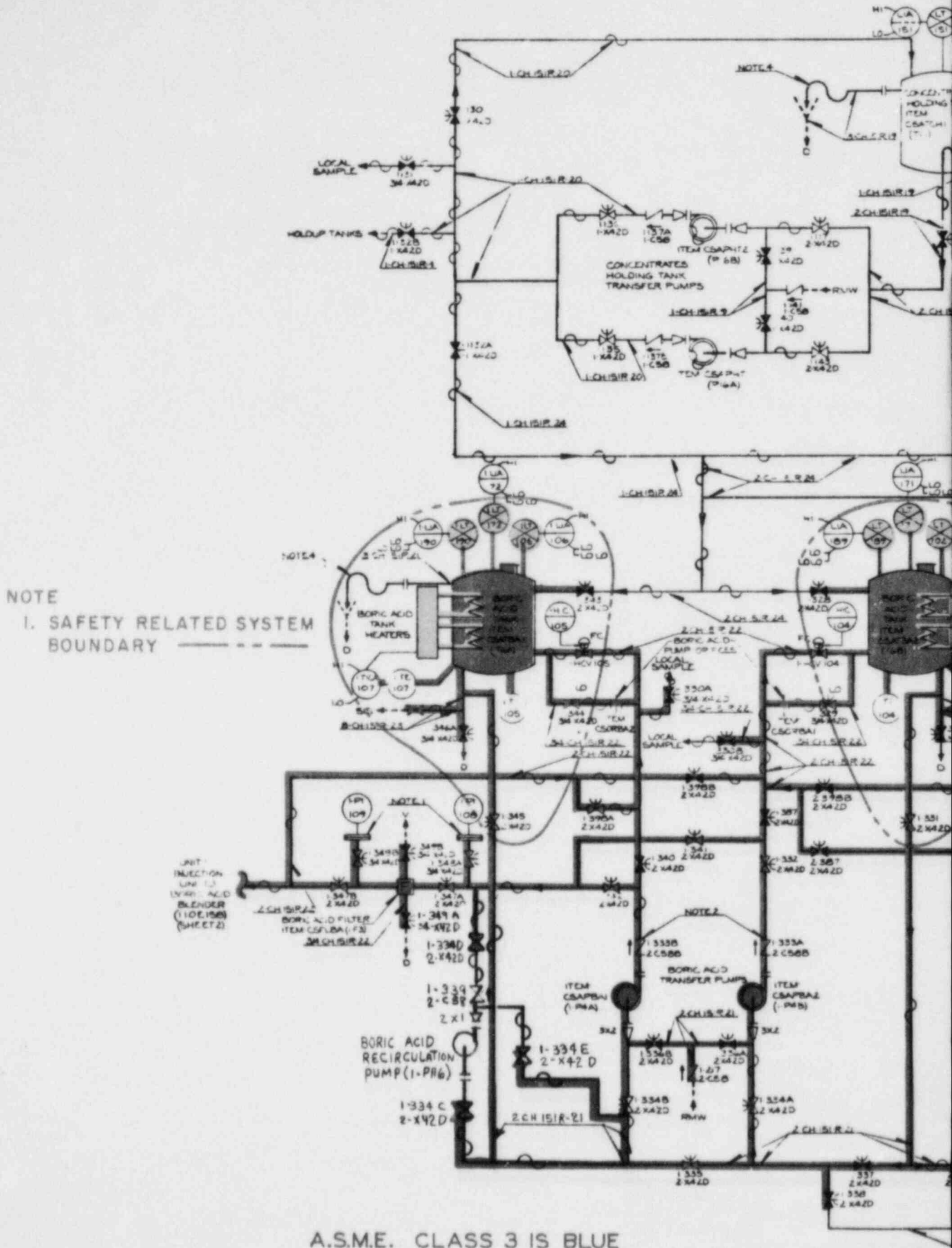
THERE ARE NO SAFETY RELATED COMPONENTS ON THIS PAGE.



ASME CLASS 2 IS GREEN
ASME CLASS 3 IS BLUE

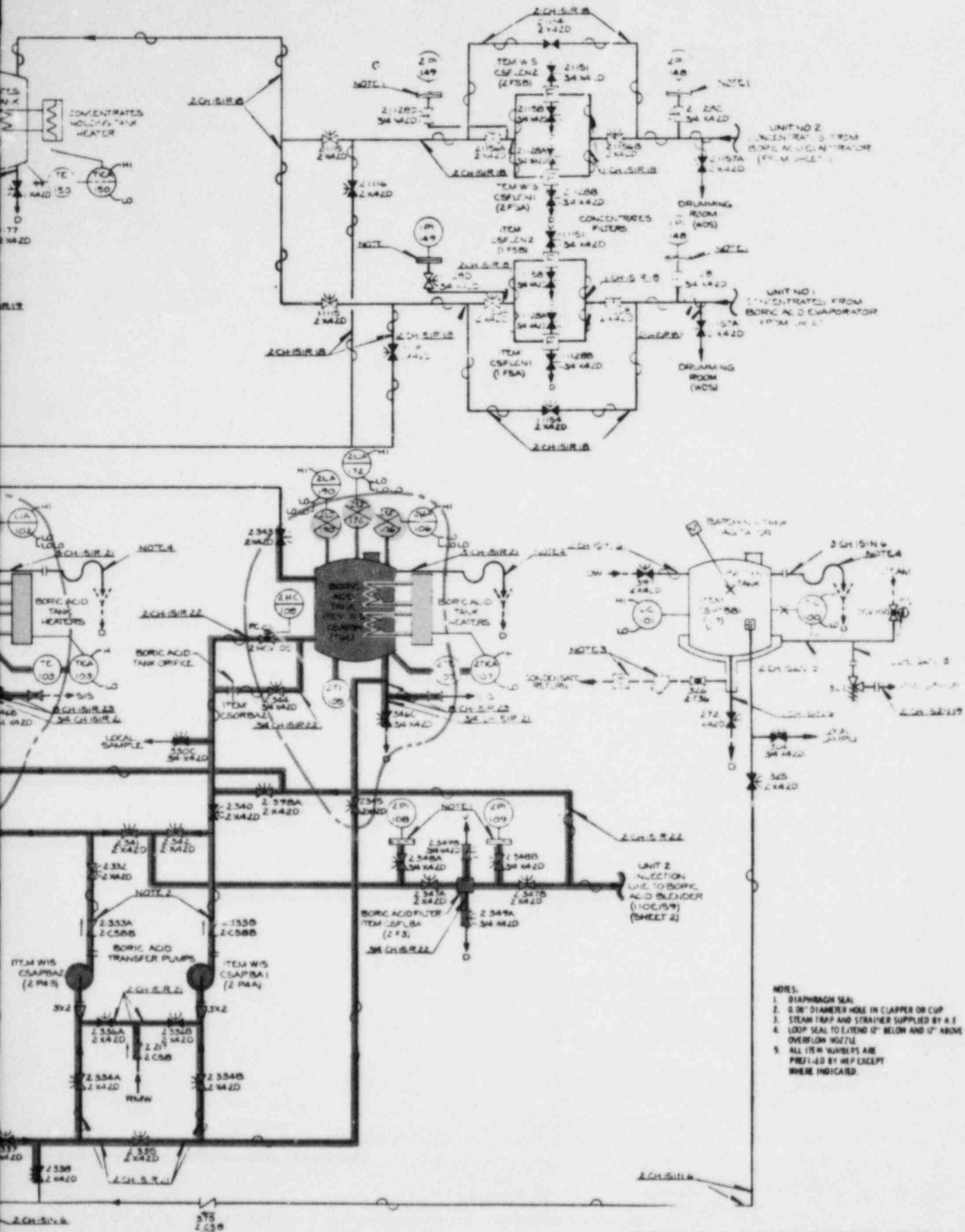
NOTES:
1. VALVE FAILS WITH FLOW TO THE VOLUME CONTROL TANK
2. SPECIAL SPRING LOADED CHECK VALVE
3. ELECTROMAGNETIC - LOCATE METER IN VERTICAL PIPE RUN
4. 3/4" NOMINAL PIPE O.D. 3/8" TUBING INSERT.
5. DRAIN FROM STUFFING BOX LEAKOFF
6. ALL ITEM NUMBERS INCLUDE THE PREFIX HEP

CHEMICAL & VOLUME CONTROL SYSTEM
FIGURE 9.2-2

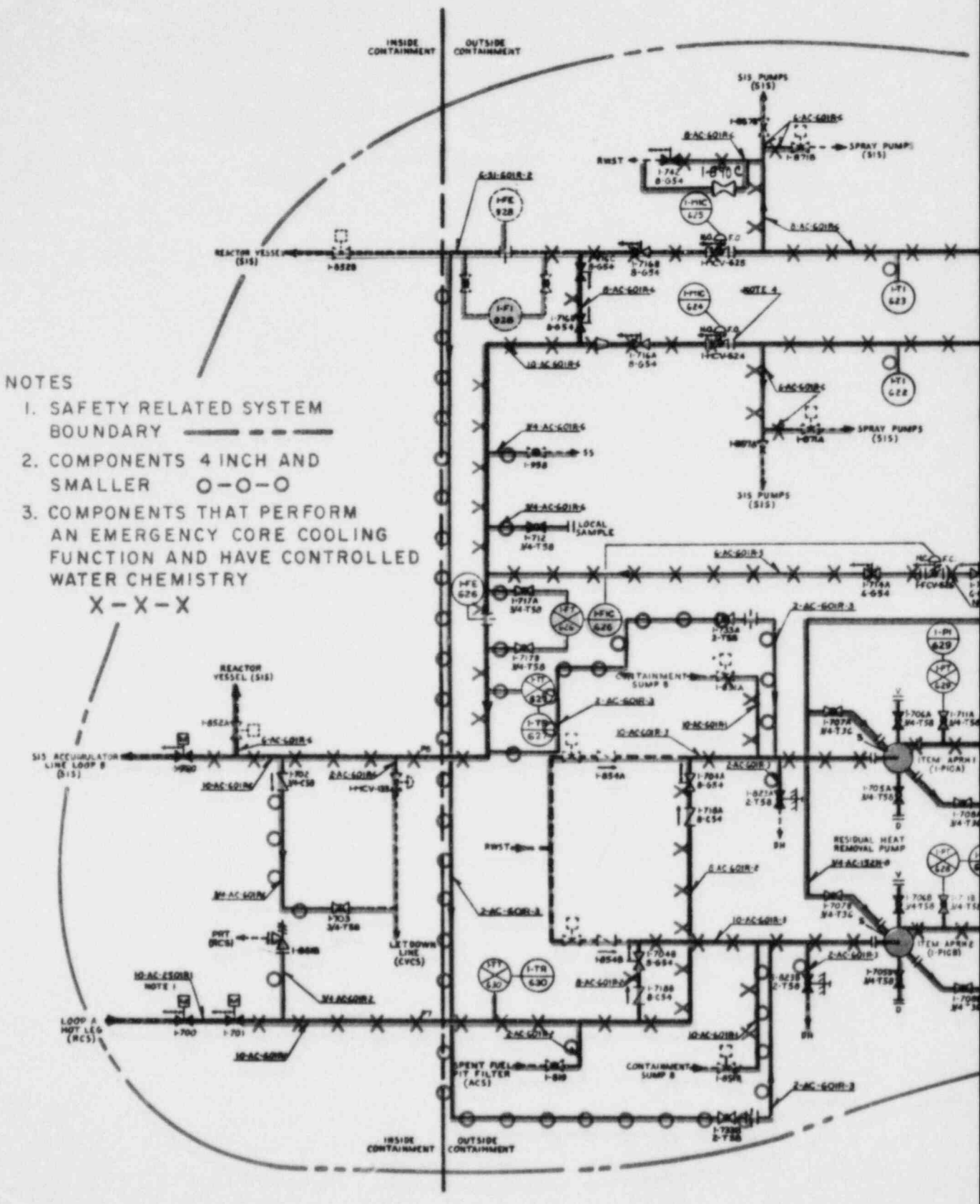


A.S.M.E. CLASS 3 IS BLUE

NON-CODE Q.A. IS YELLOW

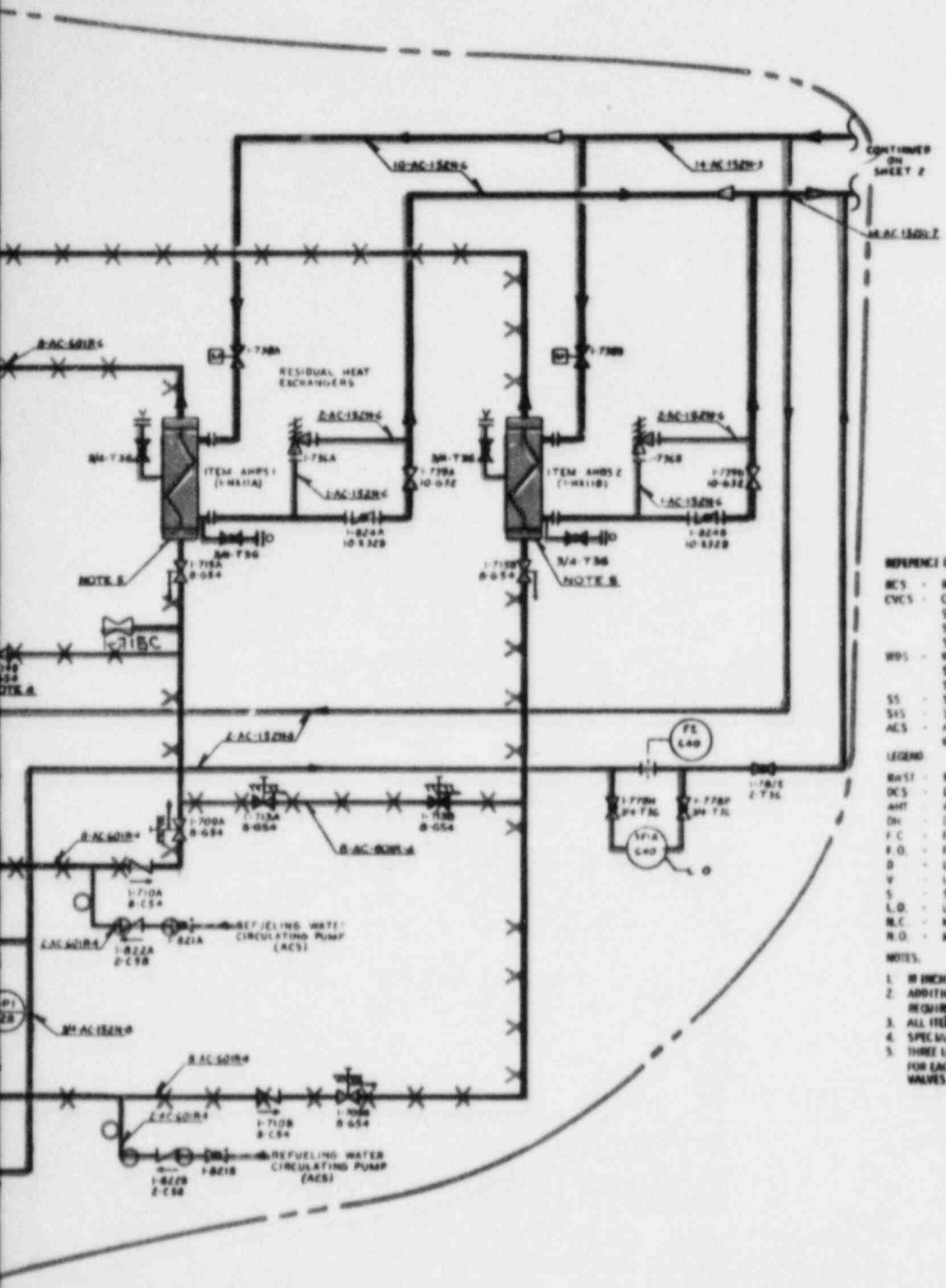


CHEMICAL & VOLUME CONTROL SYSTEM
FIGURE 9.2-4



NOTES

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



REFERENCE DRAWINGS

RCS	-	REACTOR COOLANT SYSTEM
CVCS	-	CHEMICAL & VOLUME CONTROL SYSTEM
		SHEET #1
		SHEET #2
		SHEET #3
WDS	-	WASTE DISPOSAL SYSTEM
		SHEET #1
		SHEET #2
SS	-	SAMPLING SYSTEM
SIS	-	SAFETY INJECTION SYSTEM
ACS	-	AUXILIARY COOLANT SYSTEM

LEGEND

RWST	-	REFUELING WATER STORAGE
DCS	-	DRAIN TO CONTAINMENT SUMP
WHT	-	WASTE HOLDUP TANK
DH	-	DRAIN HEADER
F.C.	-	FAIL CLOSED
F.O.	-	FAIL OPEN
D	-	LOCAL DRAIN
V	-	LOCAL VENT
S	-	SAFETY INJECTION SIGNAL
L.O.	-	LOCKED OPEN
N.C.	-	NORMALLY CLOSED
N.O.	-	NORMALLY OPEN

NOTES:

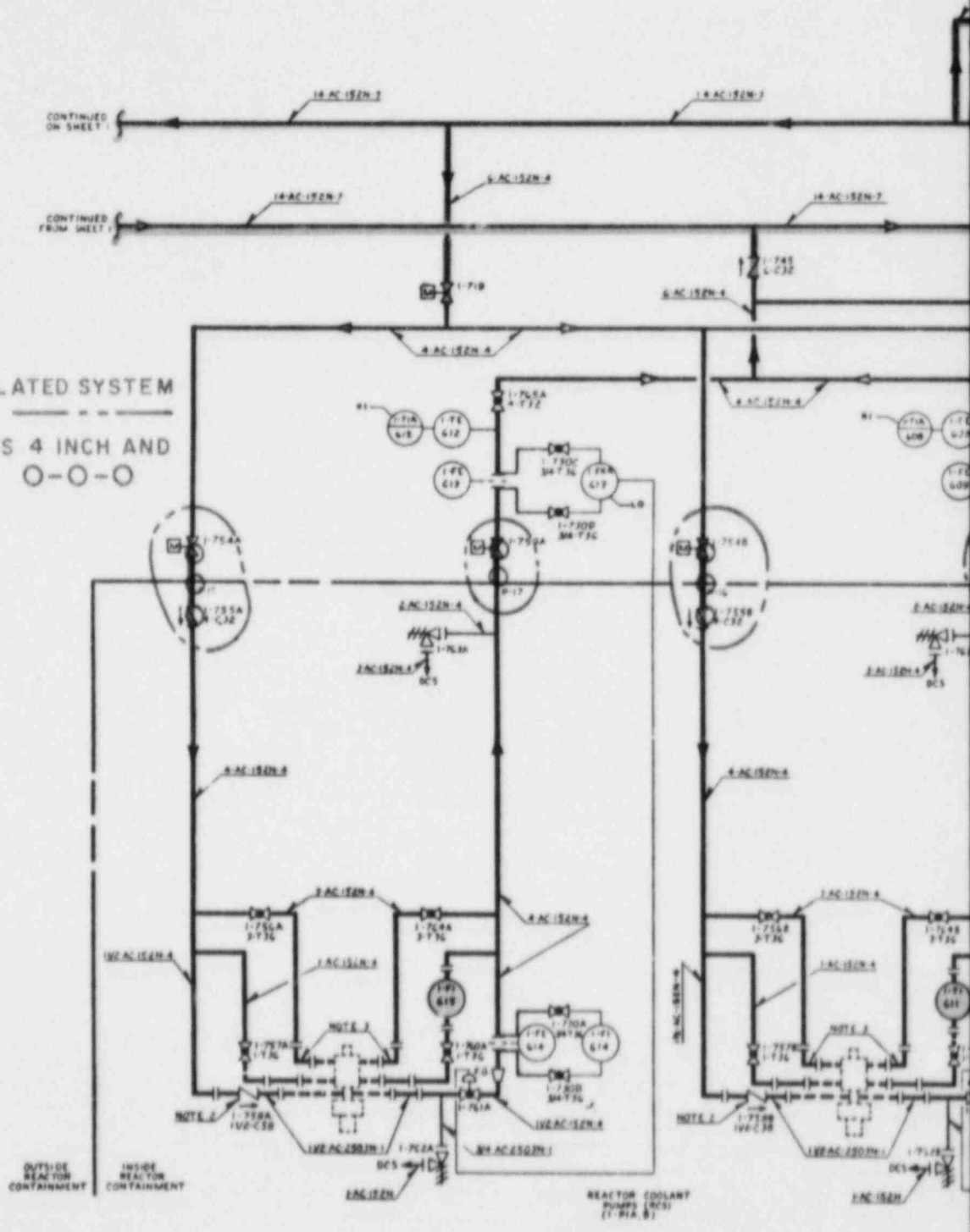
1. 10 INCH SCHEDULE 160.
2. ADDITIONAL VENTS AND DRAINS MAY BE REQUIRED BASED ON LAYOUT.
3. ALL ITEM NO'S. INCLUDE PREFIX 1(2)SAC.
4. SPECIAL FLANGE 300# TYPE 316
5. THREE LOCAL DRAINS TO BE PROVIDED FOR EACH HX BONNET WITH 3/4 - 150 VALVES AND BLIND FLANGES.

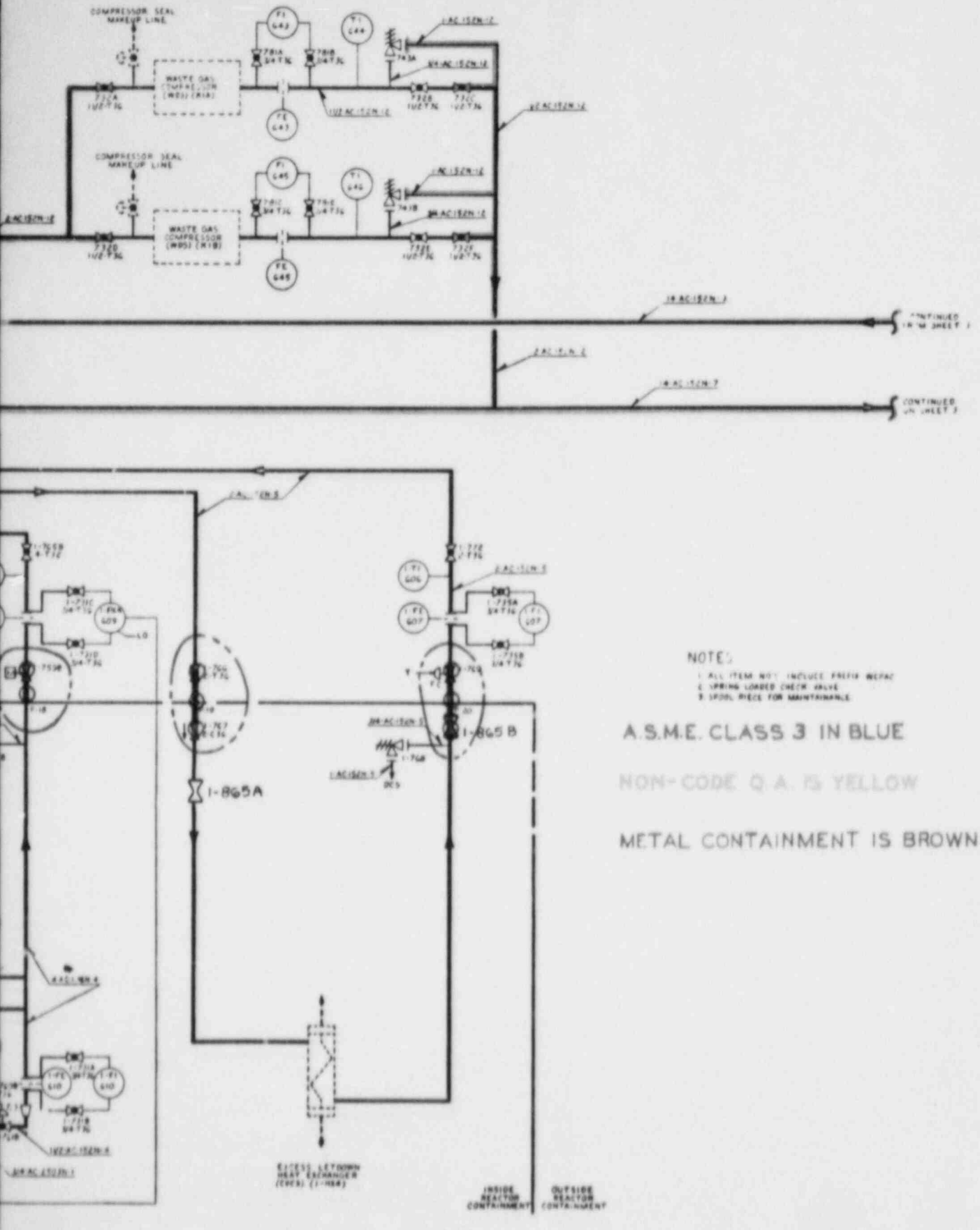
ASME CLASS 1 IS RED
ASME CLASS 2 IS GREEN
ASME CLASS 3 IS BLUE
NON CODE QA IS YELLOW

AUXILIARY COOLANT SYSTEM
FIGURE 9.3-1
PAGE 3.8

NOTES

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





NOTE:

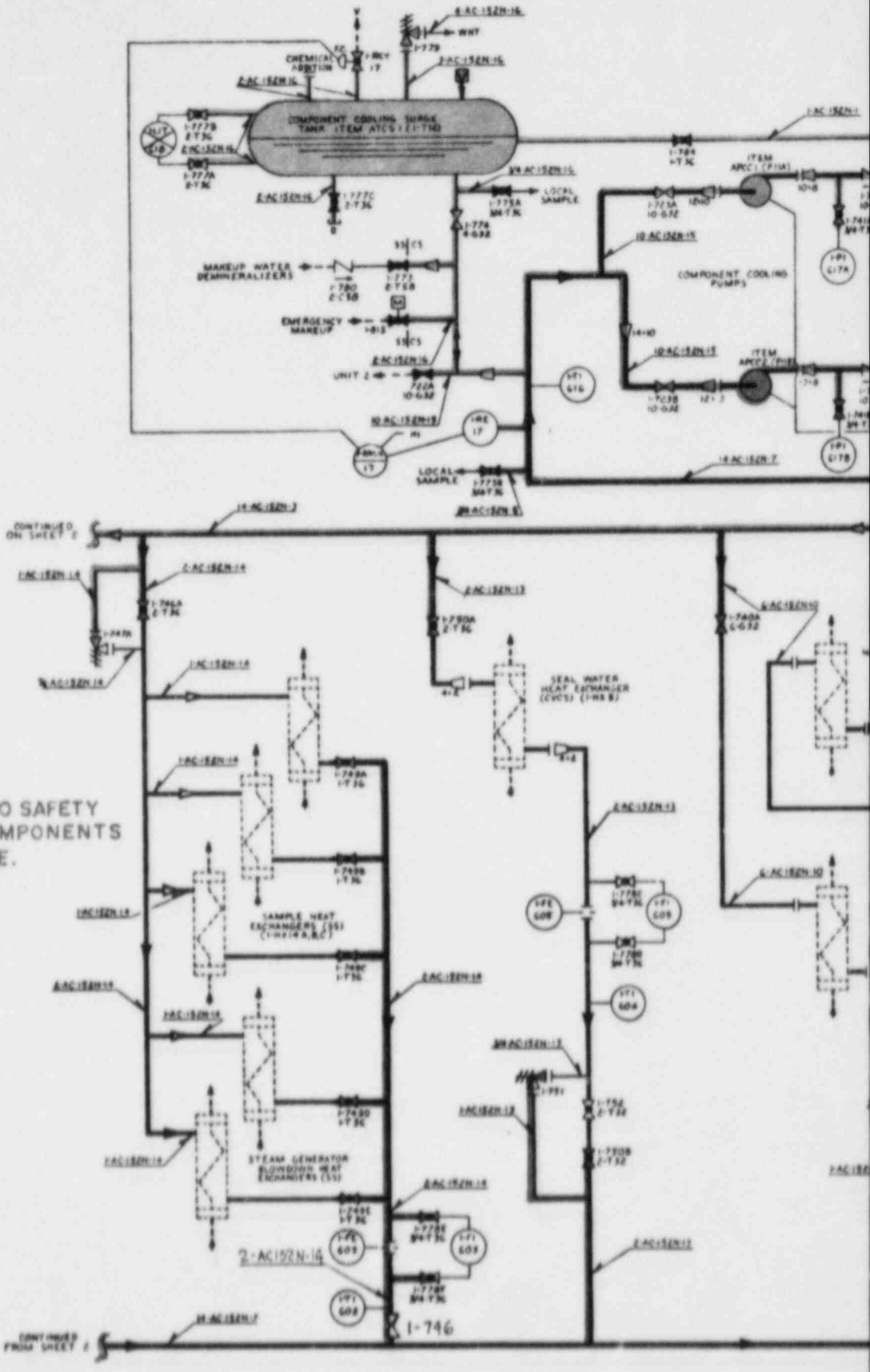
1. ALL ITEM NO'S INCLUDE FREFIX WCPAC
2. SPRING LOADED CHECK VALVE
3. SPOOL PIECE FOR MAINTENANCE

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

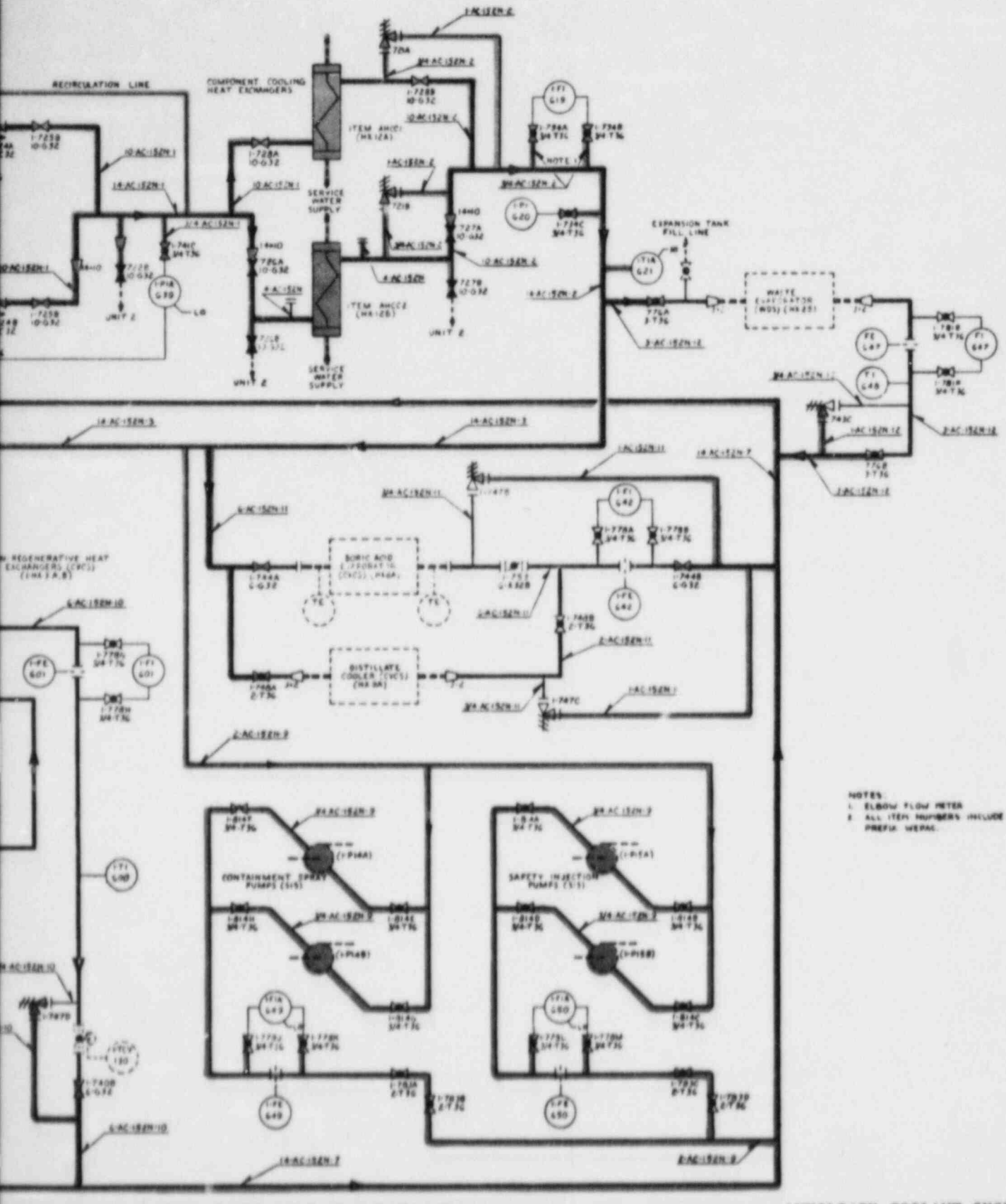
NON-CODE Q.A. IS YELLOW

METAL CONTAINMENT IS BROWN

AUXILIARY COOLANT SYSTEM
FIGURE 9.3-2
PAGE 3.9



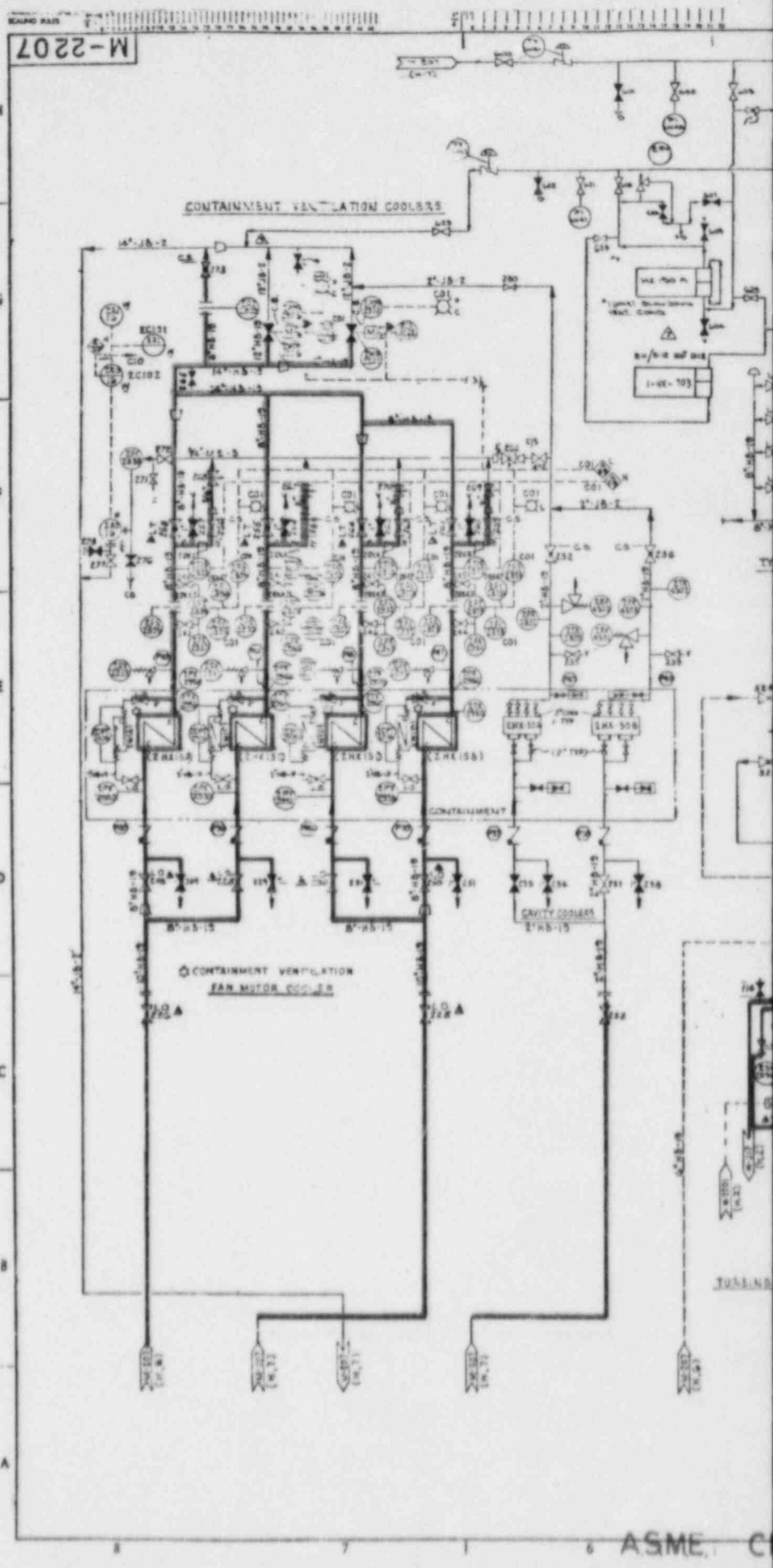
NOTE
THERE ARE NO SAFETY RELATED COMPONENTS ON THIS PAGE.

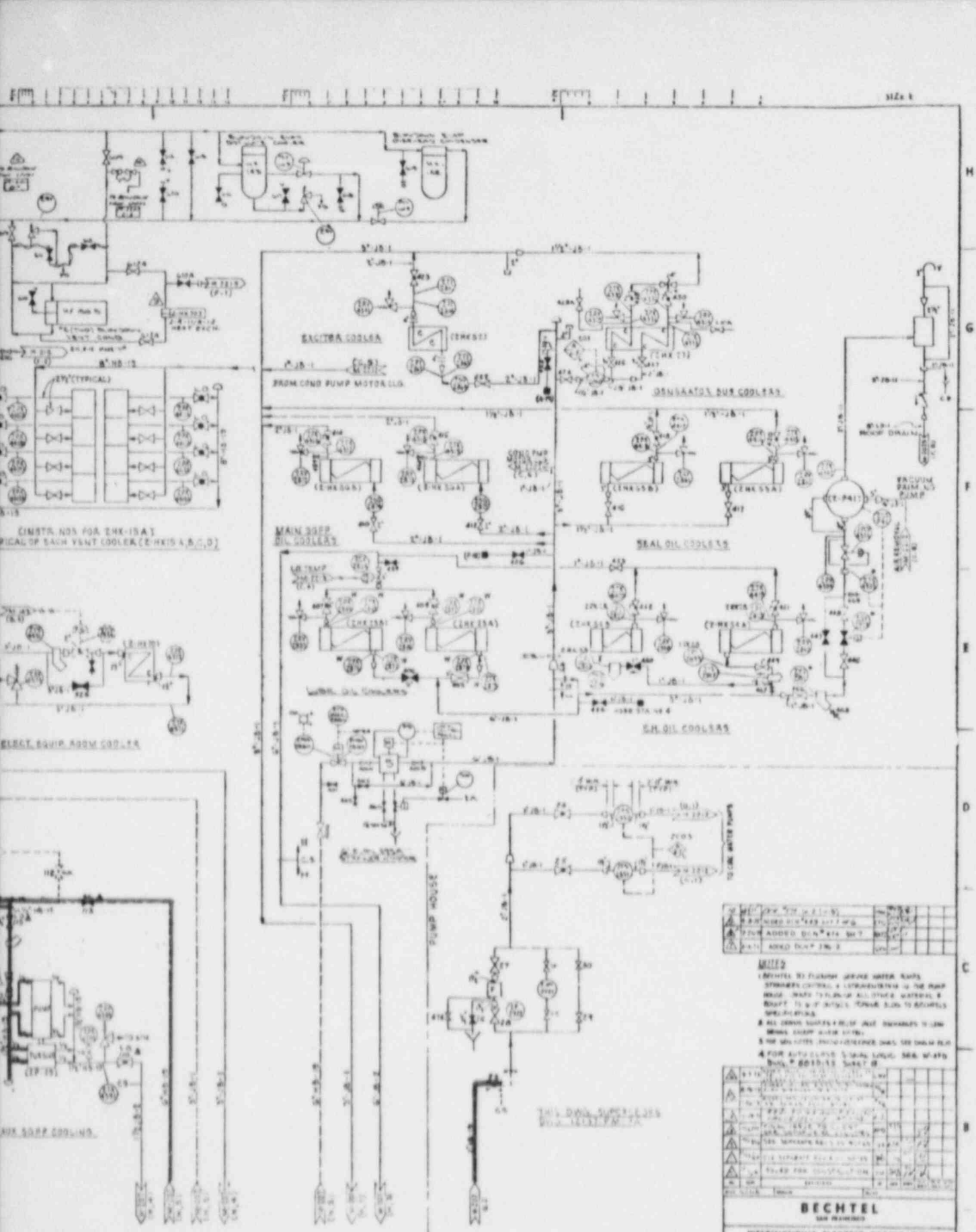


A.S.M.E. CLASS 3 IS BLUE

NON-CODE QA IS YELLOW

AUXILIARY COOLANT SYSTEM
FIGURE 9.3-3
PAGE 3.10

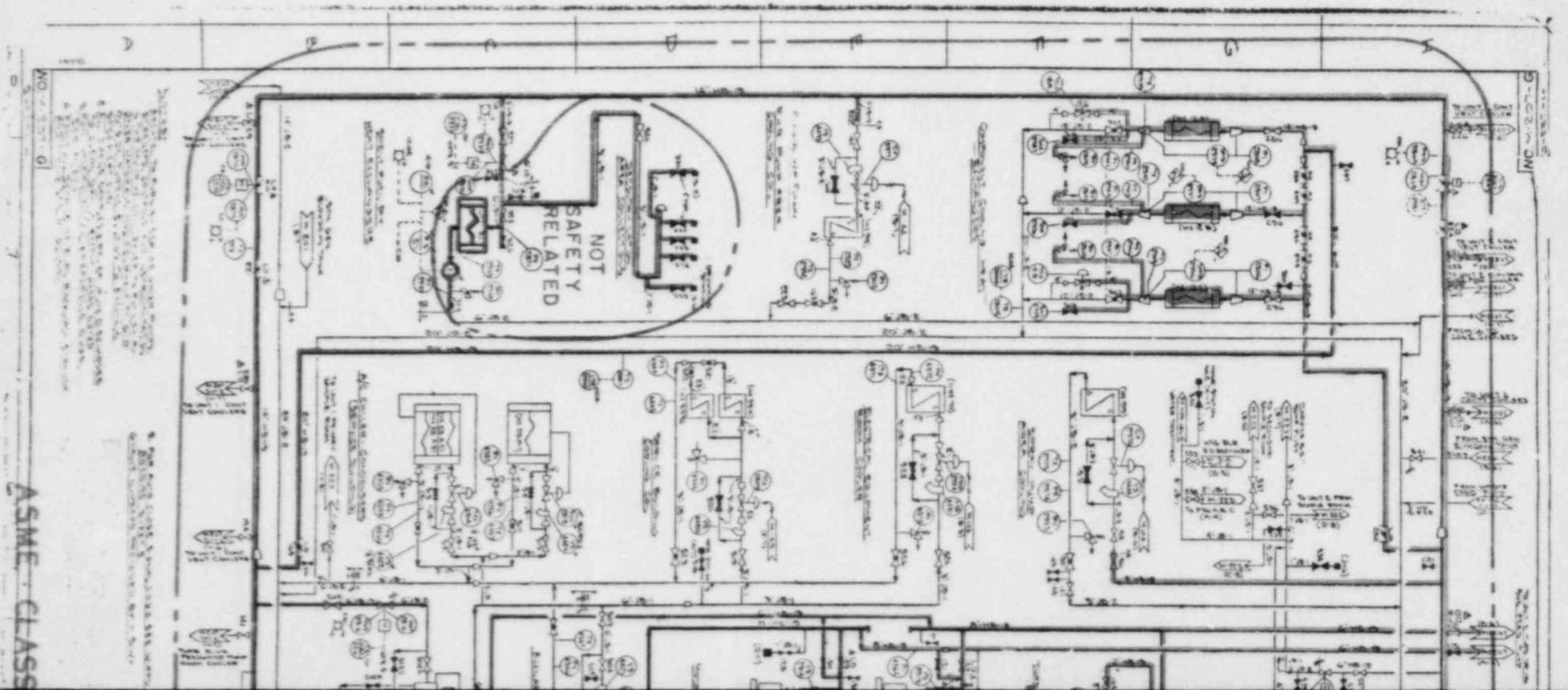

M-2207
CONTAINMENT VENTILATION COOLERS
CONTAINMENT VENTILATION
FAN MOTOR COOLER
CONTAINMENT
CAVITY COOLERS
TURBINE

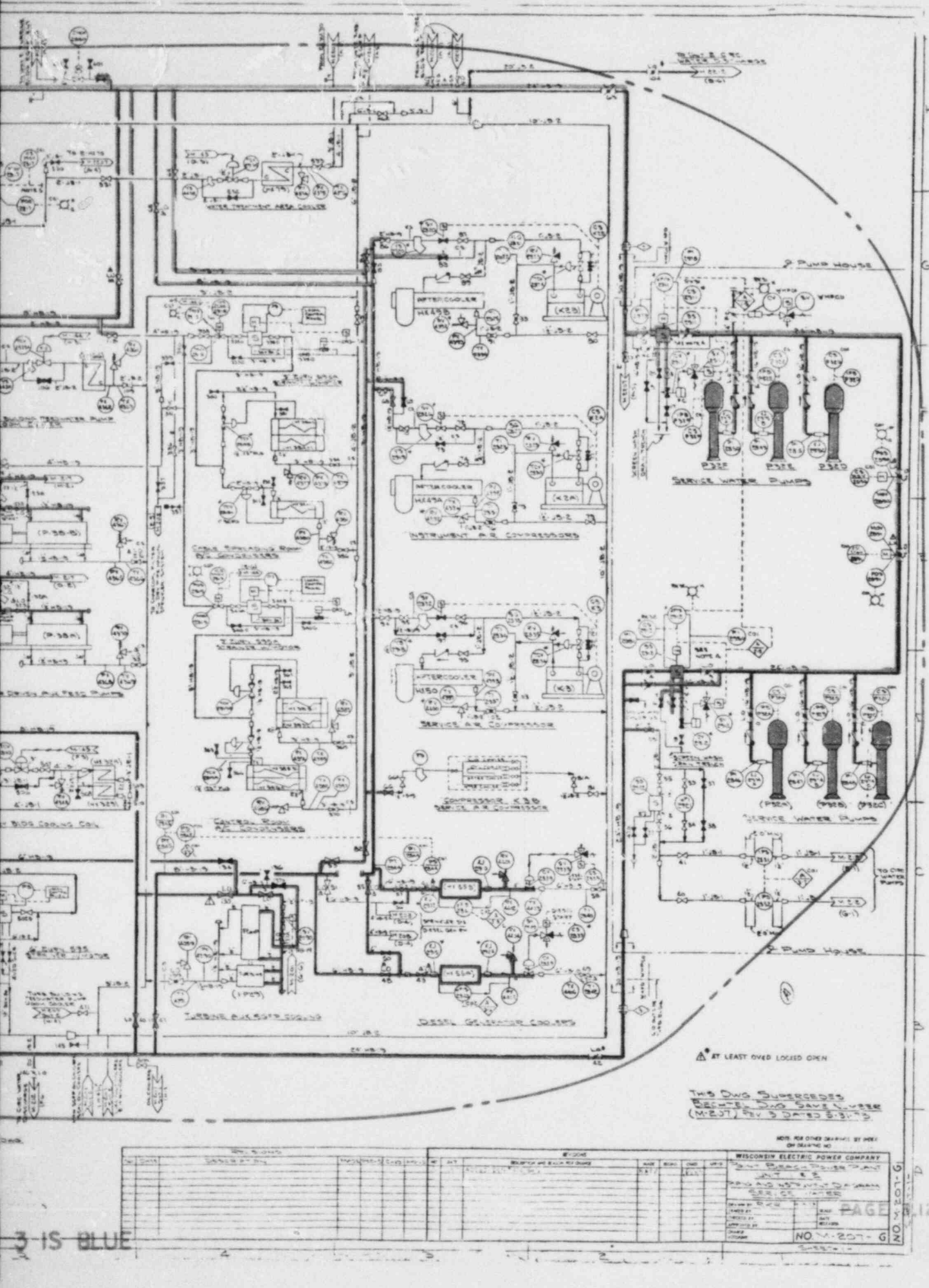


CLASS 3 IS BLUE

NOTES

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

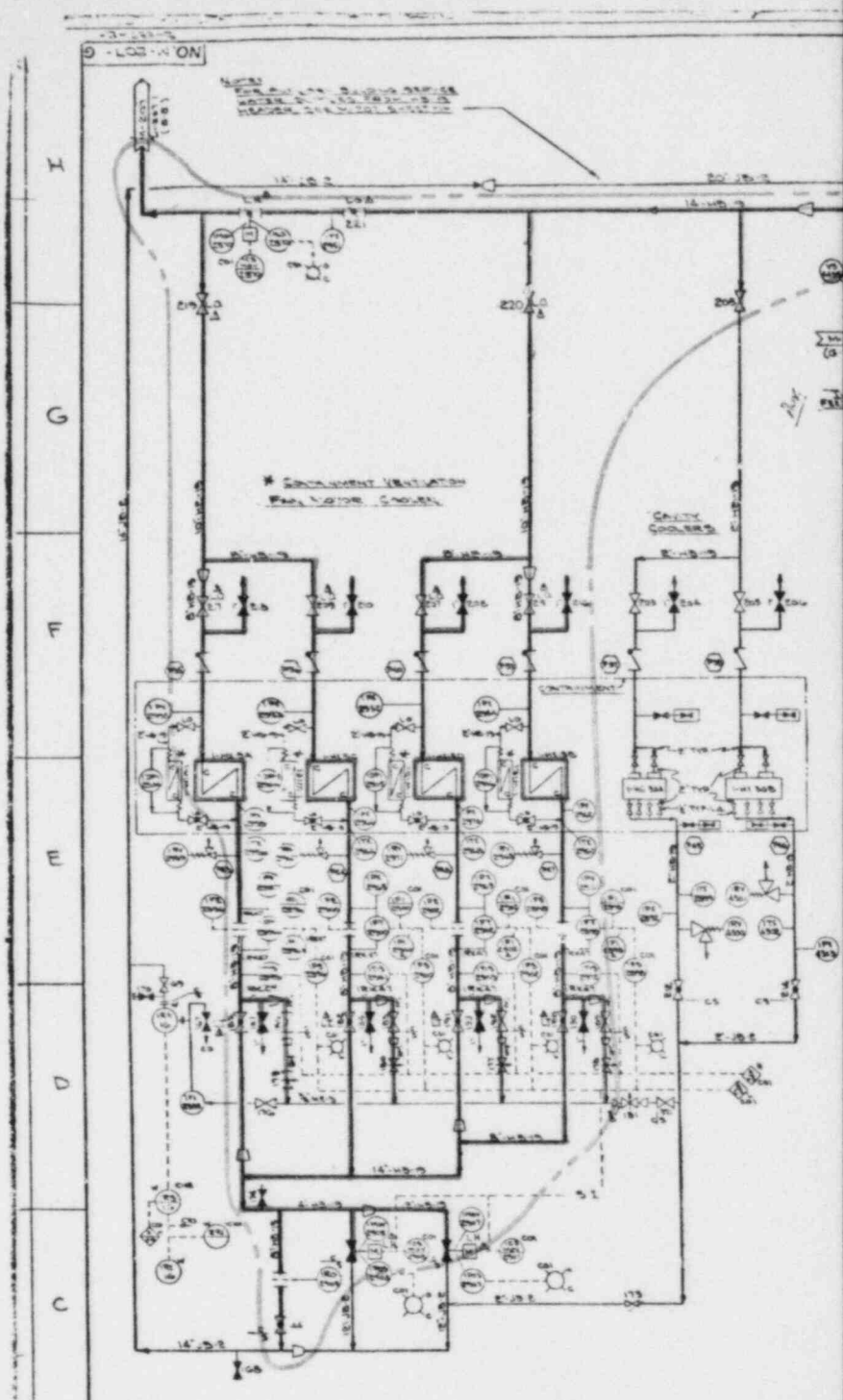



WISCONSIN ELECTRIC POWER COMPANY
NO. M-257-G
AT LEAST ONE LOCKED OPEN
THIS DWG SUPERCEDES
(M-257) REV 3 DATED 5-31-73

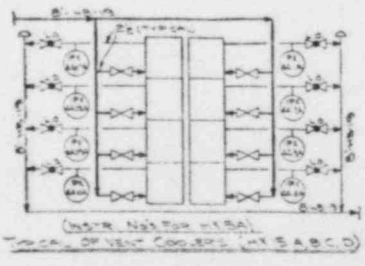
3 IS BLUE

NOTE

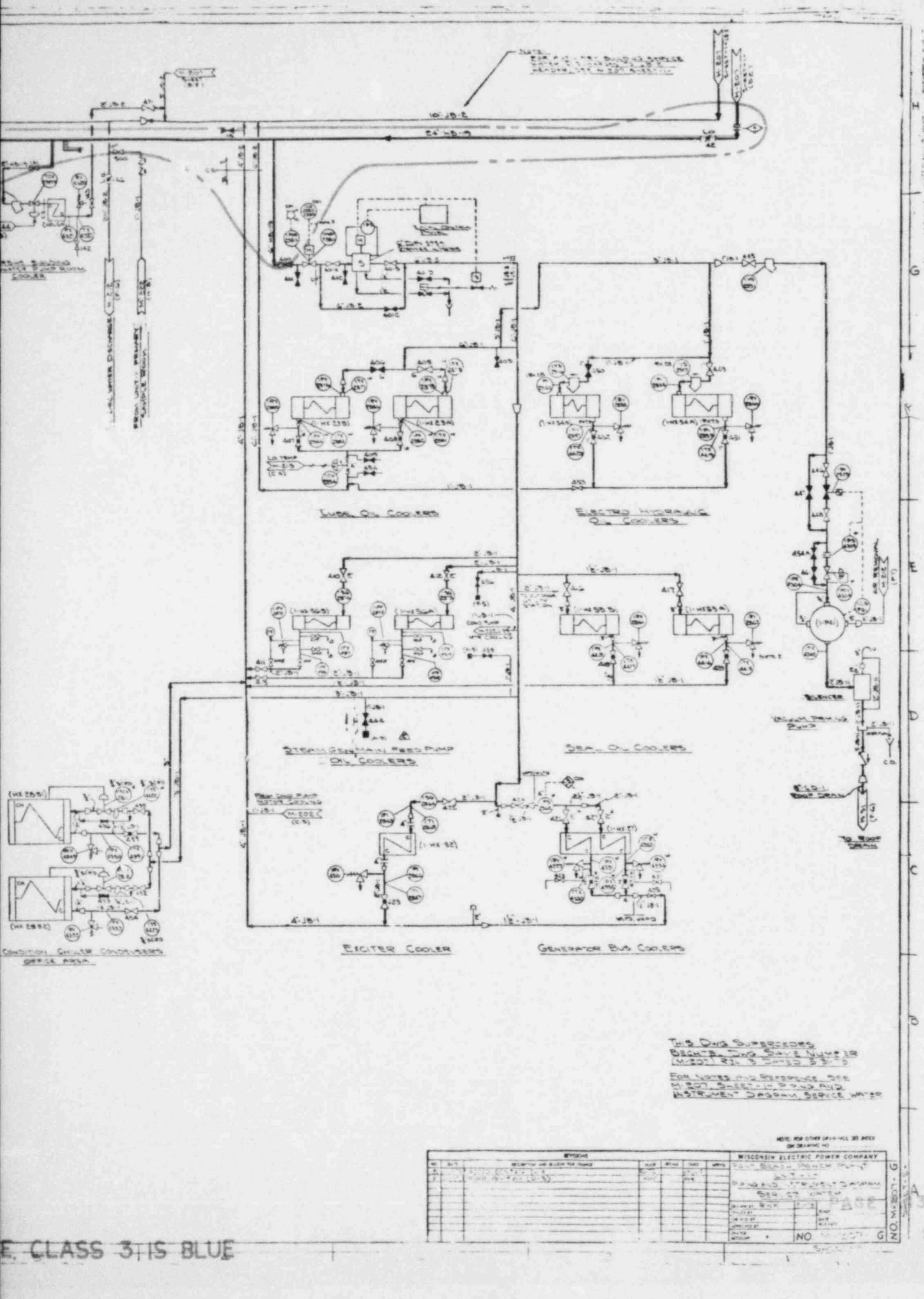
1. SAFETY RELATED SYSTEM BOUNDARY



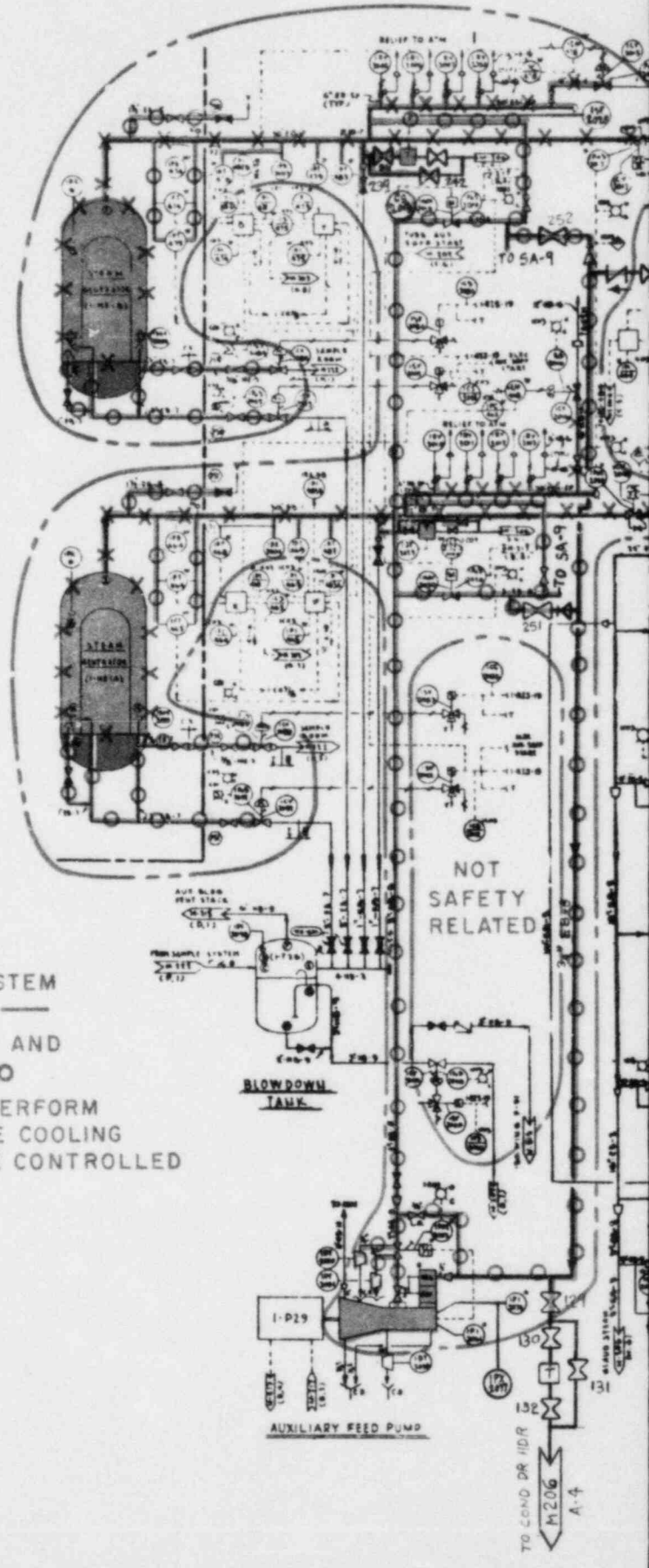
CONTAINMENT VENTILATION COOLERS



TYPICAL OF VENT COOLERS (4) (A,B,C,D)

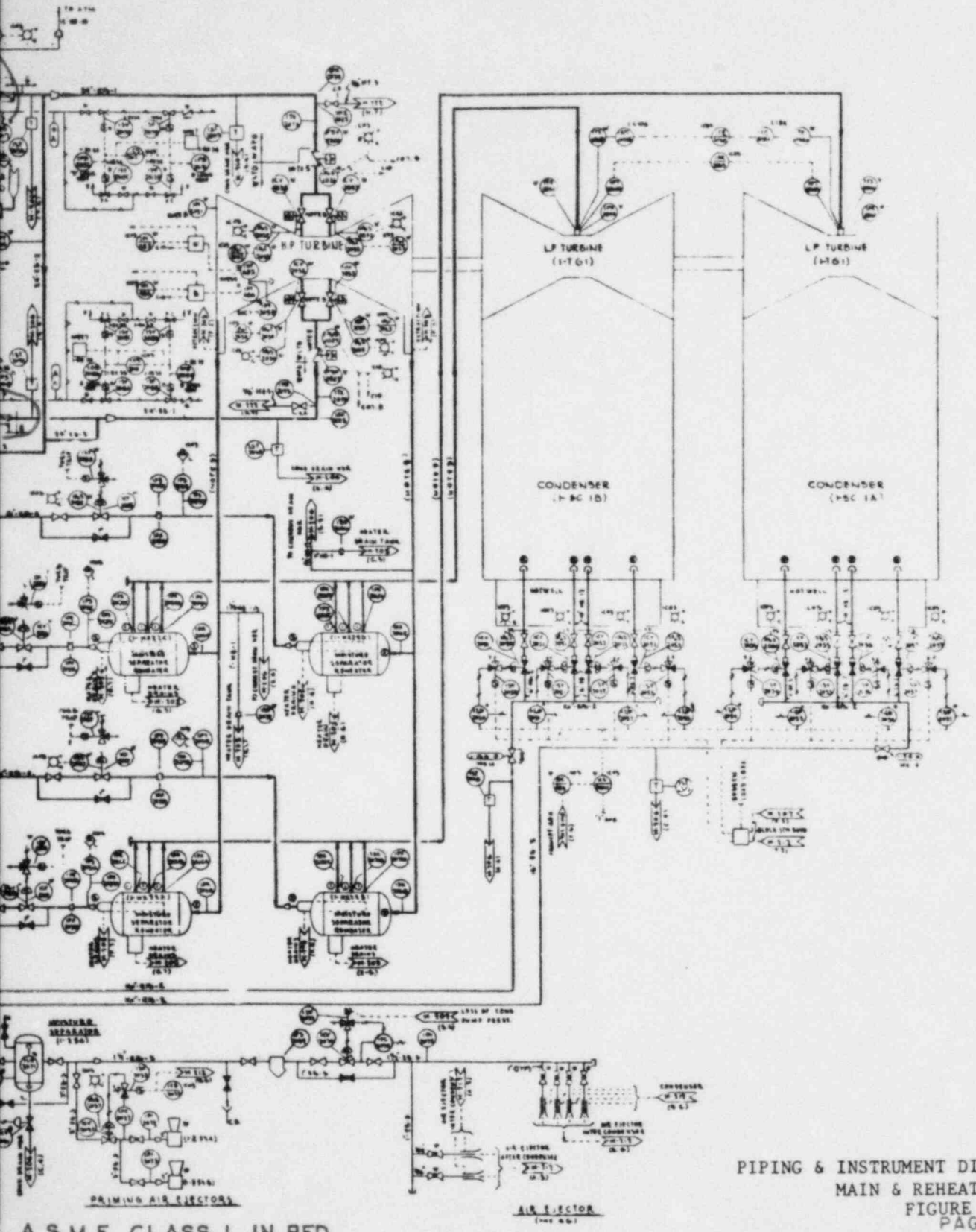


LUBE OIL COOLERS
ELECTRO HYDRAULIC OIL COOLERS
STEAM GEN. MAIN FEED PUMP OIL COOLERS
SEAL OIL COOLERS
EXCITER COOLER
GENERATOR BUS COOLERS
VACUUM PRIMING PUMP
TO ROOF DRAIN
THIS DWG SUPERSEDES BECHTEL DWG SAME NUMBER (M-207) REV. 3
FOR NOTES AND REFERENCE SEE M-207 SHEET-1, PIPING AND INSTRUMENT DIAGRAM, SERVICE WATER
WISCONSIN ELECTRIC POWER COMPANY
POINT BEACH NUCLEAR PLANT
PIPING AND INSTRUMENT DIAGRAM
SERVICE WATER
NO. M-207 G
E. CLASS 3 IS BLUE



NOTES

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



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

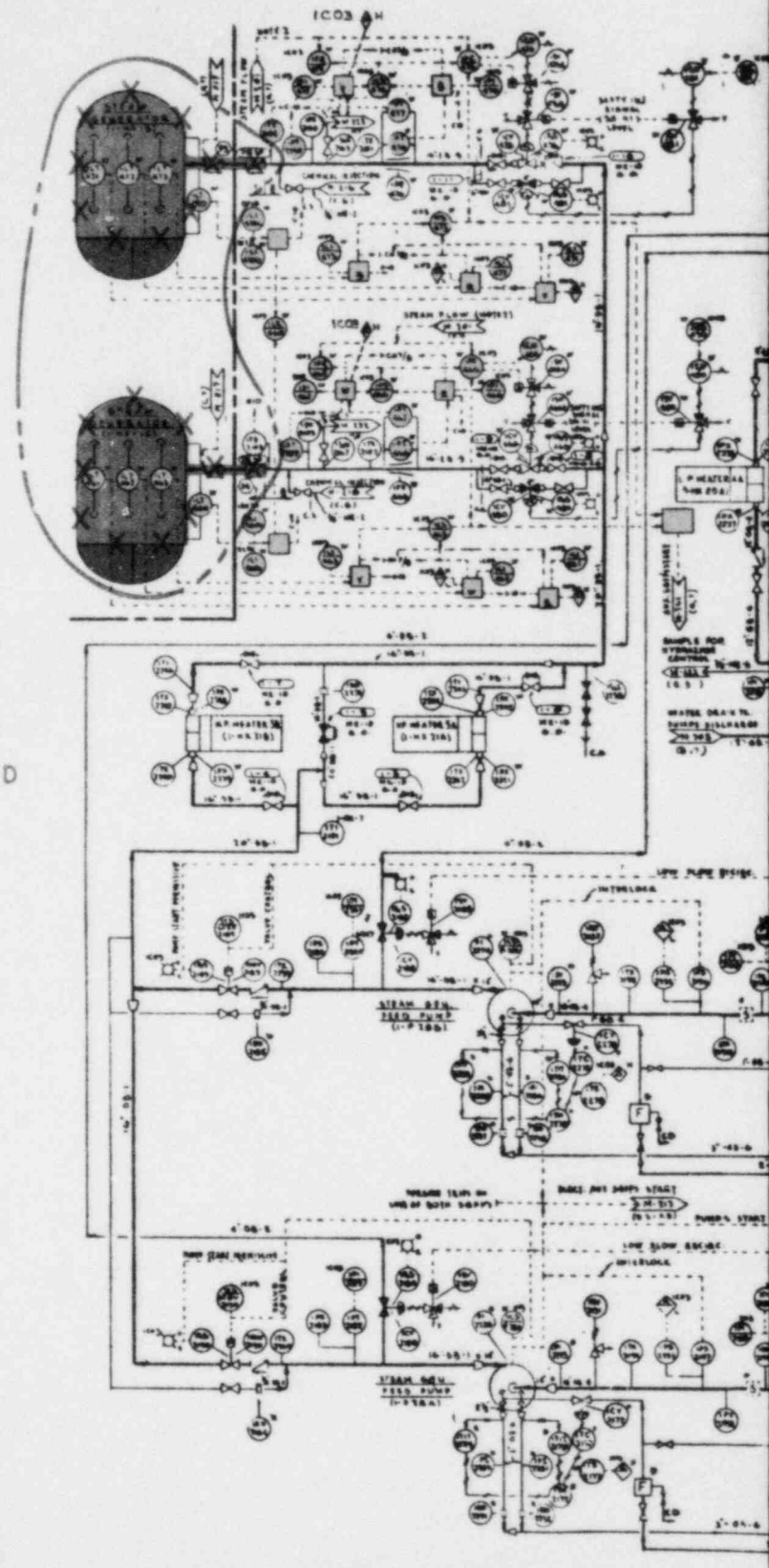
A.S.M.E. CLASS 2 IN GREEN

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

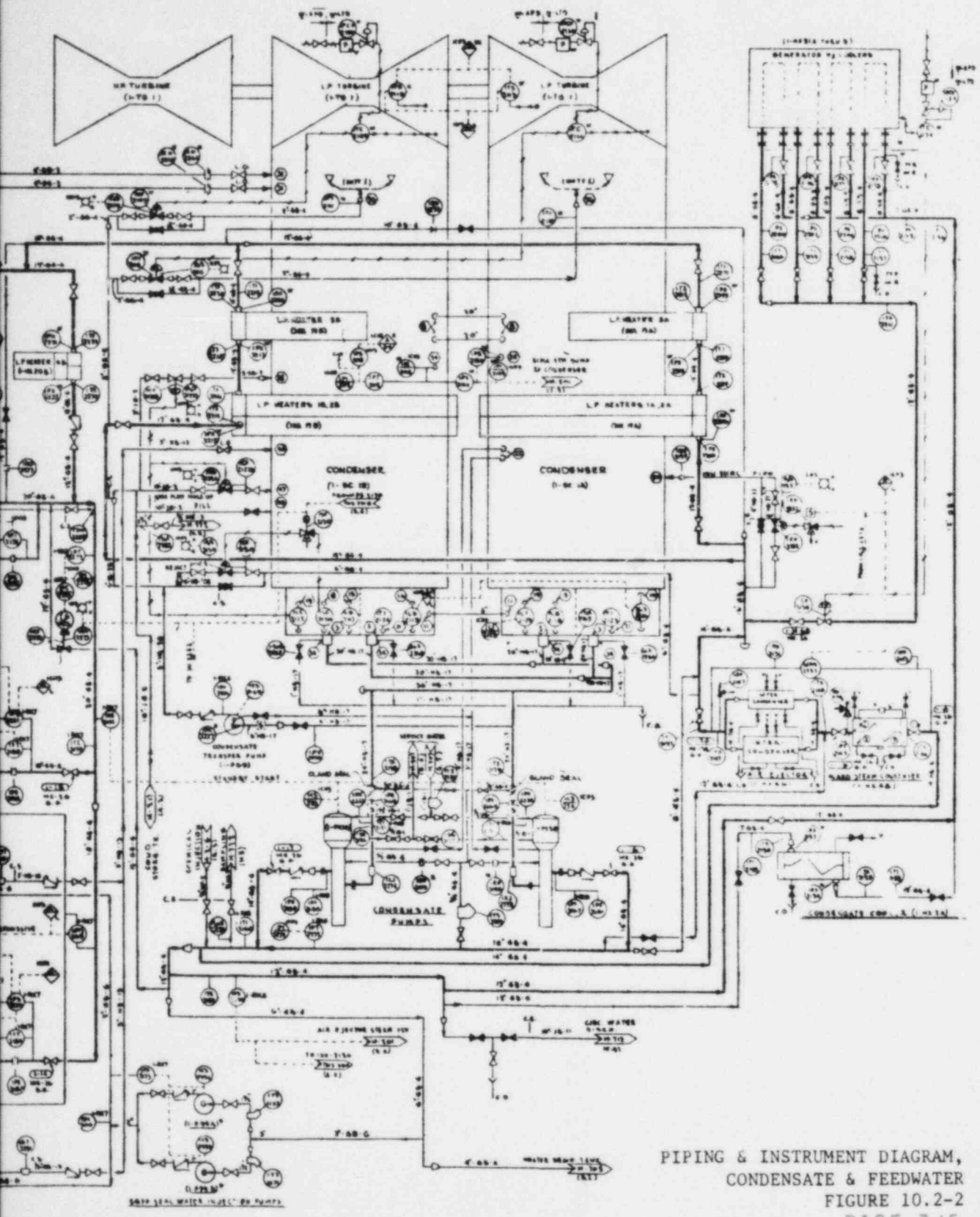
NOTES

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

   X - X - X



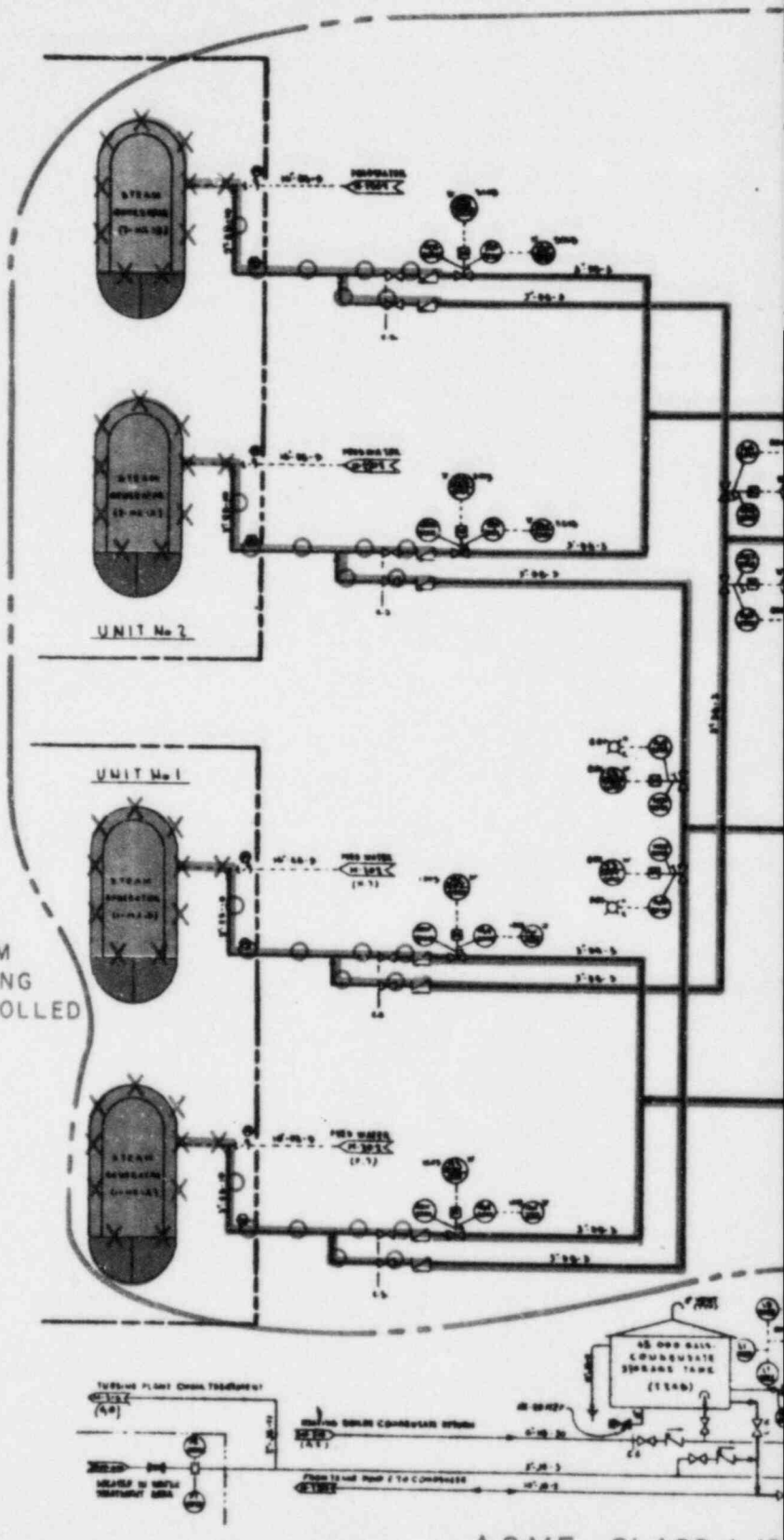
A.S.M.E. CLASS 1 IS RED
A.S.M.E CLASS 2 IS GREEN
NON-CODE Q.A. IS YELLOW



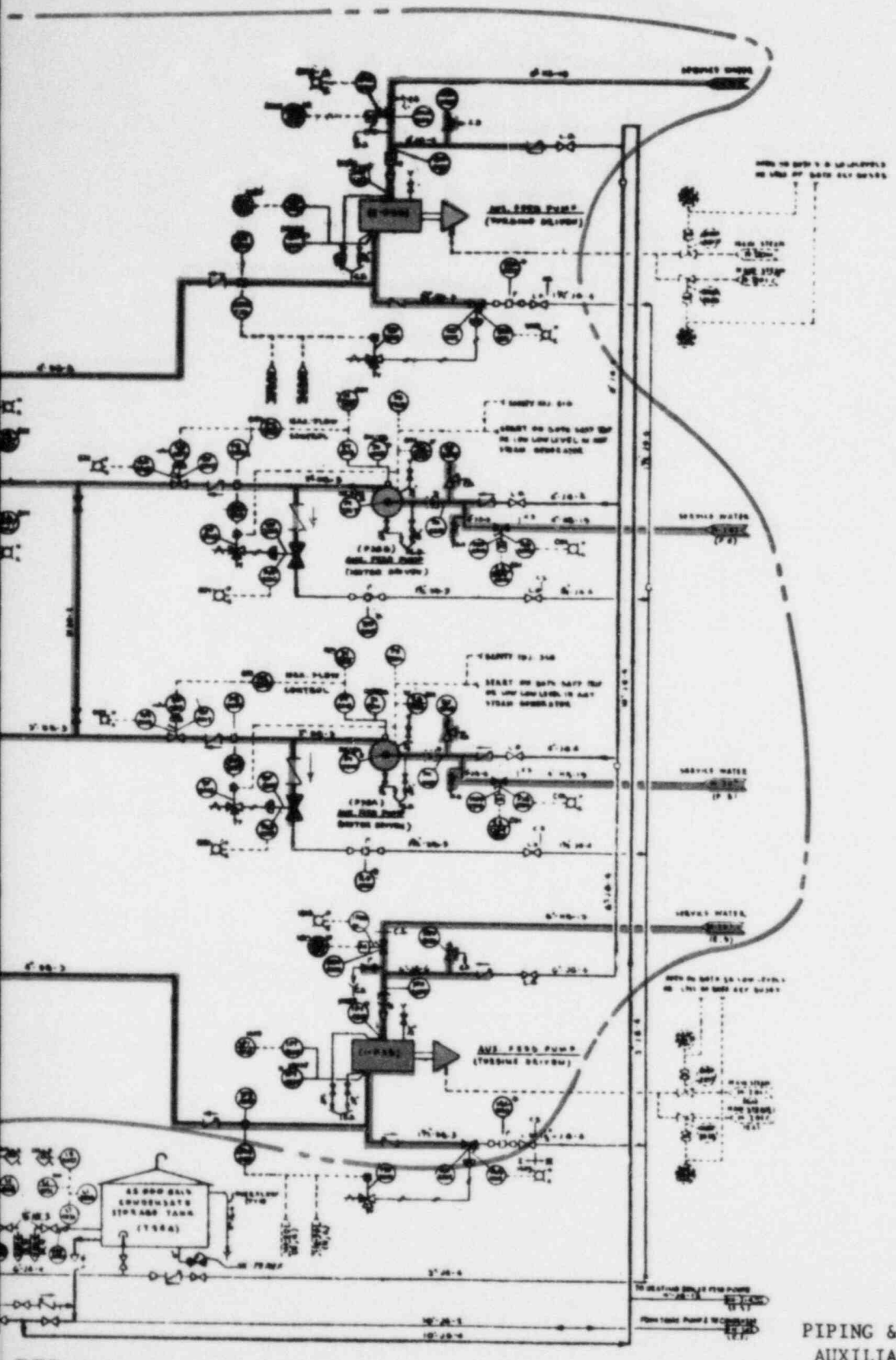
PIPING & INSTRUMENT DIAGRAM,
CONDENSATE & FEEDWATER
FIGURE 10.2-2
PAGE 3.15

NOTES

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



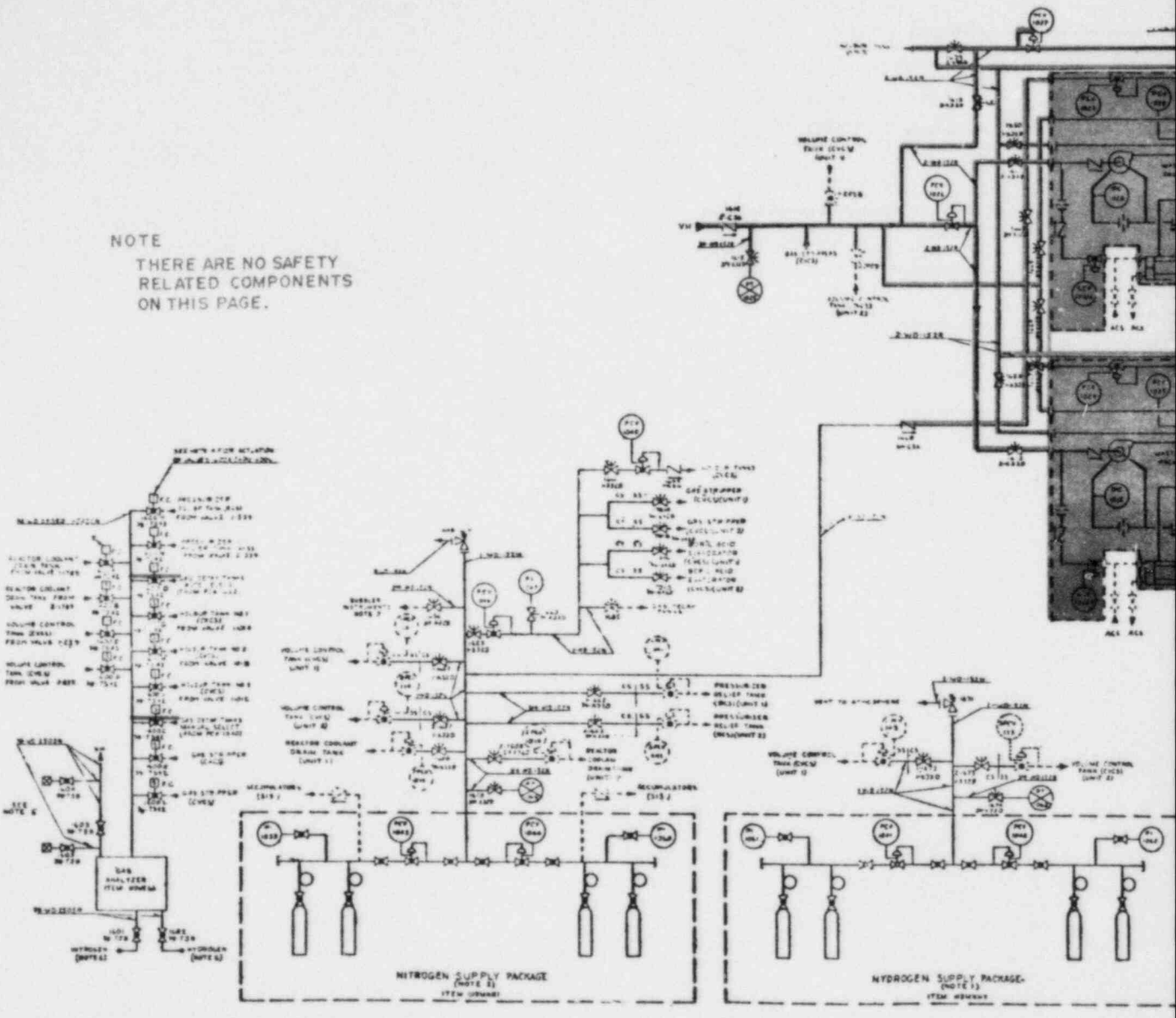
A.S.M.E. CLASS 1 IS
A.S.M.E. CLASS 2 IS
A.S.M.E. CLASS 3 IS

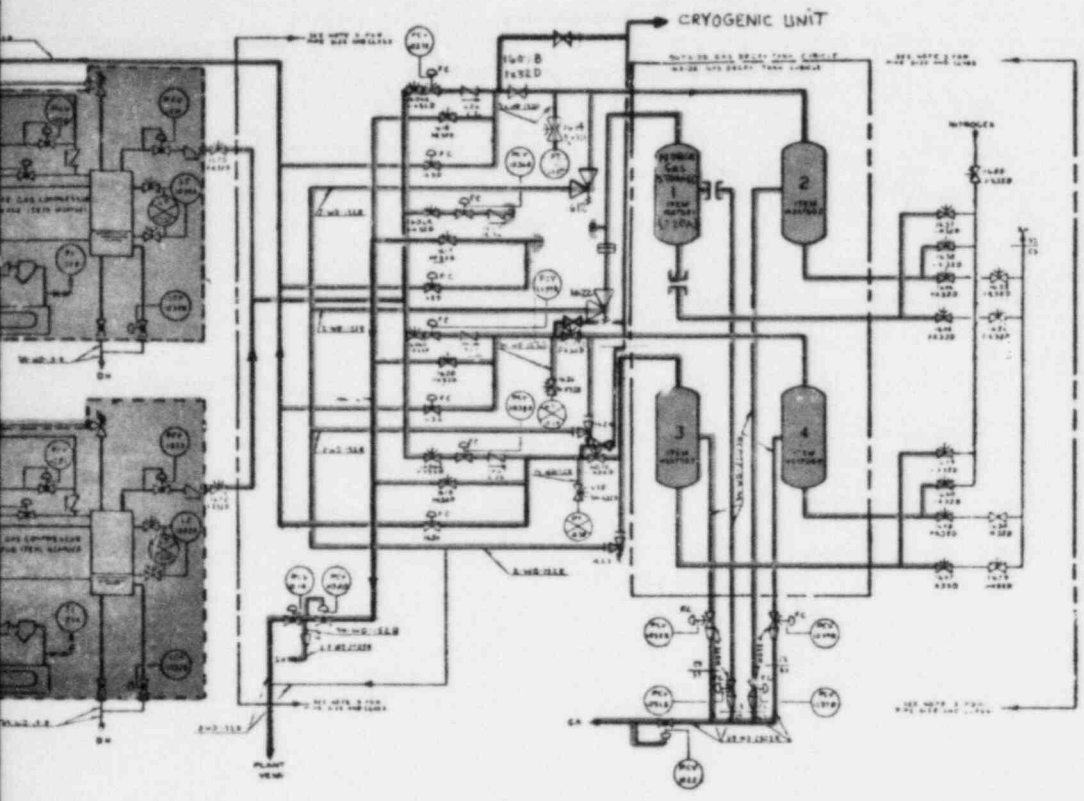


RED
GREEN
BLUE

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

NOTE
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE.

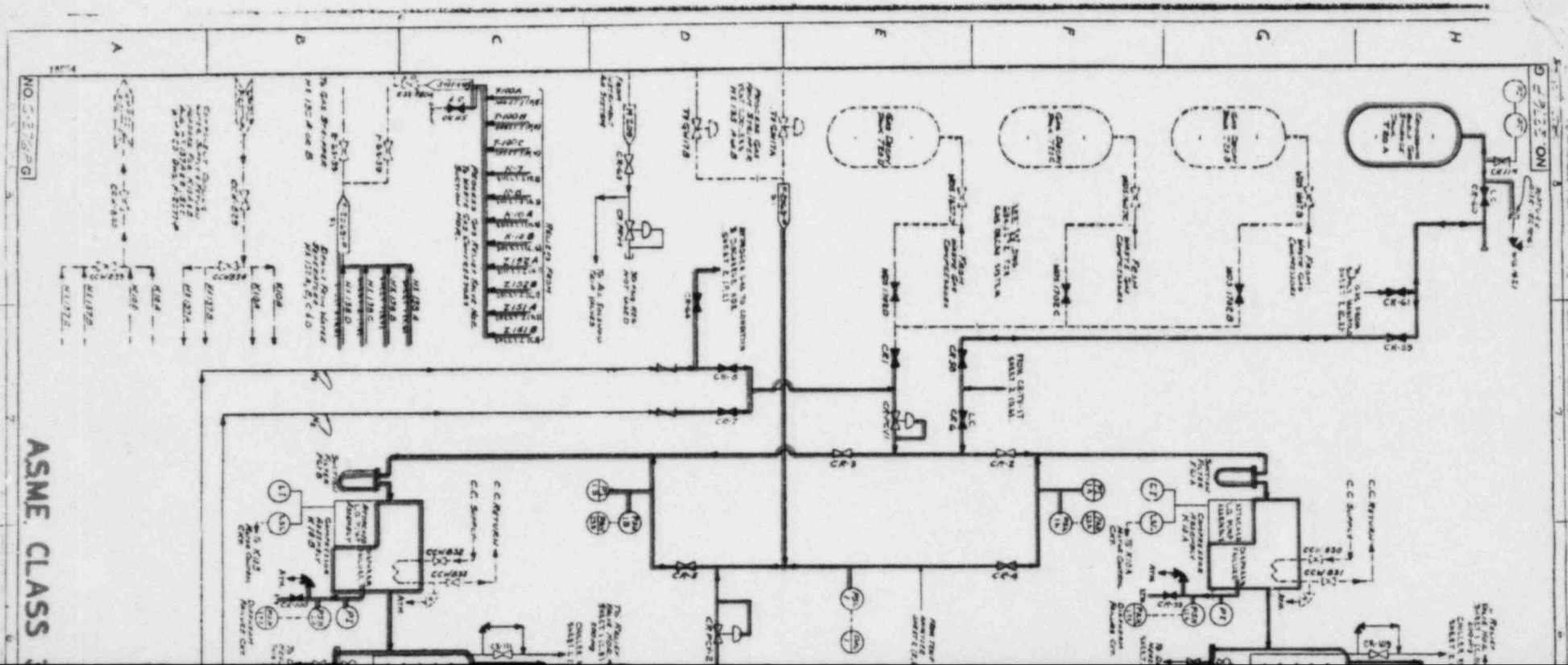


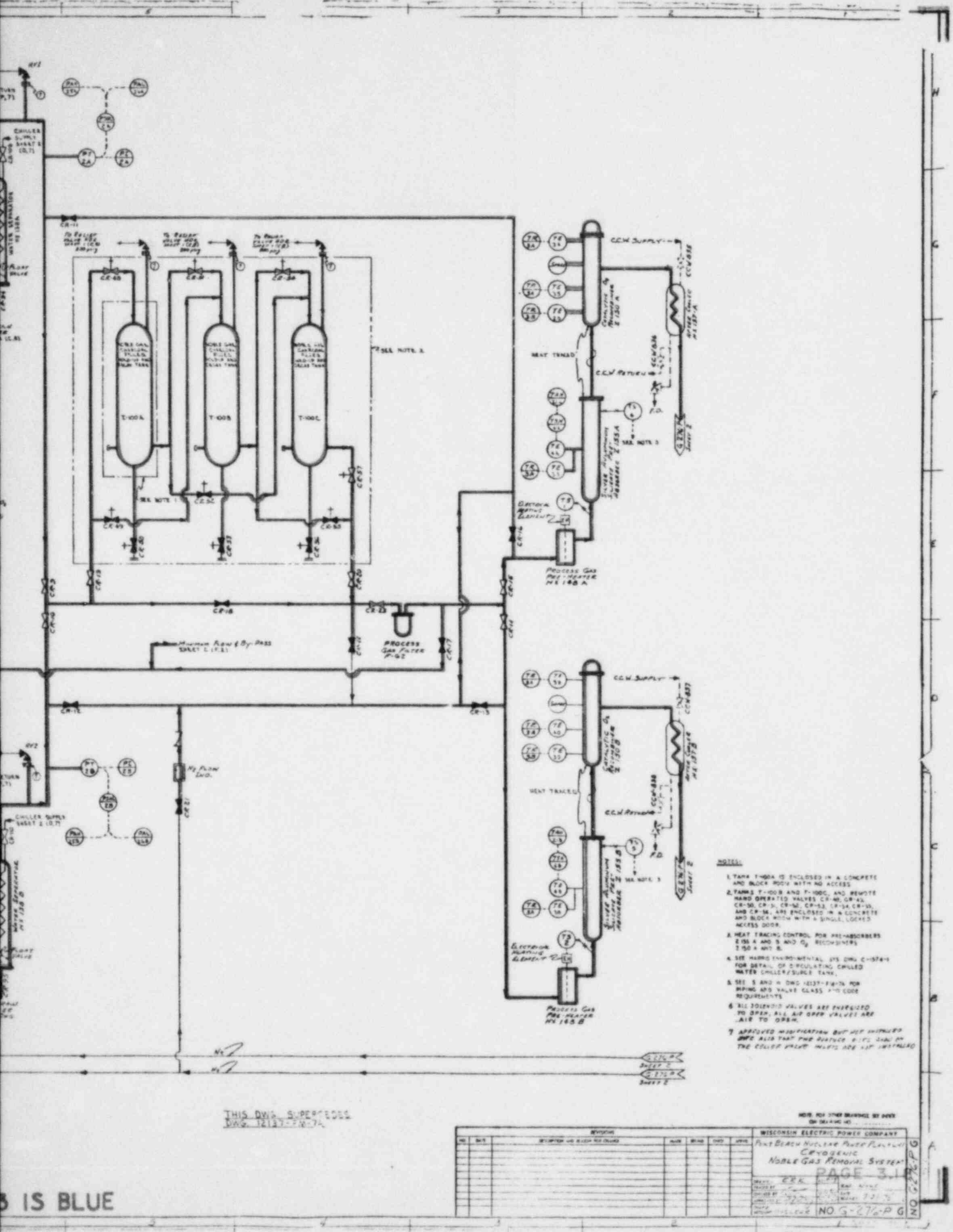


ASME CLASS 3 IS BLUE

WASTE DISPOSAL SYSTEM PROCESS FLOW DIAGRAM - SHEET #2
FIGURE 11.1-2
PAGE 3.17

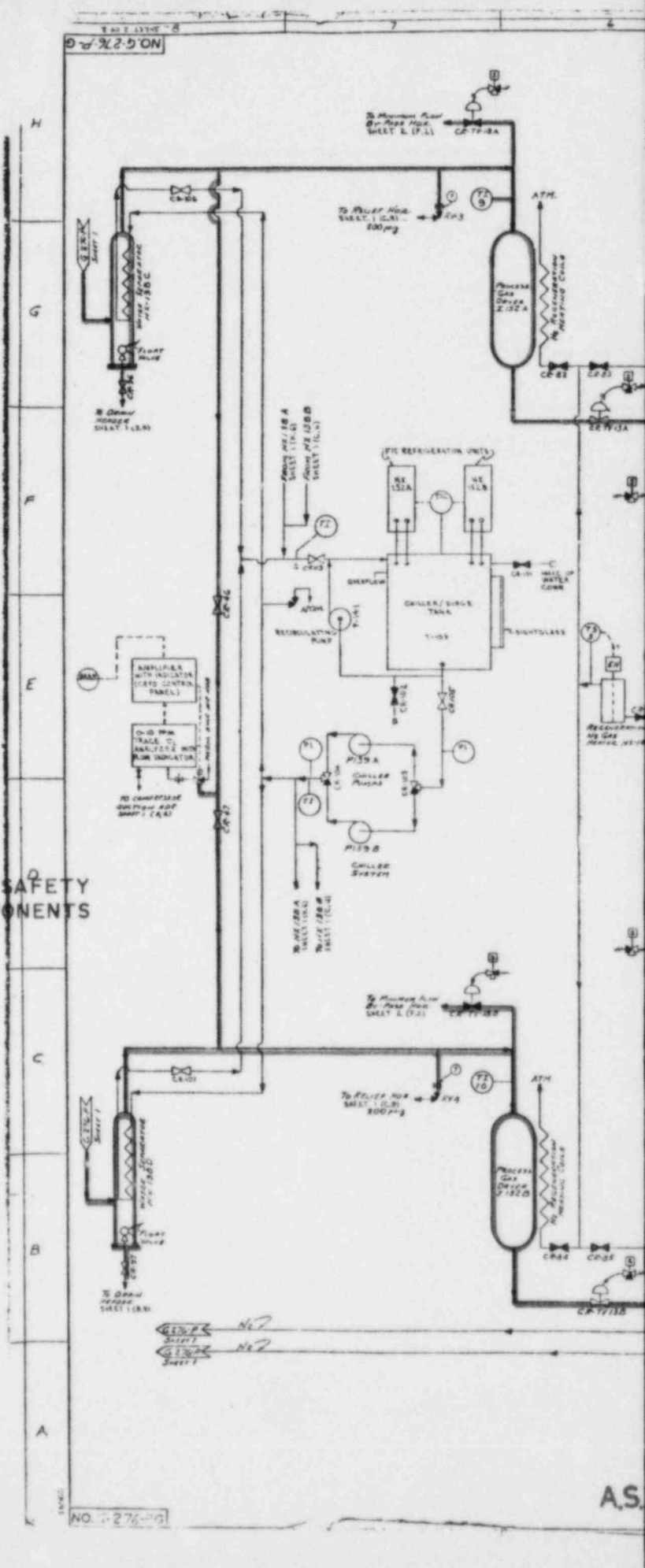
NOTE
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE

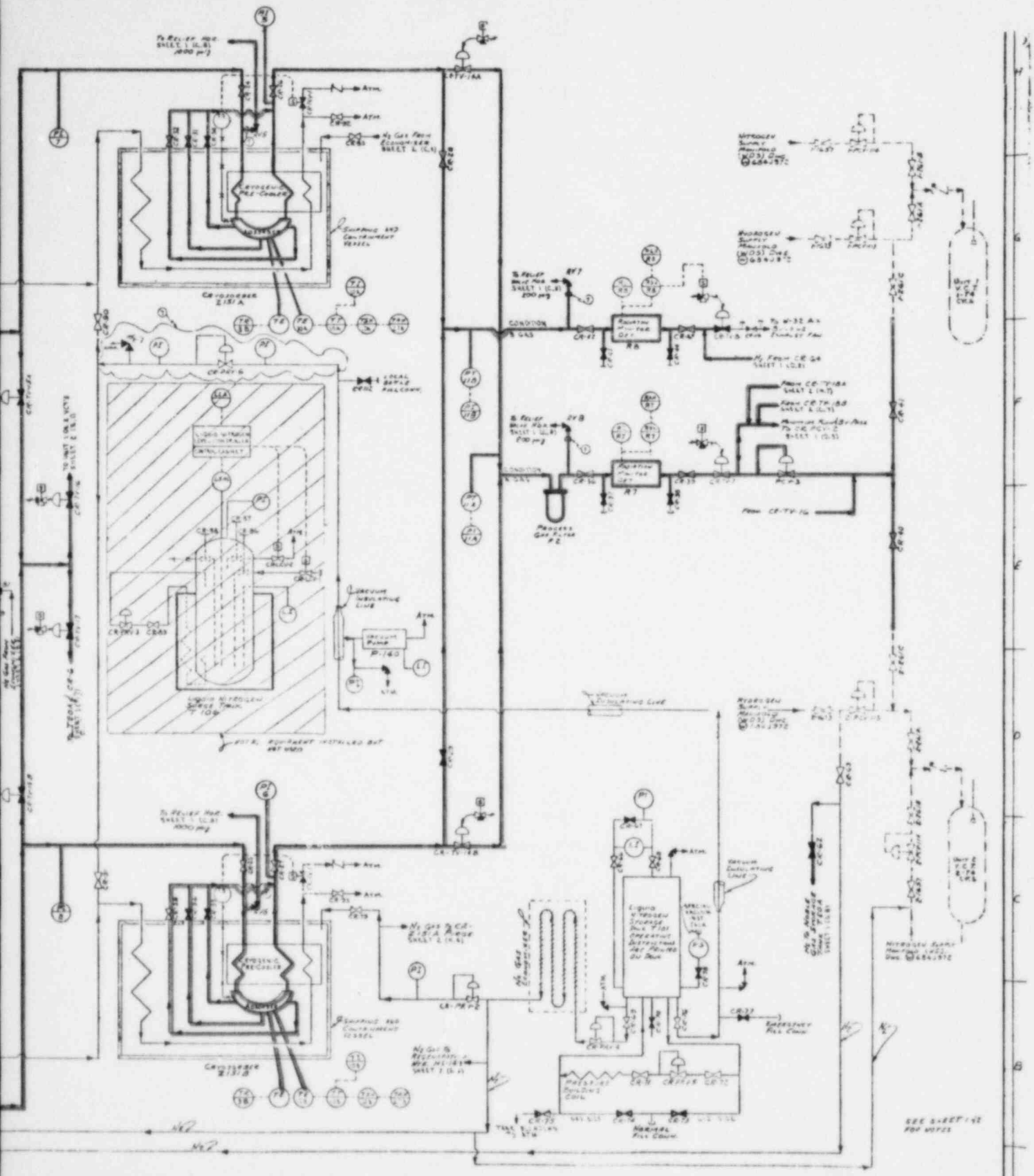



T-100A
T-100B
T-100C
SEE NOTE 2
SEE NOTE 1
HEAT TRACED
C.C.W. SUPPLY
C.C.W. RETURN
SEE NOTE 3
PROCESS GAS PRE-HEATER HX 148 A
PROCESS GAS PRE-HEATER HX 148 B
PROCESS GAS FILTER F-62
MINIMUM FLOW & BY-PASS SHEET 2 (F-2)
CR-11
CR-12
CR-13
CR-15
CR-16
CR-17
CR-21
CR-22
CR-23
NOTES:
1. TANK T-100A IS ENCLOSED IN A CONCRETE AND BLOCK ROOM WITH NO ACCESS
2. TANKS T-100B AND T-100C, AND REMOTE HAND OPERATED VALVES CR-48, CR-49, CR-50, CR-51, CR-52, CR-53, CR-54, CR-55, AND CR-56, ARE ENCLOSED IN A CONCRETE AND BLOCK ROOM WITH A SINGLE, LOCKED ACCESS DOOR.
3. HEAT TRACING CONTROL FOR PRE-ABSORBERS
4. SEE HARRIS ENVIRONMENTAL SYS DWG C-15744 FOR DETAIL OF CIRCULATING CHILLED WATER CHILLER/SURGE TANK.
5. SEE 5 AND 6 DWG 12137-F18-7A FOR PIPING AND VALVE CLASS AND CODE REQUIREMENTS
6. ALL SOLENOID VALVES ARE ENERGIZED TO OPEN, ALL AIR OPER VALVES ARE AIR TO OPEN.
THIS DWG. SUPERSEDES DWG. 12137-F18-7A
WISCONSIN ELECTRIC POWER COMPANY
POINT BEACH NUCLEAR POWER PLANT
CRYOGENIC
NOBLE GAS REMOVAL SYSTEM
PAGE 3.1
NO. G-276-P G
B IS BLUE

NOTE

THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE





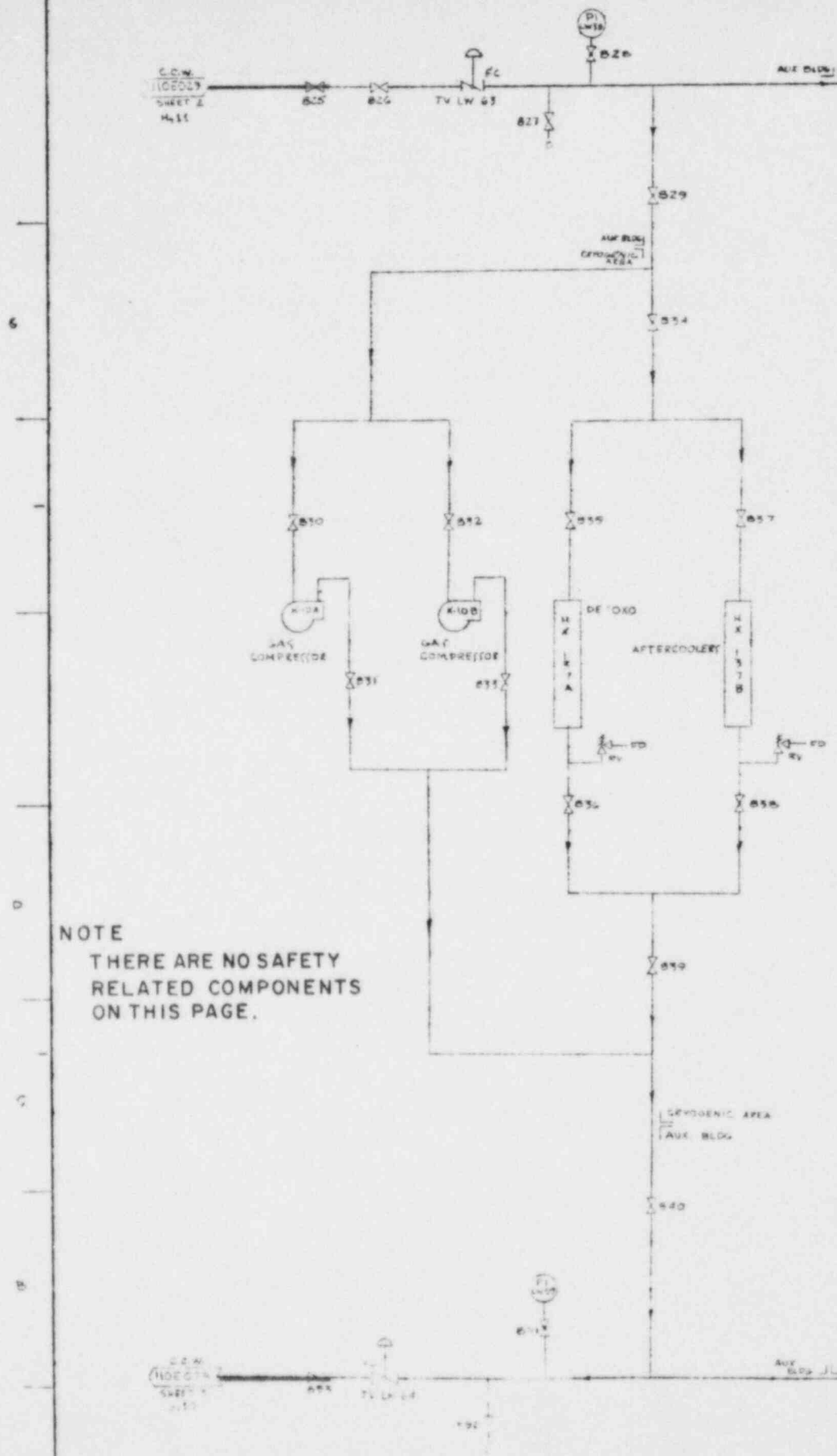
THIS DWG. SUPERCEDES
DWG. 12157-FM-7A

ME. CLASS 3 IS BLUE

WISCONSIN ELECTRIC POWER COMPANY

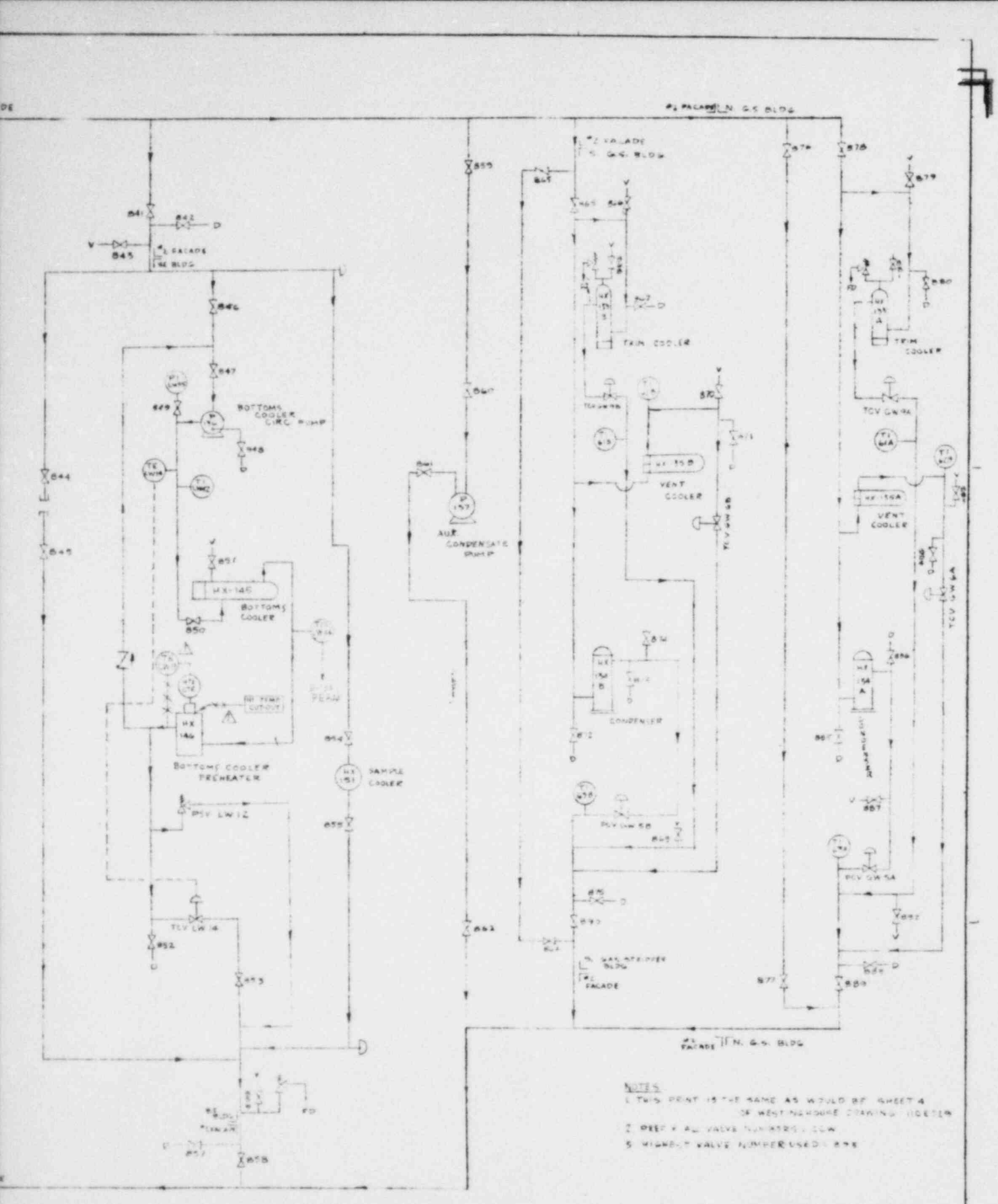
CRYOGENIC
NITROGEN GAS PRODUCTION

NO. 7

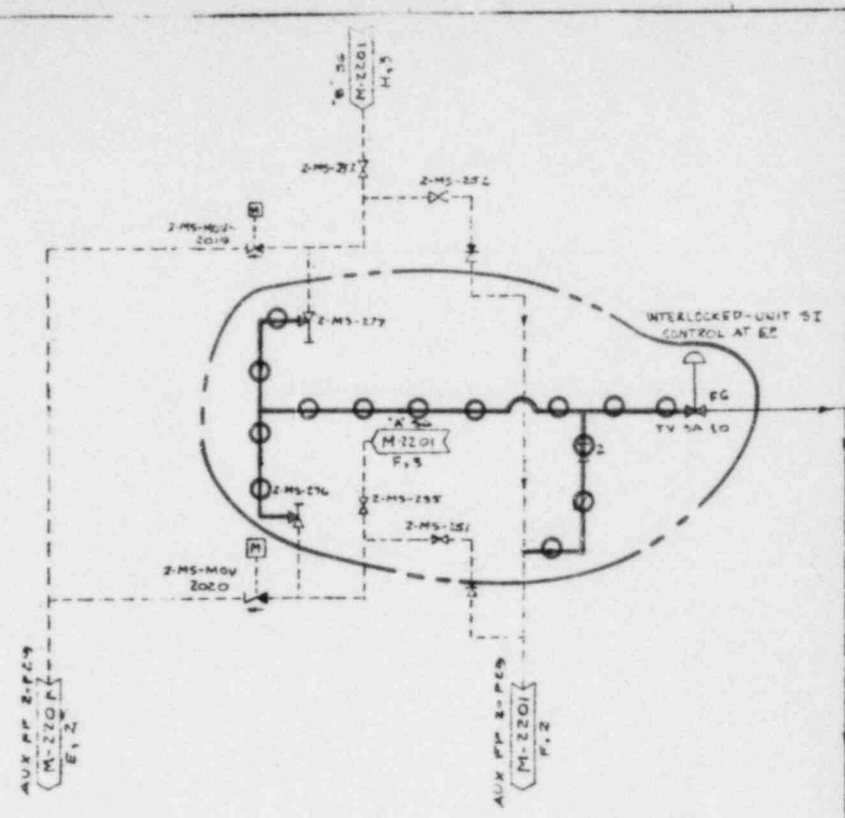


NOTE
THERE ARE NO SAFETY RELATED COMPONENTS ON THIS PAGE.

A.S.M.E. CLASS


BOTTOMS COOLER CIRC PUMP
BOTTOMS COOLER
BOTTOMS COOLER PREHEATER
SAMPLE COOLER
AUX CONDENSATE PUMP
TURB COOLER
VENT COOLER
CONDENSER
TRIM COOLER
VENT COOLER
TCV GW 9A
PCV GW 5A
TLV LW 14
PCV LW 12
PCV LW 5B
TO WASTE EVAPORATOR BLDG
FROM AUX BLDG
TO AUX BLDG
FROM G.S. BLDG
TO G.S. BLDG
NOTES
1. THIS PRINT IS THE SAME AS WOULD BE SHEET 4 OF WESTINGHOUSE DRAWING 108E154
2. REFER TO ALL VALVE NUMBERS AS SHOWN
3. HIGHEST VALVE NUMBER USED IS 898

3 IS BLUE

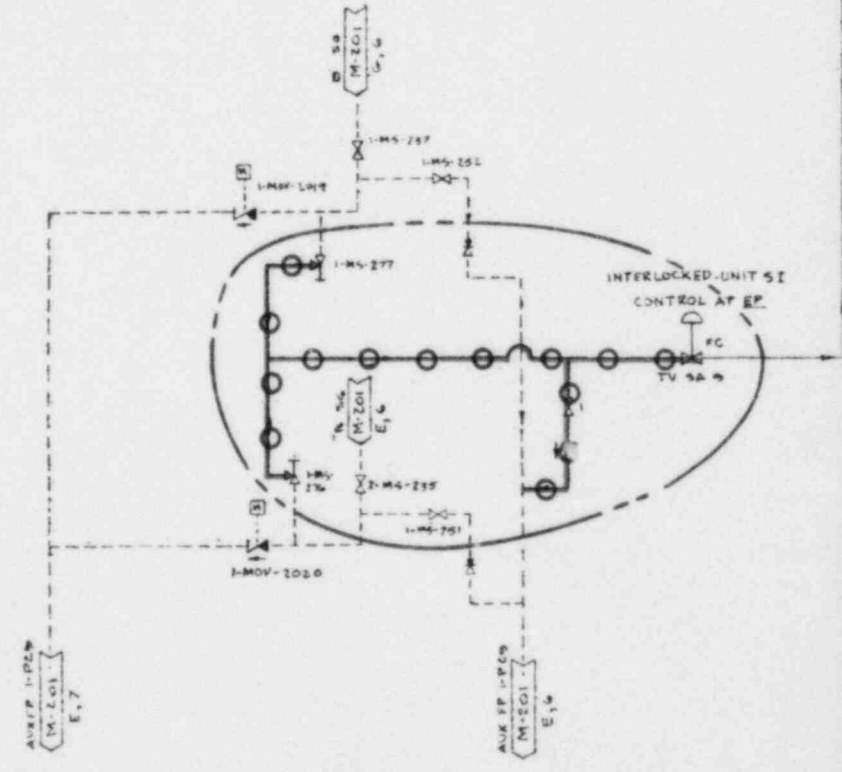


NOTES

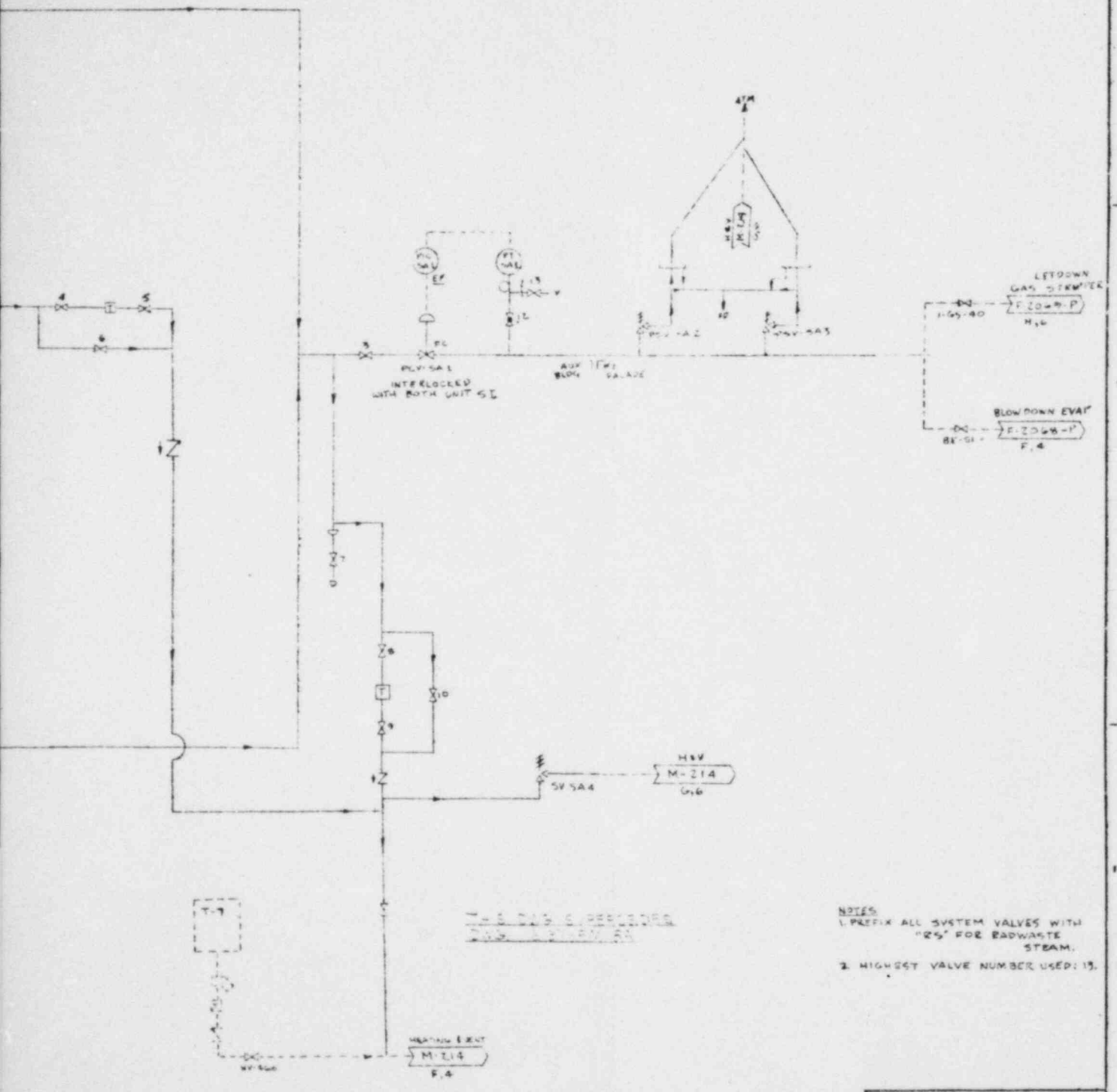
1. SAFETY RELATED SYSTEM BOUNDARY

2. COMPONENTS 4 INCH AND SMALLER

O-O-O



ASME CLAS



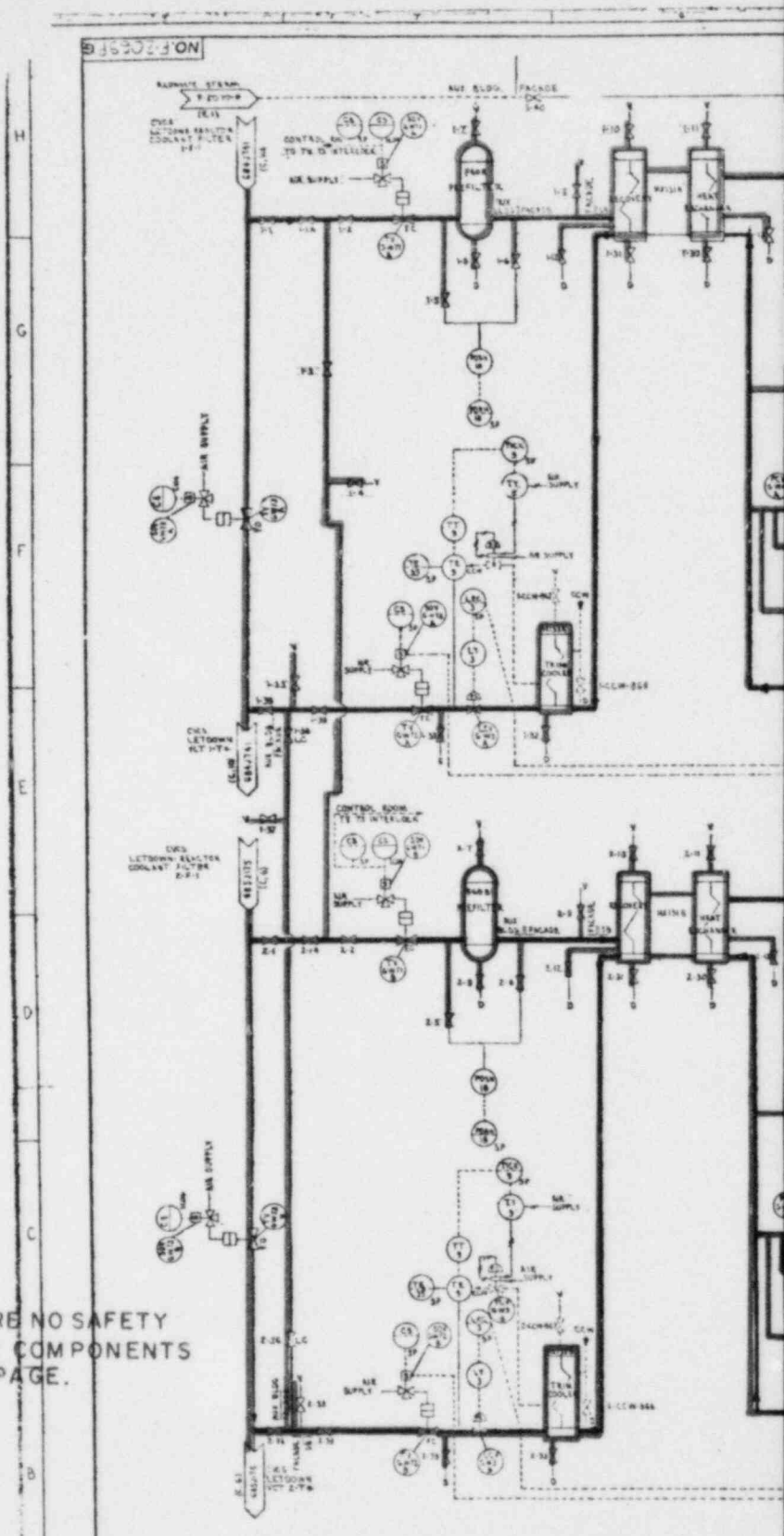
WISCONSIN MICHIGAN POWER COMPANY

SHOWING	RADWASTE STEAM
LOCATION	AUX. BLDG.
DRAWN BY	J. D. DAIKIN
TRACED BY	
CHECKED BY	
APPROVED	
SCALE	N/A
DATE	20 JUNE 1975
NO.	F-2070-P

DATE	CHANGED	BY

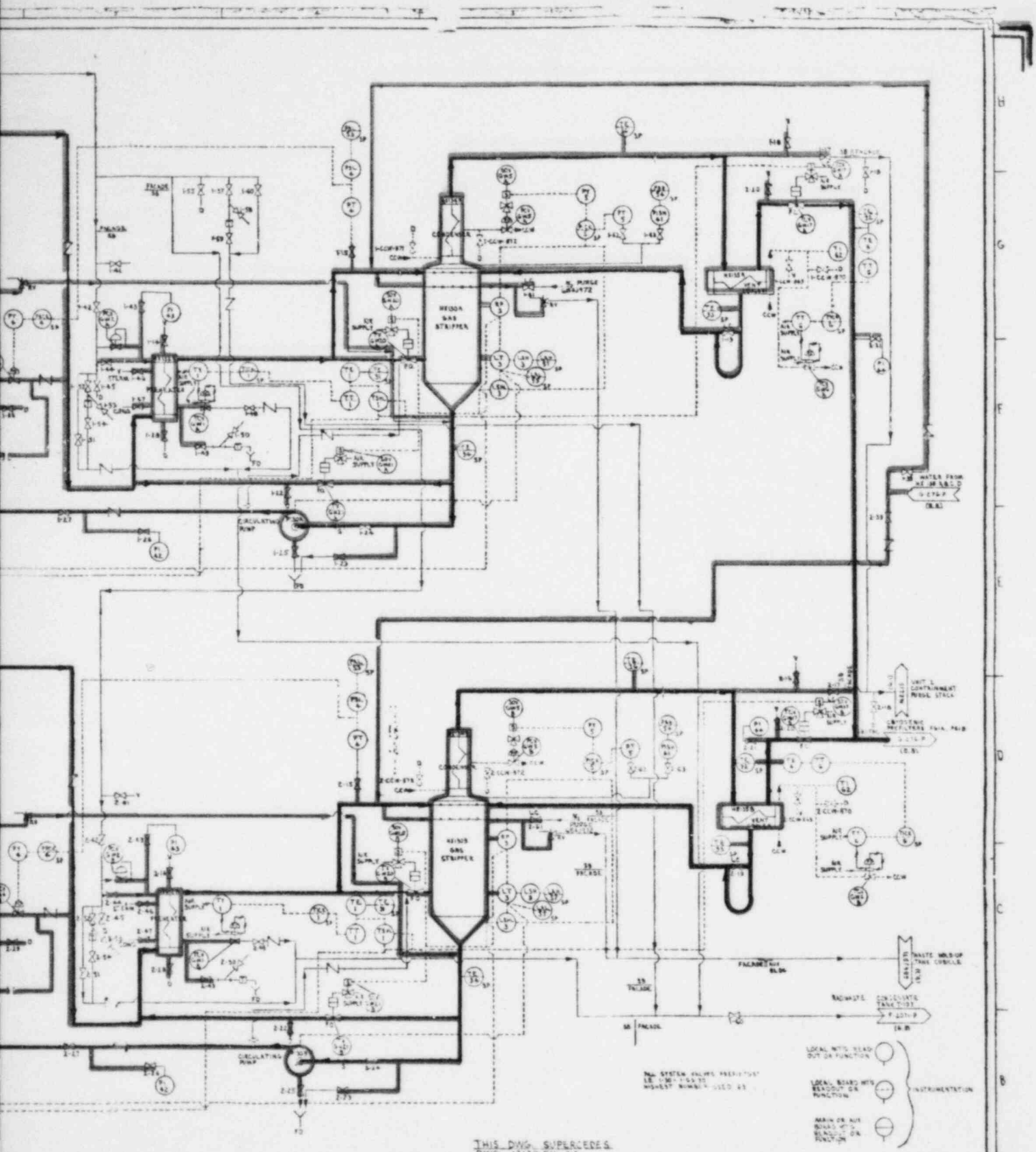
F-2070-P

S 2 IS GREEN



NOTE

THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE.



THIS DWG. SUPERCEDES
DWG. 12137-FM-4A

CLASS 3 IS BLUE
CLASS 2 IS GREEN

WISCONSIN ELECTRIC POWER COMPANY

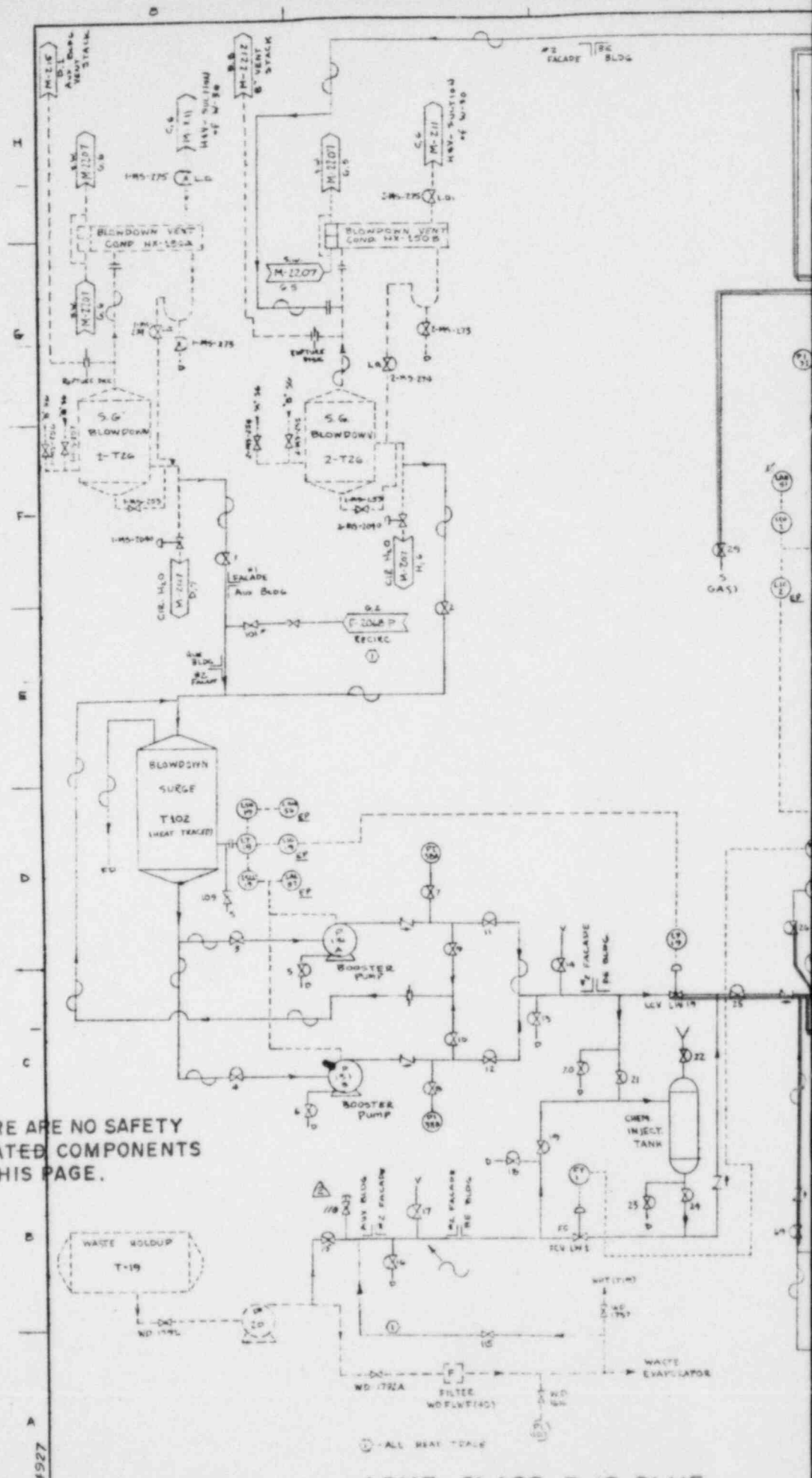
POINT BEACH NUCLEAR POWER PLANT

UNITS 1 AND 2

OFFGAS GAS STRIPPERS

PAGE 3

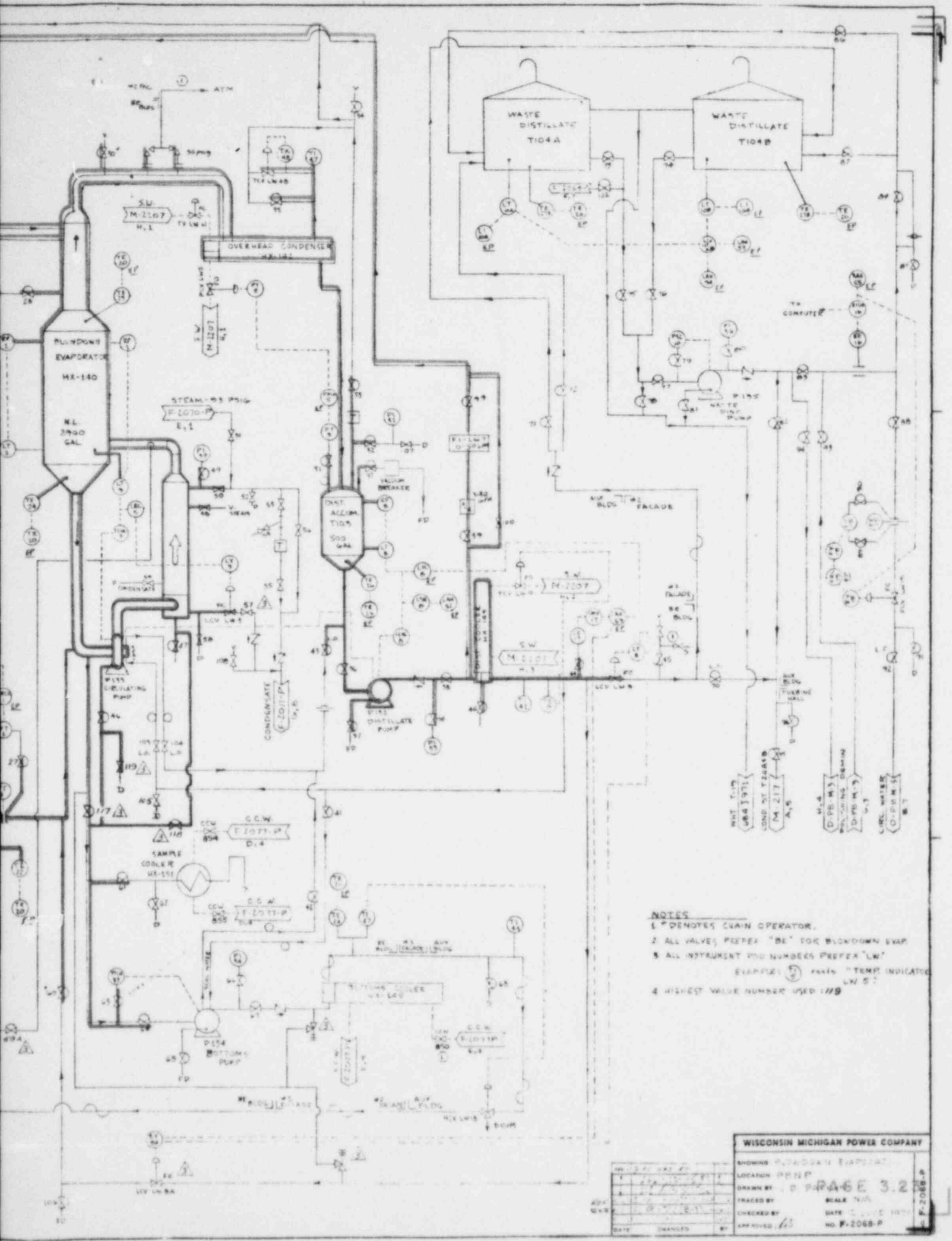
NO. 20699



NOTE

THERE ARE NO SAFETY RELATED COMPONENTS ON THIS PAGE.

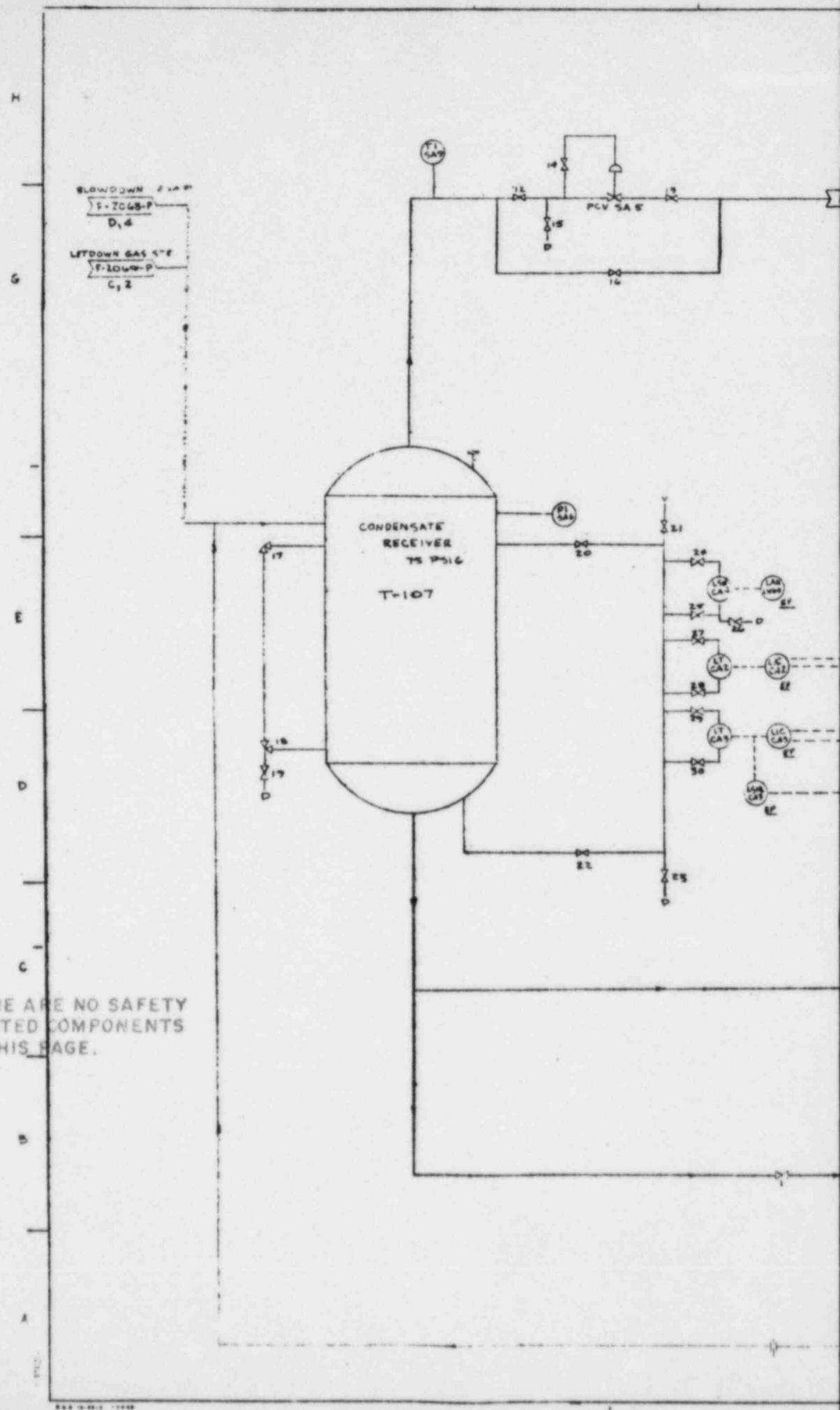
24927

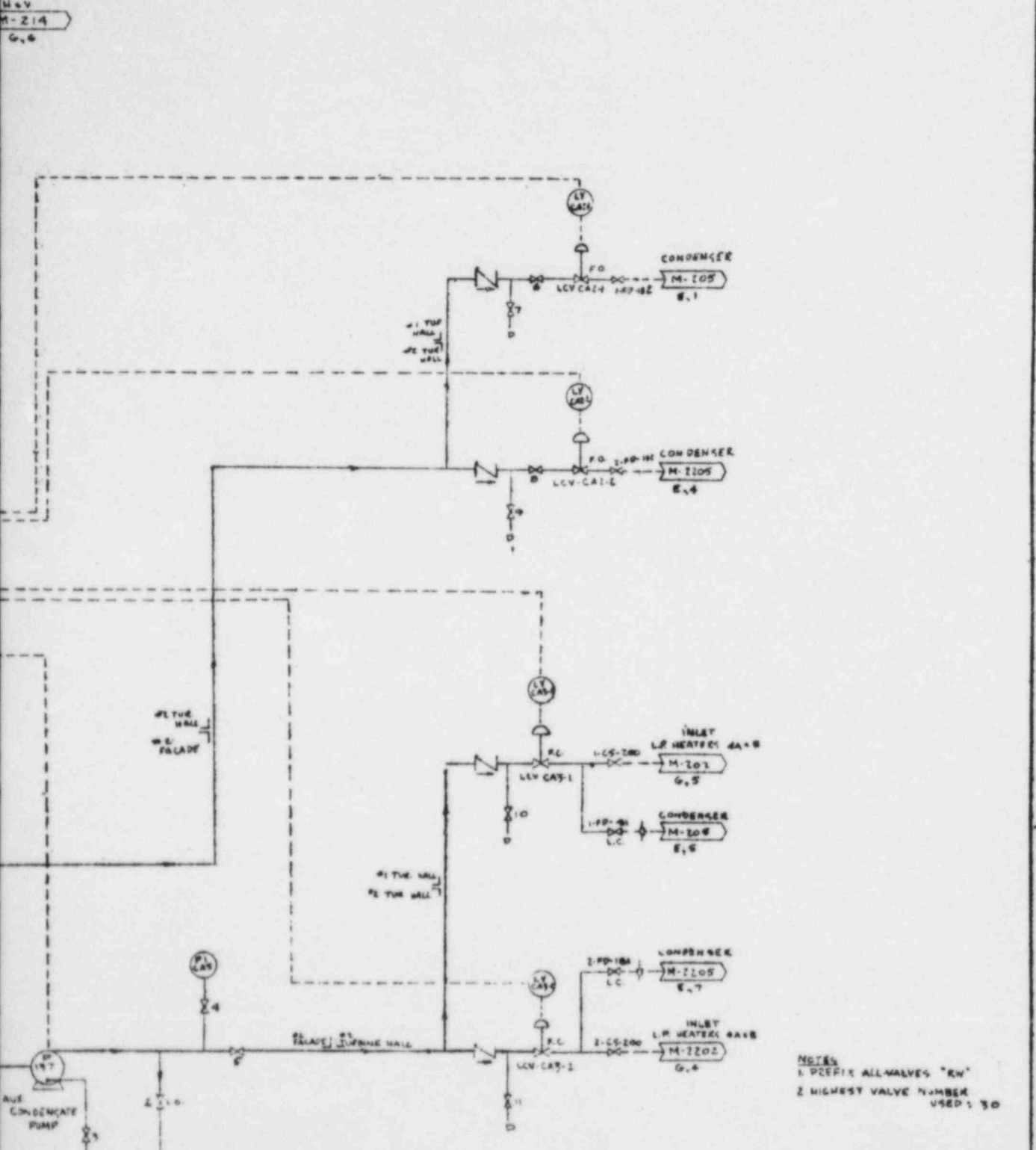


NOTES

1. "" DENOTES CHAIN OPERATOR.
2. ALL VALVES PREFIX "BE" FOR BLOWDOWN EVAP.
3. ALL INSTRUMENT TAG NUMBERS PREFIX "LW"
   EXAMPLE: (5) READS "TEMP. INDICATOR LW 5"
4. HIGHEST VALVE NUMBER USED: 119

WISCONSIN MICHIGAN POWER COMPANY		
SHOWING EVAPORATOR EQUIPMENT		
LOCATION PENP		
DRAWN BY J. D. P.	PAGE 3.22	
TRACED BY	SCALE N/A	
CHECKED BY	DATE	
APPROVED	NO. F-2068-P	F-2068-P


BLOWDOWN
F-2048-P
D, 4
LETDOWN GAS
F-2049-P
C, 2
PCV 5A 5
CONDENSATE
RECEIVER
75 PSIG
T-107
NOTE
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE.



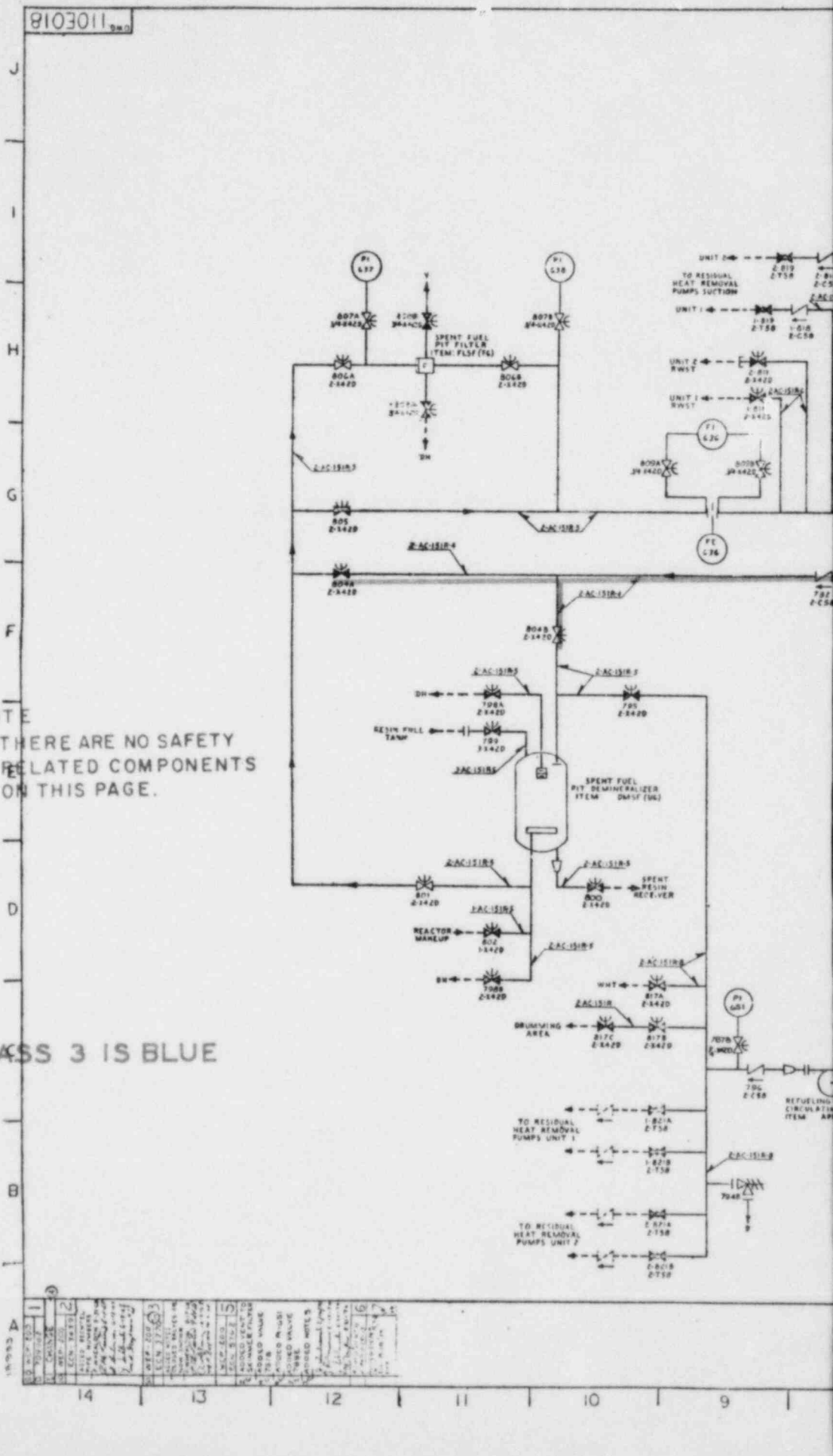
THIS DWG SUPERSEDES DWG. 12137-EM-84

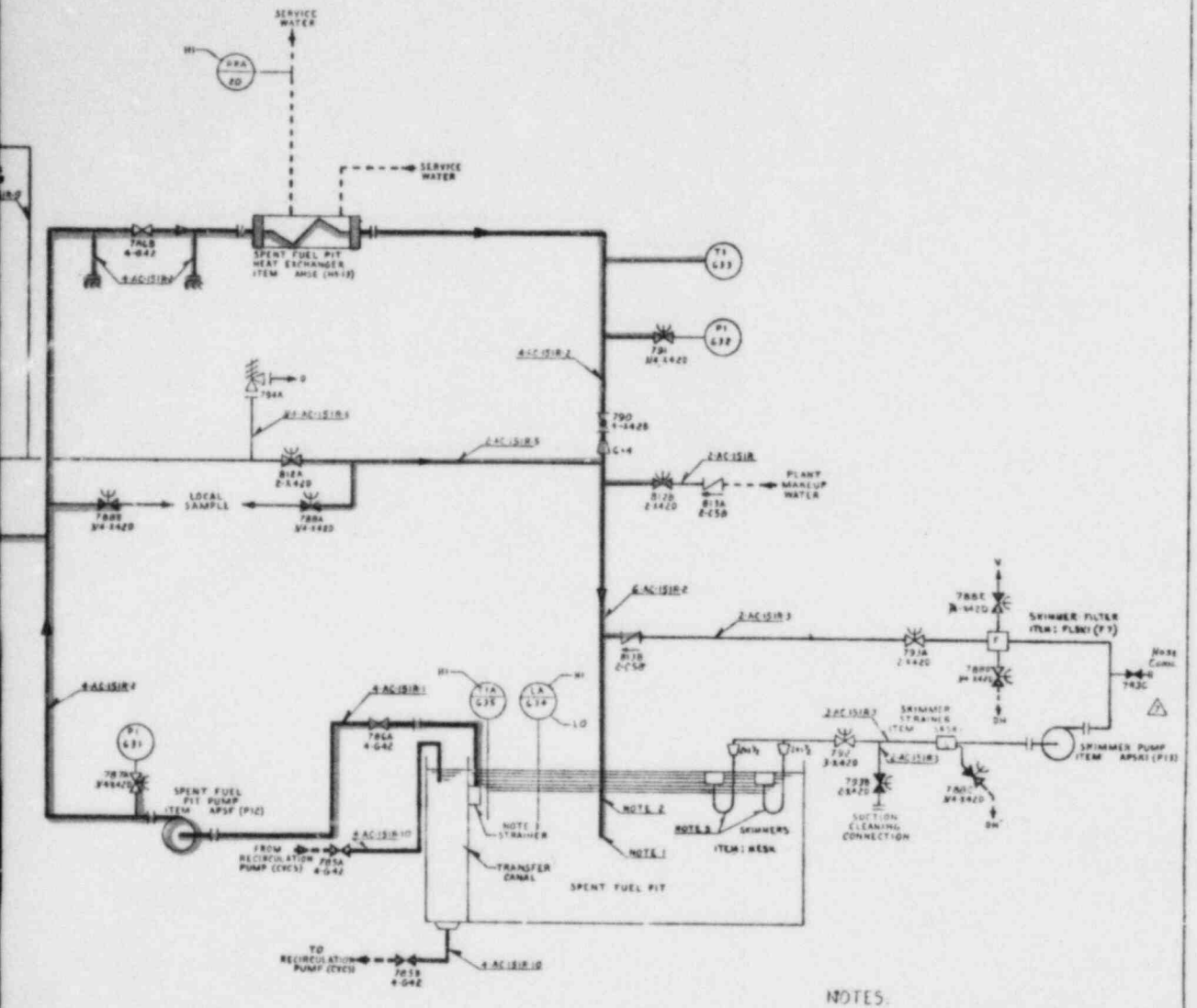
NOTES
1. PREFIX ALL VALVES "RW"
2. HIGHEST VALVE NUMBER USED: 30

WISCONSIN MICHIGAN POWER COMPANY	
SHEET 2 RADWASTE CONDENSATE	
LOCATION PENINSULA	PAGE 3.24
DRAWN BY J.D. PLOWN	
TRACED BY	SCALE N/A
CHECKED BY	DATE 21 JUNE 1973
APPROVED JWL	NO. F-2071-P

DATE	CHANGED	BY

F-2071-P


8103011
NOTE
THERE ARE NO SAFETY
RELATED COMPONENTS
ON THIS PAGE.
A.S.M.E. CLASS 3 IS BLUE
SPENT FUEL PIT FILTER
SPENT FUEL PIT DEMINERALIZER
SPENT RESIN RECEIVER
REACTOR MAKEUP
RESIN FILL TANK
DRUMMING AREA
TO RESIDUAL HEAT REMOVAL PUMPS SUCTION
TO RESIDUAL HEAT REMOVAL PUMPS UNIT 1
TO RESIDUAL HEAT REMOVAL PUMPS UNIT 2
REFUELING CIRCULATION
14
13
12
11
10
9



NOTES:

1. TERMINATE PIPE 10 FEET BELOW NORMAL WATER LEVEL.
2. DRILL 1/2 INCH HOLE AT ELEVATION 4 FEET BELOW NORMAL WATER LEVEL.
3. LOCATE STRAINER 4 FEET BELOW NORMAL WATER LEVEL.
4. ALL ITEM NO'S INCLUDE PREFIX: WEPAC.
5. 1"Ø INCH FLEXIBLE HOSE FROM REDUCER TO SKIMMER BASKET, APPROXIMATE HOSE LENGTH IS 48 INCHES.

SUPERSEDES W DWG 447J095

BY	DATE	BY	DATE	BY	DATE
PRELIMINARY NOT TO BE USED		APPROVED FOR LAYOUT		APPROVED FOR CONSTRUCTION	

DRAWING STATUS

WESTINGHOUSE ELECTRIC CORPORATION
ATOMIC POWER DIV. PITTSBURGH PA. U.S.A.

POINT BEACH NUCLEAR PLANT UNIT #1
AUXILIARY COOLANT SYSTEM
ENGINEERING FLOW DIAGRAM

110E018

DO NOT SCALE