

SYSTEM PRESS. - TEMP DATA		
LINE NO.	DESIGN PRESSURE (PSIG)	DESIGN TEMP (°F)
1	185	150
2	450	350
3	185	150
4	80	150
5	150	150
6	100	150
7	185	350
8	ATM	150

* REFER TO TECH. SPECIFICATION LIMITS ON REACTOR OPERATION FOR ULTIMATE HEAT SINK TEMP. ABOVE 95° F.

- NOTES:
1. ALL VALVES ARE PREFIXED 3-23 UNLESS OTHERWISE NOTED.
 2. ALL INSTRUMENTS ARE PREFIXED 3- UNLESS OTHERWISE NOTED.
 3. [T], [P], ETC., DENOTES DESIGN PRESSURE AND TEMPERATURE AS GIVEN IN TABLE THIS DRAWING.
 4. UNITS ON DRAWING ARE FOR REFERENCE ONLY AND ARE ABBREVIATED TO MEET SPACE CONSTRAINTS. REFER TO MEL FOR COMPLETE UNITS.
 5. THE PREFERRED METHOD TO OPERATE IN SHUTDOWN COOLING MODE IS TO HAVE A HEAT EXCHANGER IN SERVICE SUPPORTING RHR, AND A COMPANION HEAT EXCHANGER, WITH A COMMON DISCHARGE, UNDER NO RHR HEAT LOAD. THE FLOW RATE OF THE RHRSW LINE THAT IS NOT SUPPORTING THE RHR HX WILL BE EQUAL TO, OR GREATER THAN, THE RHRSW LINE THAT IS REMOVING HEAT FROM THE RHR SYSTEM. THE COMBINED DOWNSTREAM TEMPERATURE SHALL NOT EXCEED 150 DEG F.
 6. VENT, DRAIN, AND TEST CONNECTIONS 1-1/2" AND BELOW CAN BE PROVIDED WITH PIPE CAPS OR HOSE CONNECTION FITTINGS WHERE REQUIRED BY PLANT PERSONNEL. THIS CONFIGURATION IS SUPPORTED BY ENGINEERING CALCULATION CD-00989-223399.
 7. VALVE IS 16" VALVE WITH 12" ENDS.

REFERENCE DRAWINGS:

- 0-47E800-2.....MECHANICAL-SYMBOLS & FLOW DIAGRAM DRAWING INDEX
- 17W300 SERIES.....PIPING - YARD
- 47W450 SERIES.....PIPING - REACTOR BLDG
- 3-47E610-23-1.....CONTROL DIAGRAM - RHR SERVICE WATER SYS
- 3-47E610-43-1.....CONTROL DIAGRAM - SAMPLING AND WATER QUALITY SYSTEM
- 3-47E610-90-3.....CONTROL DIAGRAM-RADIATION MONITORING SYSTEM
- 3-47E811-1.....FLOW DIAGRAM-RHR SYSTEM
- 3-47E852-1.....FLOW DIAGRAM FLOOR & DIRTY RADWASTE DRAINAGE
- 3-47E856-2.....FLOW DIAGRAM - DMNRLZ WATER DISTRIBUTION SYSTEM
- MEL.....INSTRUMENT TABULATION FOR RHR SERVICE WATER
- 0-47E800-1.....FLOW DIAGRAM - GENERAL PLANT SYSTEMS

CALCULATION REFERENCES:

- MDQ002320100019.....RHRSW SYSTEM HYDRAULIC ANALYSIS FOR UNITS 1, 2, & 3 RHR HEAT EXCHANGERS

LEGEND

PHYSICAL BARRIER OR BOUNDARY BETWEEN UNITS

COMPANION DRAWINGS:
1- & 2-47E858-1

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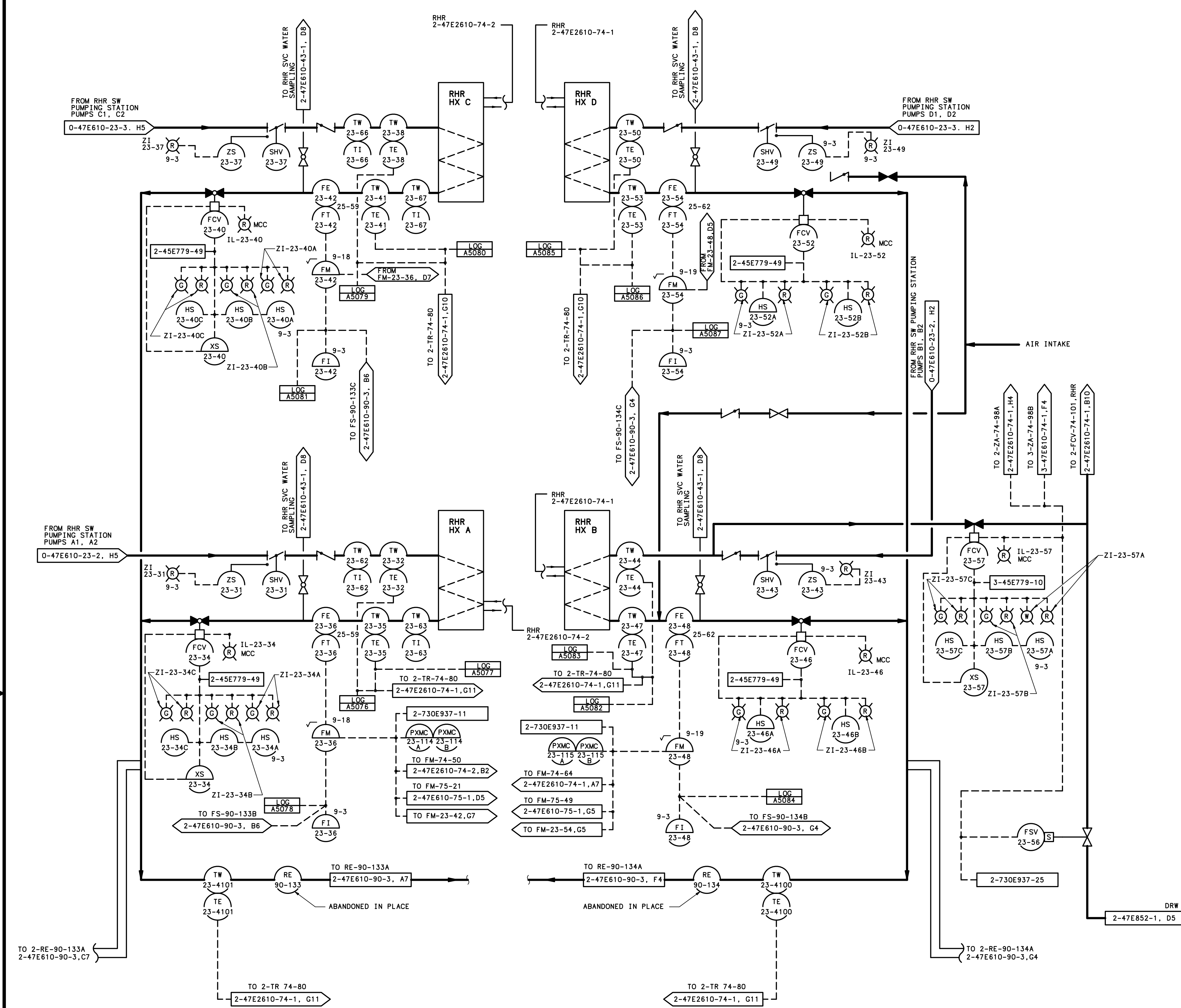
POWERHOUSE
UNIT 3
BROWNS FERRY NUCLEAR PLANT
FINAL SAFETY ANALYSIS REPORT

RHR SERVICE WATER SYSTEM
FLOW DIAGRAM

FIGURE 10.9-1a SH 3



67 M 2-47E610-23-1 R022



- NOTES:
1. THE RHR SERVICE WATER SYSTEM IS A 12 - PUMP, 4- HEADER SYSTEM AND IS TO PROVIDE RAW SERVICE WATER TO THE RHR AND EECW SYSTEMS AND STANDBY COOLANT TO FLOOD THE REACTOR AND SUPPRESSION POOL. ALTHOUGH IT IS A PLANT SHARED SYSTEM, THIS SYSTEM CAN BE CONTROLLED FROM EACH UNIT CONTROL ROOM ON PANEL 3-3.
 2. FOUR RHR HEAT EXCHANGERS, EACH PIPED TO ITS OWN HEADER, ARE PROVIDED FOR EACH UNIT. THE RADIOACTIVITY LEVEL OF THE HEAT EXCHANGERS DISCHARGE IS MONITORED PRIOR TO BEING SENT TO THE DISCHARGE CULVERT.
 3. FOUR OF THE RHR SERVICE WATER PUMPS ARE COMMITTED TO SERVING THE EECW SYSTEM AND ARE ON AUTOMATIC CALL.
 4. STANDBY COOLANT FLOODING OF THE REACTOR AND SUPPRESSION POOL IS ACCOMPLISHED BY OPENING FCV-23-97 AND EITHER FCV-74-100 OR -101 DEPENDING WHICH UNIT REQUIRES FLOODING. AS ANY ONE OF THE VALVES FCV-23-51, FCV-74-100, OR FCV-74-101 STARTS TO OPEN, THE DRAIN VALVE FSV-23-56 CLOSES.
 5. INSTRUMENTATION ASSOCIATED WITH BACKUP CONTROLS IS LOCATED AS SHOWN ON THE DIAGRAM. IF A LOCATION IS NOT SHOWN THE DEVICES WILL BE LOCATED ON THE APPROPRIATE 4180V AC BOARD, 480V AC BOARD, OR 250V DC BOARD. (REFERENCE OF DESIGN SPECIFICATION 22A1470.1)
 6. INSTRUMENT NUMBERS ARE PRECEDED BY "2-" EXCEPT AS NOTED.
 7. COMPLETE LOGIC FOR RHR SERVICE WATER SYSTEM IS SHOWN ON THE MECHANICAL LOGIC DIAGRAM LISTED IN THE REFERENCE DRAWINGS.
 8. UNITS ON DRAWINGS ARE FOR REFERENCE ONLY AND ARE ABBREVIATED TO MEET SPACE CONSTRAINTS. REFER TO MEL FOR COMPLETE UNITS.
 9. ALL VALVES IDENTIFIED AS "FCV" HAVE VALVE OPERATORS. THE MEL UNIT FOR THE VALVE OPERATOR IS DEVELOPED AS FOLLOWS:
VALVE UNIT VALVE OPERATOR UNIT
FCV-23-57 BFN-2-MVOP-023-0057

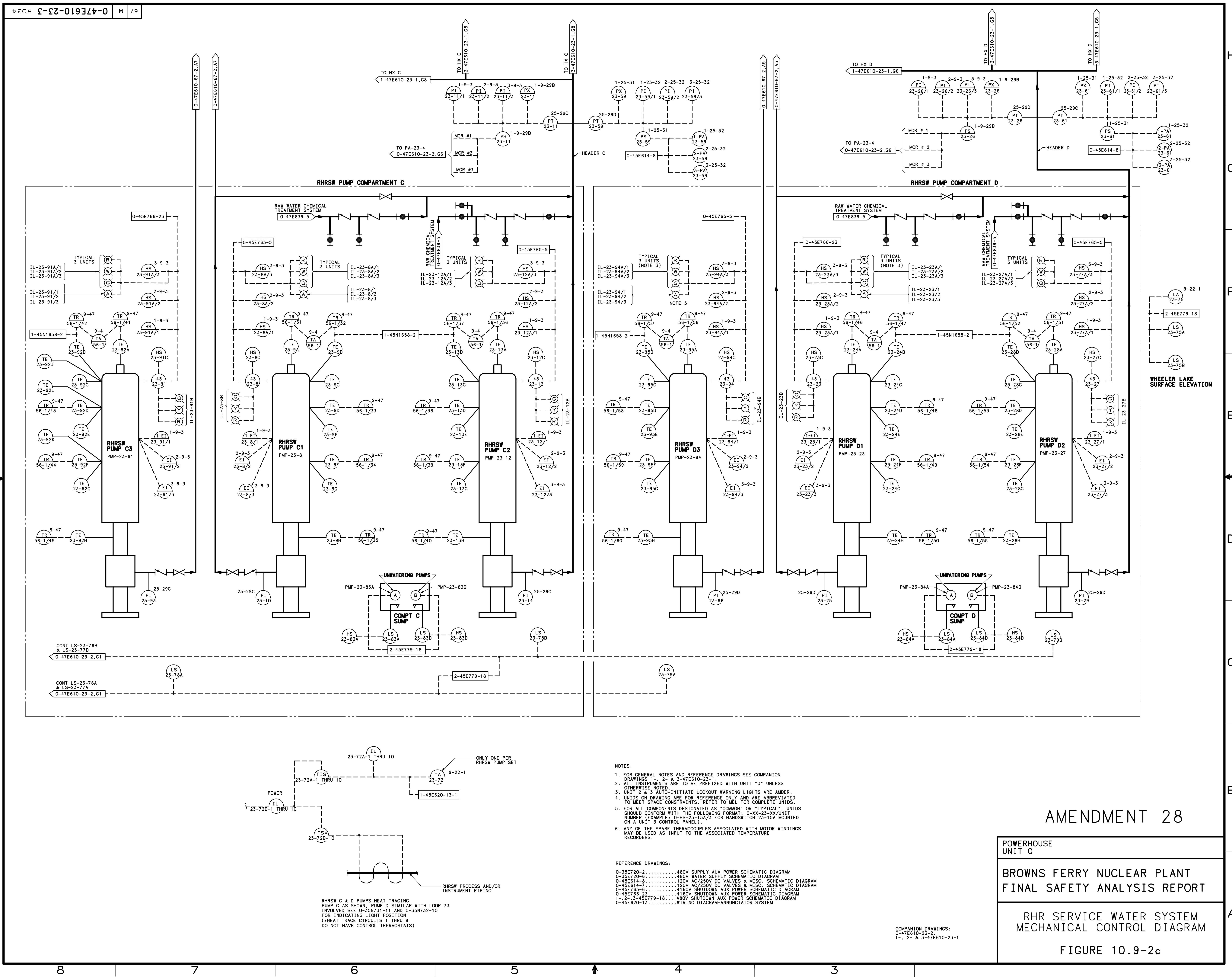
- REFERENCE DRAWINGS:
- 47W600-SERIES:.....PANEL DRAWINGS
 - MEL.....INSTRUMENT TABULATION (RHR)
 - 0-47E610-23-1, 2, 3.....INSTRUMENT TABULATION (RHR)
 - 0-47E610-23-2, 3.....CONTROL DIAGRAM - RHR SERVICE WATER SYSTEM
 - 0-47E610-24-2.....CONTROL DIAGRAM - RAW COOLING WATER SYSTEM
 - 0-47E610-43-1.....CONTROL DIAGRAM - SAMPLING & WATER QUALITY SYSTEM
 - 0-47E610-67-2.....CONTROL DIAGRAM - EMERGENCY EQUIPMENT COOLING W
 - 0-47E610-74-16.....CONTROL DIAGRAM - RHR SYSTEM
 - 0-47E610-90-3.....CONTROL DIAGRAM - RADIATION MONITORING SYSTEM
 - 0-47E610-7-8.....RHRW RELAYS & INSTRUMENT LOGS
 - 0-47E610-10.....480V SHUTDOWN AUXILIARY POWER SCHEMATIC DIAGRAM
 - 0-47E610-1.....FLOW DIAGRAM - GENERAL PLANT SYSTEMS
 - 0-47E600-2.....FLOW DIAGRAM - MECHANICAL SYMBOLS AND FLOW DIAGRAM DRAWING INDEX
 - 2-47E610-1.....FLOW DIAGRAM - FLOOR & DIRTY RADWASTE DRAINAGE
 - 2-47E610-1.....FLOW DIAGRAM - RHRW SYSTEM
 - 2-47E610-74-1, 2.....CONTROL DIAGRAM RHR SYSTEM
 - 2-47E610-49.....480V SHUTDOWN AUX FWP SCHEMATIC DIAGRAM
 - 0-47E611-23-SERIES:.....MECHANICAL LOGIC DIAGRAM RHR SERVICE WATER SYSTEM
 - 0-47E611-67-SERIES:.....MECHANICAL LOGIC DIAGRAM EMERGENCY EQUIPMENT COOLING WATER SYSTEM
 - 2-47E611-74-SERIES:.....MECHANICAL LOGIC DIAGRAM RESIDUAL HEAT REMOVAL SYSTEM

GE DRAWING:
2-730E937-24 & -25.....ELEMENTARY DIAGRAM RHR SYSTEM

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RHR SERVICE WATER SYSTEM MECHANICAL CONTROL DIAGRAM
FIGURE 10.9-2a

COMPANION DRAWINGS:
3-47E610-23-1
0-47E610-23-2
0-47E610-23-3
1-47E610-23-1



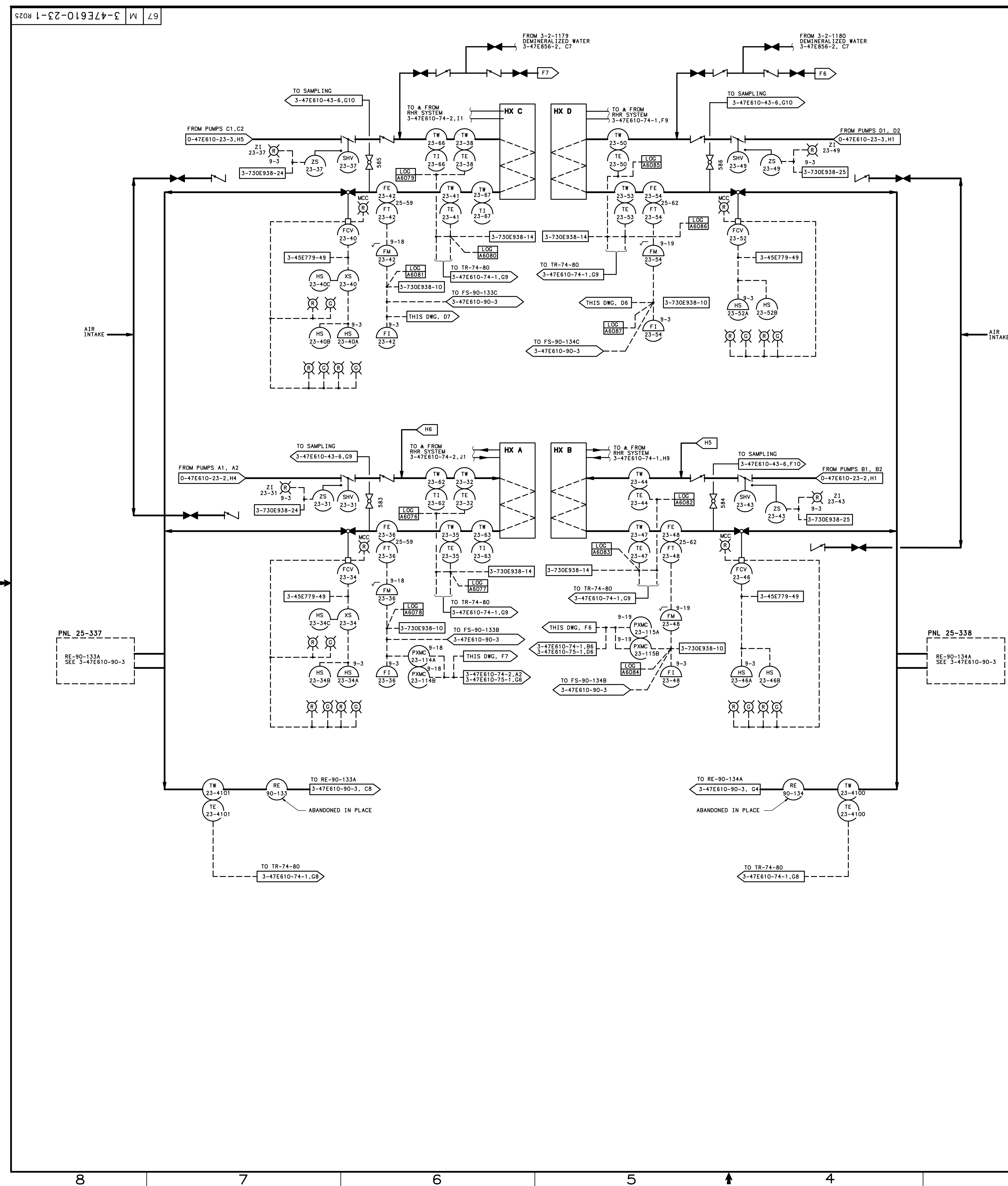
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POWERHOUSE
UNIT 0

BROWNS FERRY NUCLEAR PLANT
FINAL SAFETY ANALYSIS REPORT

RHR SERVICE WATER SYSTEM
MECHANICAL CONTROL DIAGRAM

FIGURE 10.9-2c



- NOTES:
1. THE RHR SERVICE WATER SYSTEM IS A 12" PUMP-4" HEADER SYSTEM AND IS PROVIDED RAW WATER WATER TO THE RHR AND REOR SYSTEMS AND IS PLANT COOLANT TO FLOOD THE REACTOR AND SUPPRESSION POOL, ALTHOUGH IT IS A PLANT SYSTEM, THIS SYSTEM IS NOT TO BE USED FOR ANY OTHER PURPOSES. SEE ROOM ON PANEL 9-33.
 2. THE RHR AND REOR EXCHANGERS, EACH PIPED TO ITS OWN HEADER, ARE PROVIDED FOR EACH UNIT THE RADIOACTIVITY LEVEL OF THE HEAT EXCHANGERS DISCHARGE IS MONITORED PRIOR TO THE REACTOR AND SUPPRESSION POOL.
 3. FOUR OF THE RHR SERVICE WATER PUMPS ARE COMMITTED TO SERVING THE REOR SYSTEM AND ARE ON AUTOMATIC CALL.
 4. STANDBY COOLANT FLOODING OF THE REACTOR AND SUPPRESSION POOL IS ACCOMPLISHED BY CLOSING VALVES 27 AND EITHER FCV274-100 OR -101 DEPENDING WHICH UNIT REQUIRES FLOODING. AS ONE OF THE VALVES FCV27-50, FCV27-100, OR FCV27-101, OR FCV27-102, OR FCV27-103, OR FCV27-56, OR FCV27-56-1 CLOSURES.
 5. THE INSTRUMENTATION ASSOCIATED WITH BACKUP CONTROLS IS LOCATED AS SHOWN ON THE DIAGRAM. IF A LOCATION IS NOT SHOWN THE DEVICES WILL BE LOCATED ON THE INSTRUMENT 412-100 OR 412-101 EITHER RHR OR REOR, OR 250V DC BOARD. (REFERENCE GE DESIGN SPECIFICATION 224147.0).
 6. INSTRUMENT NUMBERS ARE PRECEDED BY "3-" AND VALVE NUMBERS ARE PRECEDED BY "4-".
 7. COMPLETE LOGIC FOR RHR SERVICE WATER SYSTEM IS SHOWN ON THE MECHANICAL LOGIC DIAGRAM LISTED IN REFERENCE DRAWINGS.
 8. IN CASE OF DRAWING AND/OR INSTRUMENTATION NOT SUBSERVISED TO MEET SPACE CONSTRAINTS, REFER TO MEAL FOR COMPLETE UNITS.

REFERENCE DRAWINGS:

MEL	INSTRUMENT TABULATION
47600-SERIES	MECHANICAL INSTRUMENTS AND CONTROLS
47600-SERIES-1	LAYOUT OF CONTROL ROOMS
3-47610-43-1	CONTROL DIAGRAM-SAMPLING AND WATER QUALITY SYSTEM
3-47610-43-2	CONTROL DIAGRAM-DECONTAMINATION SYSTEM
3-47610-90-3	CONTROL DIAGRAM-RADIATION MONITORING SYSTEM
47600-SERIES-2	MECHANICAL SYMBOLS AND FLOW DIAGRAM DRAWING INDEX
3-47680-2	MECHANICAL SYMBOLS AND FLOW DIAGRAM DRAWING INDEX
3-47681-1	FLOW DIAGRAM - RESIDUAL HEAT REMOVAL SYSTEM
3-47681-2	FLOW DIAGRAM - DEMINERALIZED WATER SYSTEM
3-47688-1	FLOW DIAGRAM - RHSD SYSTEM
4561-47688-6	4561 SHUTDOWN - RHSD SCHEMATIC
3-47681-23-1, 2	MECHANICAL LOGIC DIAGRAM RHSD SERVICE WATER SYSTEM
3-47681-23-2	MECHANICAL LOGIC DIAGRAM EMERGENT EQUIPMENT COOLING WATER SYSTEM

GE DRAWING:
3-730E938-3,-10,-11,-14,-20,-21,-24,-25....ELEM DIAGRAM - RHR SYSTEM

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POWERHOUSE
UNIT 3

BROWNS FERRY NUCLEAR PLANT
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RHR SERVICE WATER SYSTEM MECHANICAL CONTROL DIAGRAM

FIGURE 10.9-2d

COMPANION DRAWINGS:
0-47E610-23-2, -3
1-47E610-23-1
2-47E610-23-1

BFN-22

Figures 10.9-3 and 10.9-4
(Deleted by Amendment 22)

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