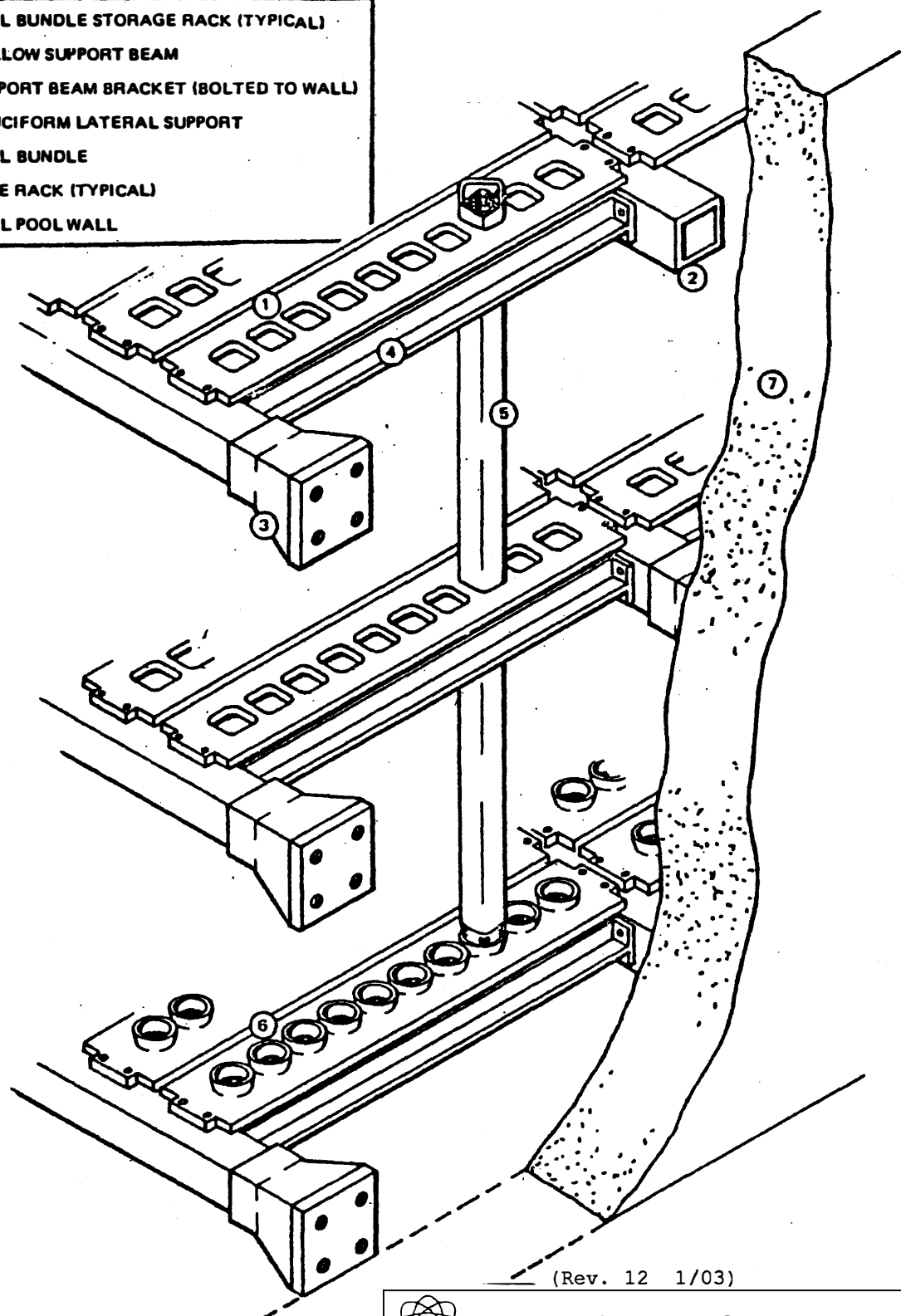


 **PERRY NUCLEAR POWER PLANT**

New Fuel Vault

Figure 9.1-1

- ① FUEL BUNDLE STORAGE RACK (TYPICAL)
- ② HOLLOW SUPPORT BEAM
- ③ SUPPORT BEAM BRACKET (BOLTED TO WALL)
- ④ CRUCIFORM LATERAL SUPPORT
- ⑤ FUEL BUNDLE
- ⑥ BASE RACK (TYPICAL)
- ⑦ FUEL POOL WALL



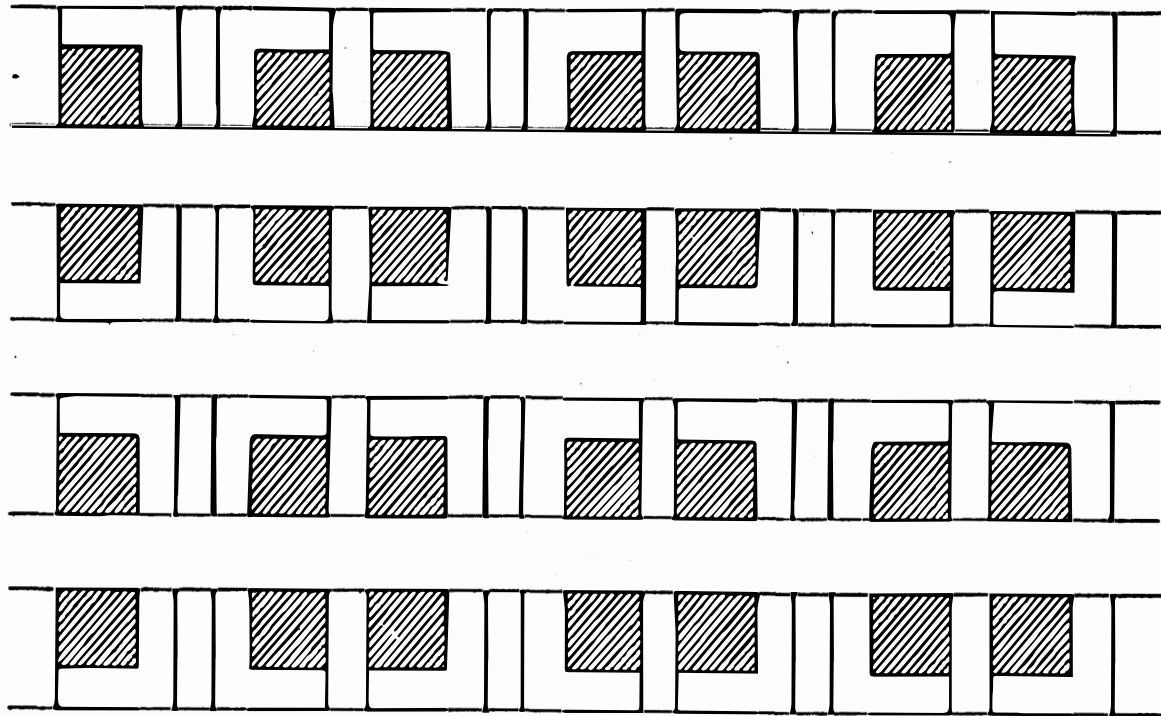
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Fuel Storage Racks

Figure 9.1-2



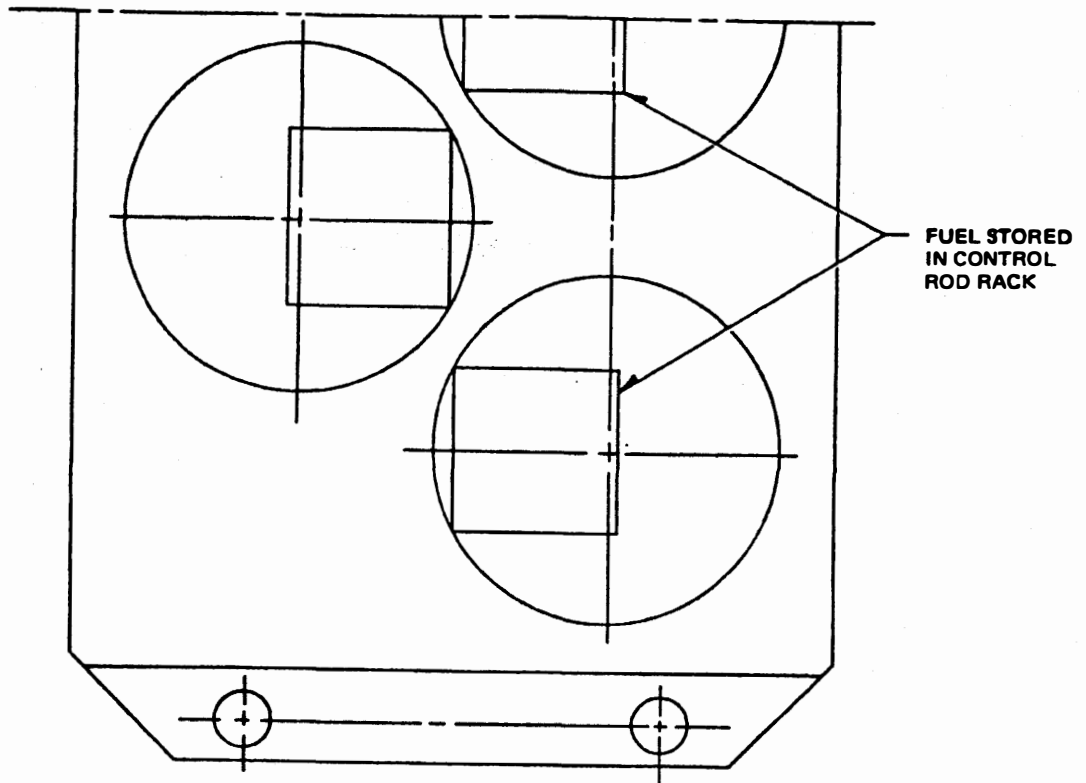
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Eccentric Fuel Positioning

Figure 9.1-3



(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Fuel Stored in Control Rod Racks

Figure 9.1-4



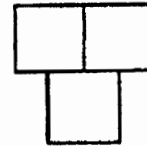
**TWO BUNDLE SIDE-BY-SIDE ARRAY**



**THREE BUNDLE LINEAR ARRAY**



**THREE BUNDLE TEE ARRAY**



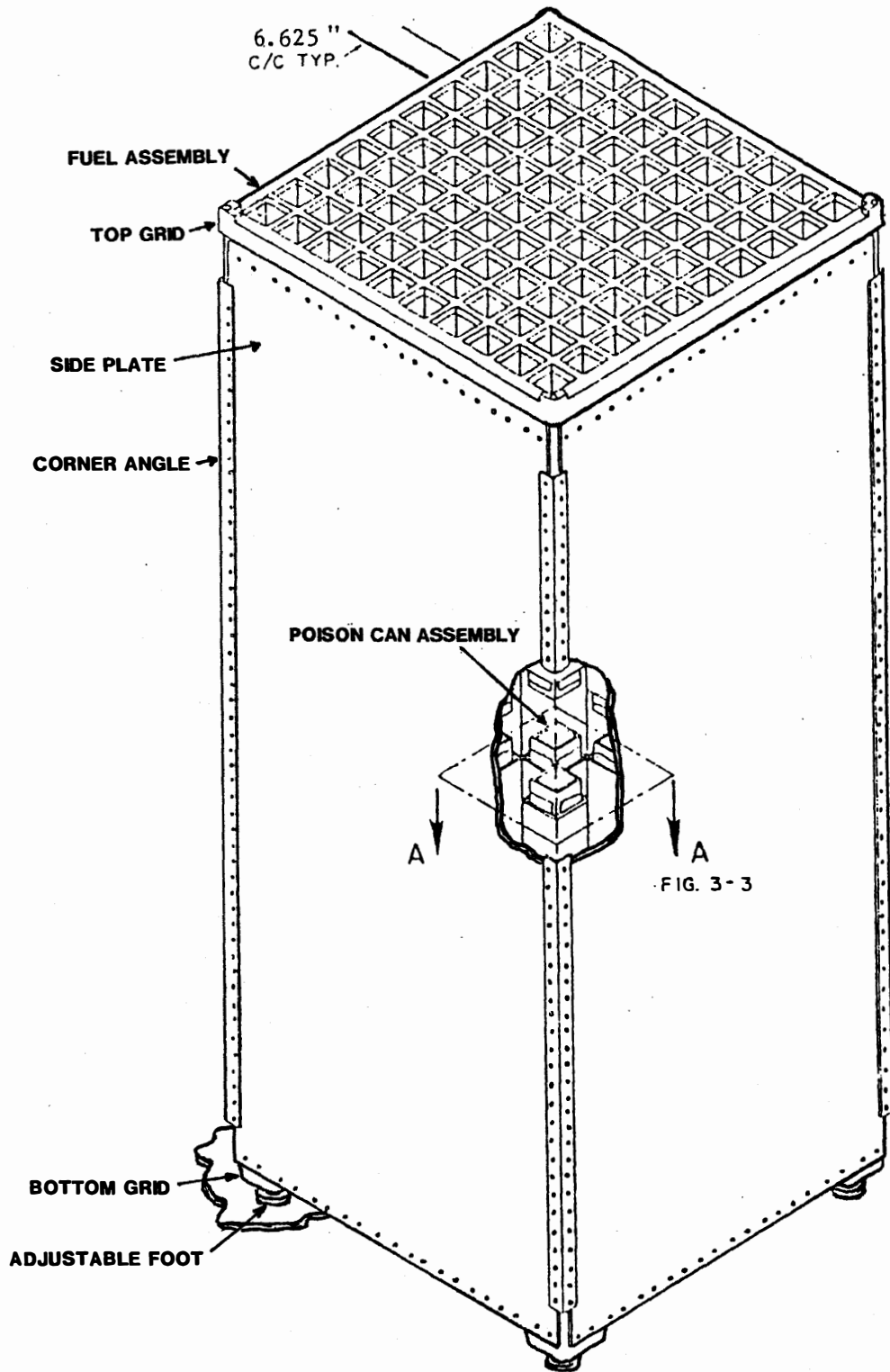
(Rev. 15 10/07)



**PERRY NUCLEAR POWER PLANT**

Abnormal Fuel Storage Conditions

Figure 9.1-5



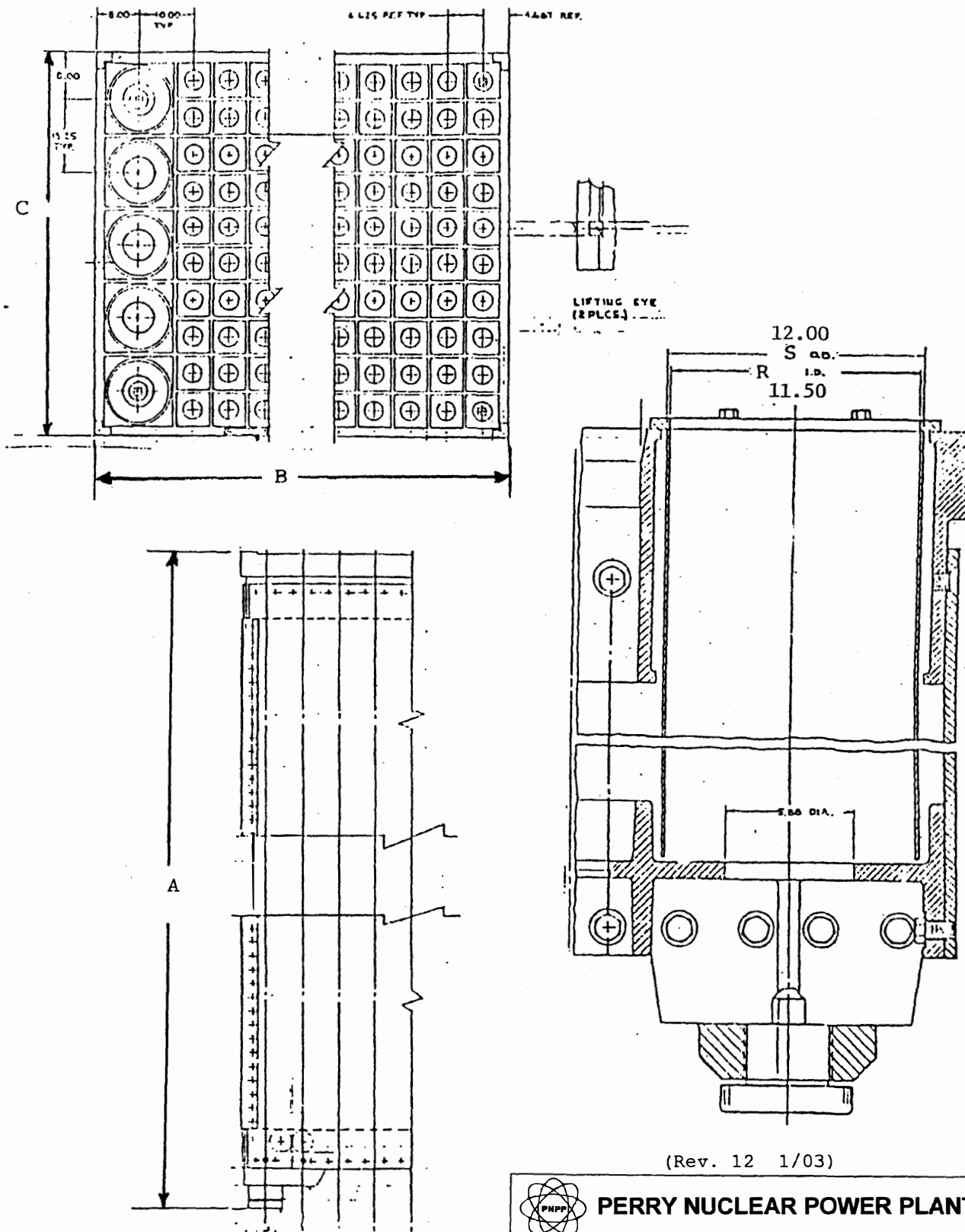
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Modular Isometric View

Figure 9.1-6



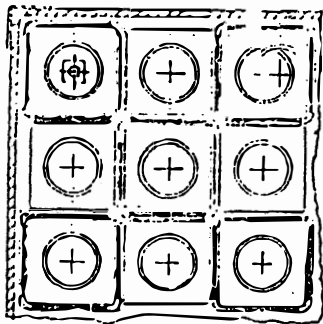
(Rev. 12 1/03)



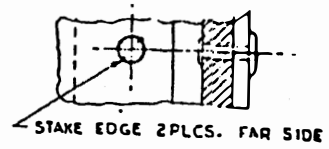
**PERRY NUCLEAR POWER PLANT**

7x10+5 Multiple Purpose Cavities  
BWR Spent Fuel Rack

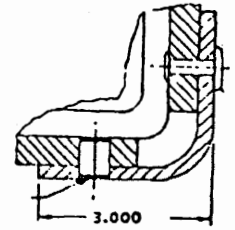
Figure 9.1-7



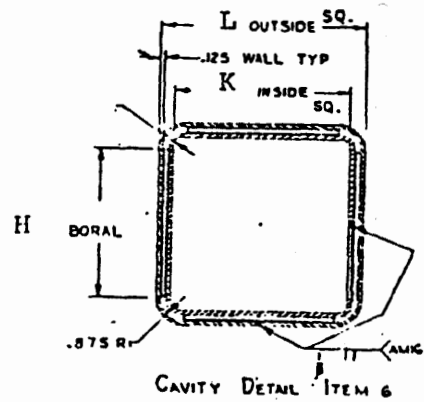
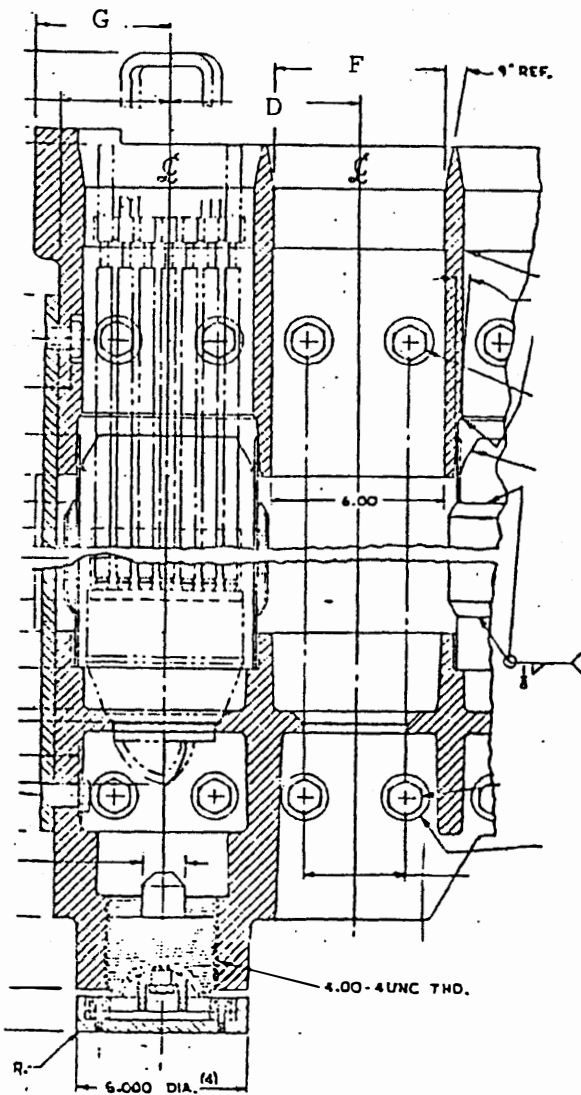
CORNER CROSS SECTION



STAKE EDGE 2PLCS. FAR SIDE



CORNER ANGLE DETAIL



CAVITY DETAIL ITEM 6

(Rev. 12 1/03)



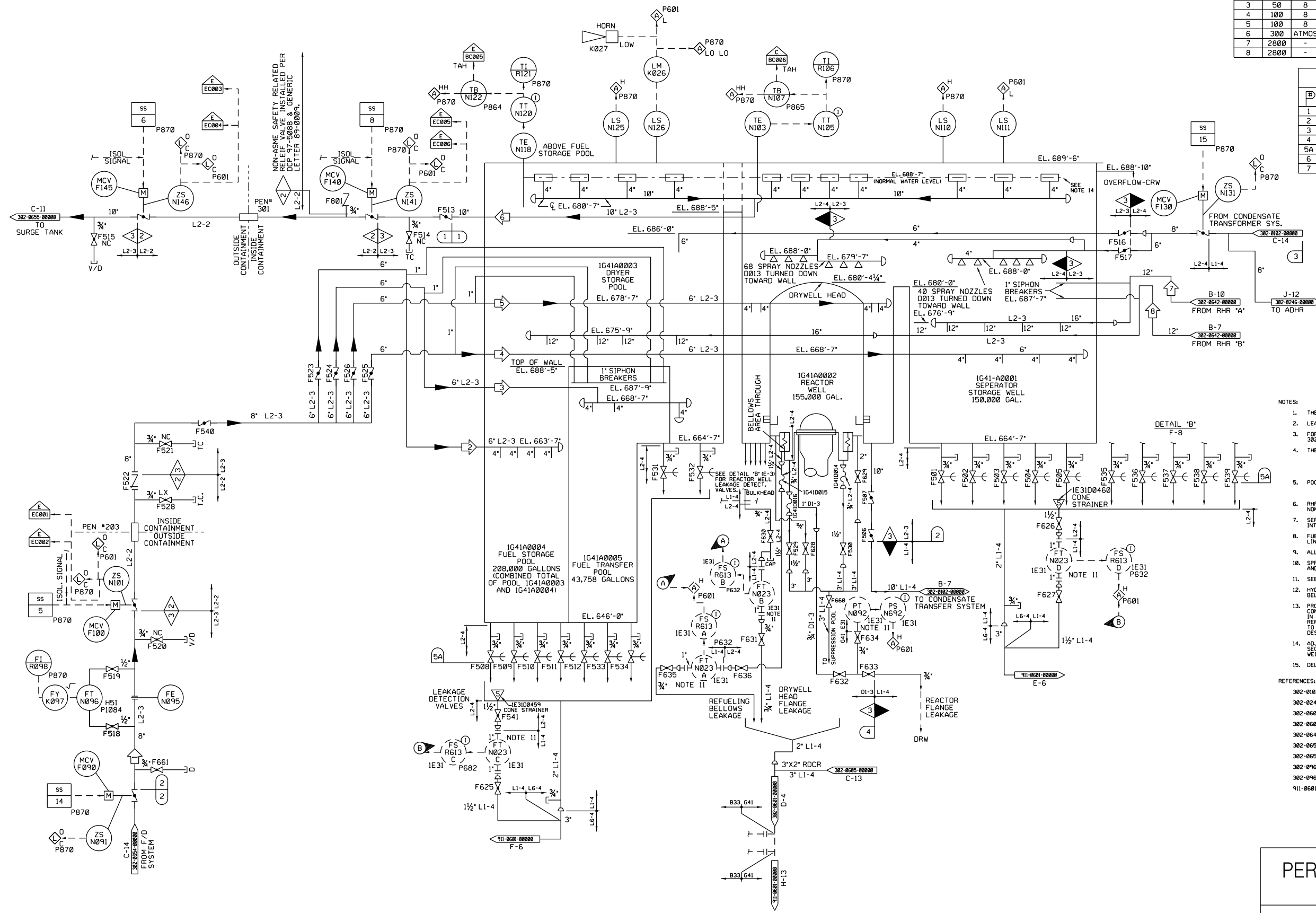
PERRY NUCLEAR POWER PLANT

Detail Sections

Figure 9.1-8

OPERATING DATA (NORMAL)						
SEE NOTE 13						
#	GPM	PSIG	°F	BY	REMARKS	REV
1	300	62	*	PLL	*60°F MIN./150°F MAX	
2	50	8	*	PLL		
3	50	8	*	PLL		
4	100	8	*	PLL		
5	100	8	*	PLL		
6	300	ATMOS	*	PLL		
7	2800	-	*	-	MINIMUM	
8	2800	-	*	-	MINIMUM	

DESIGN DATA									
#	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	TIME	BY	CHKD	REMARKS	REV
1	50	180	50	180		DAK	RJS		
2	150	180	150	180		DAK	RJS		
3	150	135	150	135		DAK	RJS		
4	1250	575	1250	575		RJS	ECO		
5A	35	185	35	185		PLL	JET		
6	55	185	55	185		PLL	JET		
7	12	580	-	-		PLL	JET	SEE NOTE 12	



- NOTES:
- THE CONTAINMENT POOL IS SAFETY CLASS 3, EXCEPT AS NOTED.
  - LEAK DETECTION PIPING AND VALVES ARE NON-SAFETY CLASS.
  - FOR CONTINUATION OF THIS SYSTEM, REFER TO DWGS. 302-0654-00000 AND 302-0655-00000.
  - THE FOLLOWING ITEMS ARE EMBEDDED IN CONCRETE:
    - POOL SUPPLY LINES DOWNSTREAM OF VALVES F523, 524, 525, AND 526.
    - SKIMMER DRAIN LINE INCLUDING A PORTION OF THE 18\"/>
  - POOL LEVEL ALARMS:
    - HIGH LEVELS-688'-10"
    - LOW LEVEL-688'-5"
  - RHR LINES TO STORAGE POOLS ARE USED ONLY DURING REFUELING OPERATIONS. NOMINAL FLOW EACH RHR LOOP IS 7500 GPM.
  - SEPARATOR STORAGE AND REACTOR WELL LEAKAGE DETECTION LINES DISCHARGE INTO COMMON FUNNEL.
  - FUEL TRANSFER, FUEL STORAGE, AND DRYER STORAGE LEAKAGE DETECTION LINES DISCHARGE INTO COMMON FUNNEL.
  - ALL PANELS CARRY PREFIX IH3, UNLESS OTHERWISE NOTED.
  - SPRAY NOZZLES ARE SPRACO NOZZLES NO. 43423110 MADE OF STAINLESS STEEL AND TAGGED D013.
  - SEE E31 LEAK DETECTION SYSTEM DIAGRAM DWG. 302-0962-00000.
  - HYDROTEST PRESSURE BASED ON DESIGN PRESSURE (12 PSIG) OF REFUELING BELLOWES.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - ADJUSTABLE WEIR PLATES ARE NORMALLY SET AT 688'-5\"/>
- REFERENCES:
- 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM P11
  - 302-0246-00000 ALTERNATE DECAY HEAT REMOVAL G40
  - 302-0601-00000 REACTOR WATER RECIRC. SYSTEM B33
  - 302-0605-00000 NUCLEAR BOILER SYSTEM B21
  - 302-0642-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0654-00000 FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
  - 302-0655-00000 FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
  - 302-0961-00000 LEAK DETECTION SYSTEM E31
  - 302-0962-00000 LEAK DETECTION SYSTEM E31
  - 911-0601-00000 REACTOR BUILDING DRAINS SYSTEM P68

(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

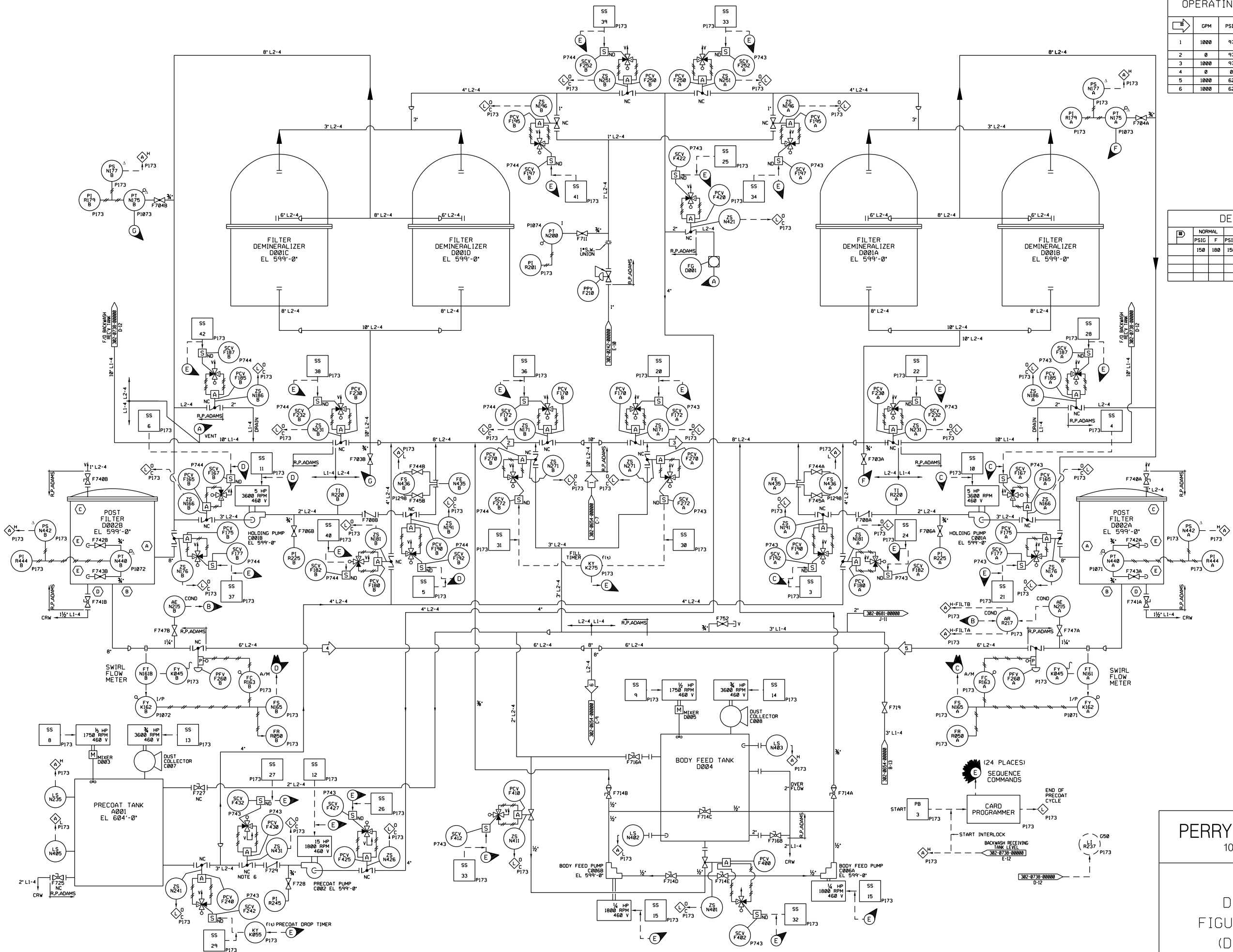
**FUEL POOL COOLING AND CLEANUP SYSTEM**  
 FIGURE 9.1-9 (SHEET 1 OF 4)  
 (DWG. D-302-0651-00000)

OPERATING DATA (NORMAL)  
SEE NOTE 7

#	GPM	PSIG	F	BY	REMARKS	REV
1	1000	97	*	JET	60°F MIN/ 150°F MAX	
2	0	97	*	JET		
3	1000	97	*	JET		
4	0	0	*	JET		
5	1000	62	*	JET		
6	1000	62	*	JET		

DESIGN DATA

#	NORMAL	UPSET	BY	REMARKS	REV	
	PSIG	F	PSIG	F	TIME	
	150	180	150	180		
						AS PER GAI DWG: 302-0654-00000



- NOTES:
1. THE FUEL POOL DEMINERALIZER SYSTEM IS NON-SAFETY.
  2. THIS DRAWING TO BE WORKED IN CONJUNCTION WITH DWG. 302-0654-00000.
  3. ALL PANELS AND RACKS CARRY PREFIX 0H51, UNLESS OTHERWISE NOTED.
  4. A SYSTEM TROUBLE ALARM IS RETRANSMITTED TO 1H13P680.
  5. ANNUBAR REPRESENTED BY  $\Delta$  SYMBOL.
  6. VALVE 0G41F430 IS MECHANICALLY STOPPED AT 45° VALVE TRAVEL LIMITED FROM CLOSED TO HALF OPEN.
  7. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:
- 302-0241-00000 SERVICE AND INSTRUMENT AIR SUPPLY SYSTEM P51 AND SYSTEM P52
  - 302-0654-00000 FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
  - 302-0738-00000 LRW TANKS AND PUMPS FOR HANDLING BACKWASH SLURRIES FROM FUEL POOL FILTER DEMINERALIZER SYSTEM G50
  - 302-0681-00000 SUPPRESSION POOL CLEAN-UP SYSTEM G42
  - 302-0242-00000 SERVICE AIR SYSTEM P51

(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

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FUEL POOL FILTER  
DEMINERALIZER SYSTEM  
FIGURE 9.1-9 (SHEET 2 OF 4)  
(DWG. D-302-0653-00000)

OPERATING DATA (NORMAL)  
SEE NOTE 7

#	GPM	PSIG	°F	BY	REMARKS	REV	
1	1500	16	*	PLL			
2	1500	123	*	PLL			
3	0	123	*	PLL			
4	1500	116	*	PLL			
5	0	116	*	PLL			
6	1500	97	*	PLL			
7	1000	97	*	PLL			
8	1500	62	*	PLL			
16	100	4.0	*	PLL			
17	100	30	*	PLL			

\* 60°F MIN / 150°F MAX

DESIGN DATA

#	NORMAL	UPSET	BY	CKD	REMARKS	REV
1	50	100	50	100	DAK	RJB
2	150	100	150	100	DAK	RJB
3	20	100	20	100	DAK	RJB
4	50	100	50	100	DAK	RJB
5	100	150	-	-	PLL	JET

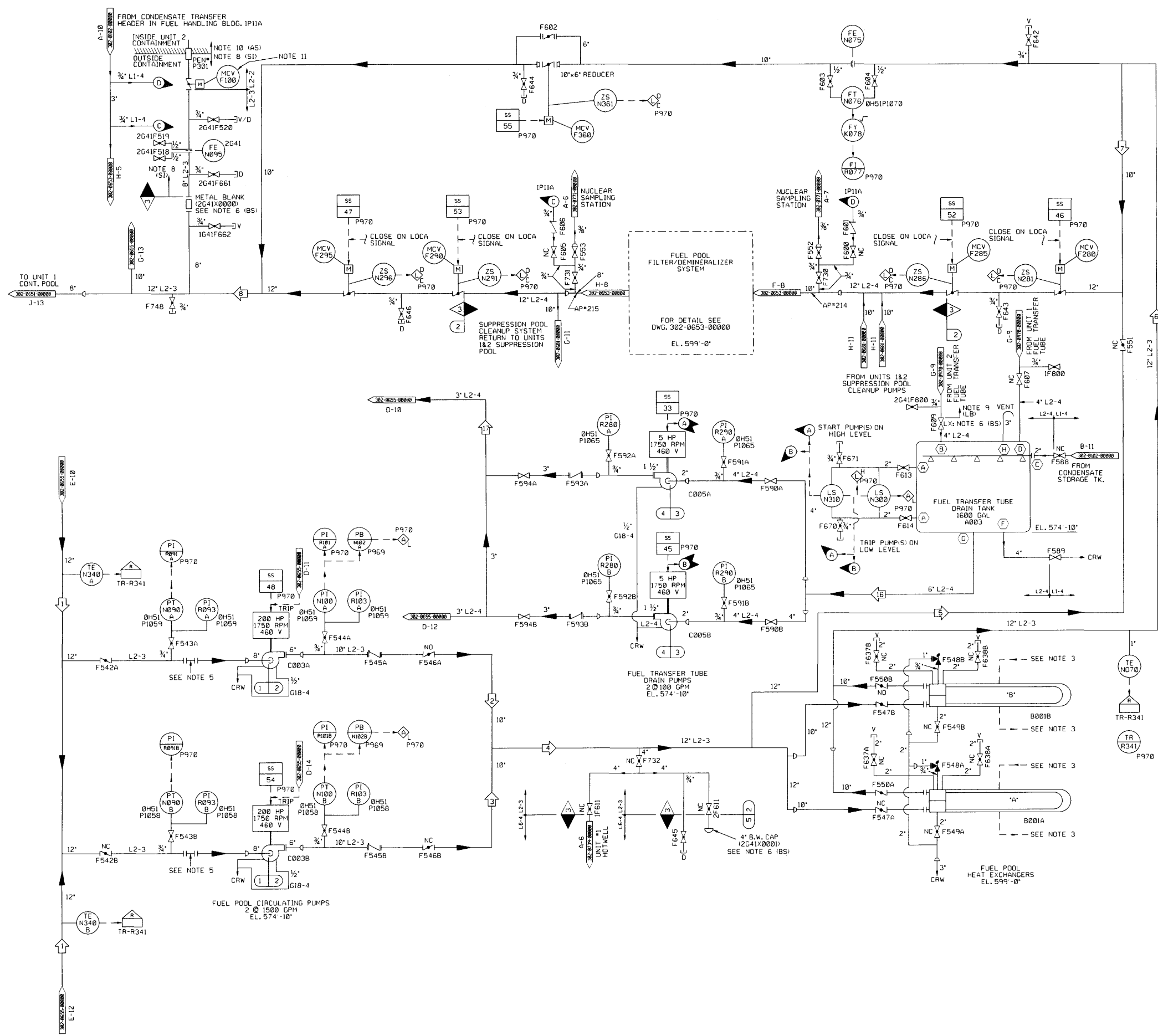
- REFERENCES:
- 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM P11
  - 302-0811-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 302-0651-00000 FUEL POOL COOLING AND CLEANUP SYSTEM G41
  - 302-0653-00000 FUEL POOL FILTER/DEMINEALIZER SYSTEM G41
  - 302-0655-00000 SUPPRESSION POOL CLEANUP SYSTEM G42
  - 302-0651-00000 LIQUID WASTE SUMP SYSTEM - EQUIPMENT DRAIN SUMPS AND OIL SEPARATORS SYSTEM G40
  - 302-0771-00000 NUCLEAR SAMPLING SYSTEM P34
  - 302-0742-00000 EMERGENCY SERVICE WATER SYSTEM P45
  - 302-0478-00000 INCLINED FUEL TRANSFER SYSTEM F42
  - 352-0621-00000 EMERGENCY CLOSED COOLING SYSTEM P42

- NOTES:
- THE FUEL POOL COOLING AND CLEANUP SYSTEM IS SAFETY CLASS, EXCEPT AS NOTED.
  - THIS DRAWING TO BE WORKED IN CONJUNCTION WITH DWG. 302-0651-00000, 302-0653-00000, AND 302-0655-00000.
  - THE NORMAL COOLING WATER SUPPLY IS P43 NUCLEAR CLOSED COOLING (DWG. 302-0611-00000). DURING A DESIGN BASIS ACCIDENT AND FOR OTHER PURPOSES, COOLING WATER TO THE HEAT EXCHANGERS MAY BE SUPPLIED BY THE P45 EMERGENCY SERVICE WATER SYSTEM (DWG. 302-0742-00000) VIA SECTIONS OF UNIT 2 P42 EMERGENCY CLOSED COOLING SYSTEM PIPING (DWG. 352-0621-00000).
  - ALL PANELS CARRY PREFIX 0H3, UNLESS NOTED OTHERWISE.
  - TEMPORARY STRAINERS D009A AND D009B USED FOR START-UP, ARE REMOVED FOR PLANT OPERATION.
  - IBS UNIT 1/2 BOUNDARY SEPARATION, FOR DETAILS SEE TECHNICAL ASSIGNMENT FILE 01653
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - (S) STRUCTURAL INTEGRITY BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-0326.
  - (L) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-0326.
  - (S) ABANDONED SSC'S OUTSIDE SCOPE OF LICENSE RENEWAL, CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSC'S IF INSTALLED OUTSIDE SCOPE OF LICENSE RENEWAL.
  - VALVE 2G41F0100 IS ELECTRICALLY DISABLED. MOTOR OPERATOR MAY BE DISCONNECTED OR REMOVED.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

FUEL POOL TRANSFER  
TANK DRAIN TANK SYSTEM  
FIGURE 9.1-9 (SHEET 3 OF 4)  
(DWG. D-302-0654-00000)



OPERATING DATA (NORMAL)

SEE NOTE 12

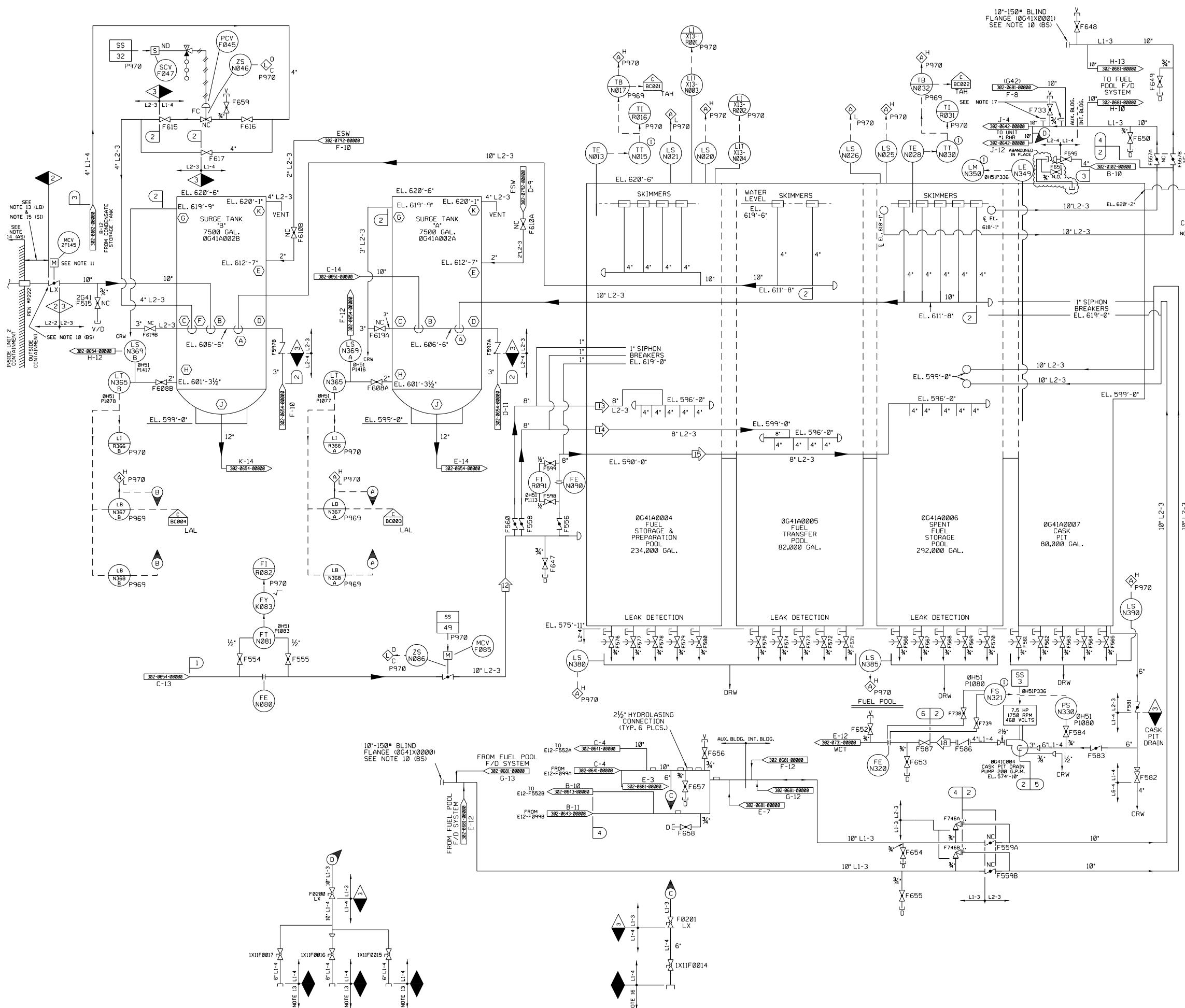
Flow	GPM	PSIG	°F	BY	REMARKS	REV
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
12	900	62	*	JET	60°F MIN/ 150°F MAX	
13	300	10	*	JET		
14	100	10	*	JET		
15	500	10	*	JET		
-	-	-	-	-	-	-
18	200	45	*	JET		

- NOTES:
- THE FUEL POOL COOLING AND CLEANING SYSTEM IS SAFETY CLASS, EXCEPT AS NOTED.
  - LEAK DETECTION PIPING AND VALVES ARE NON-SAFETY CLASS.
  - THIS DRAWING IS TO BE WORKED IN CONJUNCTION WITH DWGS. 302-0651-00000, 302-0653-00000 & 302-0654-00000.
  - DELETED
  - DELETED
  - THE FOLLOWING ITEMS ARE EMBEDDED IN CONCRETE:  
A. SKIMMER DRAIN LINES TO SURGE TANK  
B. POOL SUPPLY LINES DOWNSTREAM OF VALVES F556, F558, AND F560  
C. RHR SUPPLEMENTAL COOLING LINES  
D. CASK PIT DRAIN LINE  
E. LEAK DETECTION LINES
  - ALL PANELS CARRY PREFIX #H13, UNLESS NOTED OTHERWISE.
  - DELETED
  - DELETED
  - (BS) UNIT 1/2 BOUNDARY SEPARATION, FOR DETAILS SEE TECHNICAL ASSIGNMENT FILE 81653.
  - MCV 2041F145 IS ELECTRICALLY DISCONNECTED.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - (L) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED. RETIRED-IN-PLACE SSC'S, FOR DETAILS SEE ECP 14-0329.
  - (AS) ABANDONED SSC'S OUTSIDE SCOPE OF LICENSE RENEWAL. CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSC'S (IF INSTALLED) OUTSIDE SCOPE OF LICENSE RENEWAL.
  - (SI) STRUCTURAL INTEGRITY BOUNDARY FOR ABANDONED. RETIRED-IN-PLACE SSC'S, FOR DETAILS SEE ECP 14-0329.
  - S' STORZ CONNECTION IS NON-SAFETY, NON-ASME AND IS INSTALLED TO SUPPORT FLEX STRATEGY, NON-SAFETY, NON-ASME PIPING AND COMPONENTS ARE SEISMICALLY DESIGNED AND INSTALLED. REFERENCE 302-1000-00000. STORZ CONNECTIONS MAY BE REPLACED WITH VICTAULIC COUPLINGS FOR HIGH TEMPERATURE SERVICE.
  - HYDROLASE CONNECTION INSTALLED PER 155-2000.

DESIGN DATA

ID	NORMAL		UPSET		BY	CHKD	REMARKS	REV
	PSIG	°F	PSIG	°F				
1	150	180	150	180	DAK	RJS		
2	50	180	50	180	DAK	RJS		
3	150	135	150	135	DAK	RJS		
4	150	212	150	212	RJS	ECD		
5	35	180	35	180	RJS	ECD		
6	125	150	-	-	PLL	JET		

- REFERENCES:
- 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM P11
  - 302-0651-00000 FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
  - 302-0654-00000 FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
  - 302-0681-00000 SUPPRESSION POOL CLEAN-UP SYSTEM G42
  - 302-0731-00000 LOW-FLOOR DRAIN COLLECTOR TANKS AND WASTE COLLECTOR TANKS SYSTEM G58
  - 302-0742-00000 EMERGENCY SERVICE WATER SYSTEM P45
  - 302-0641-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0642-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0643-00000 RESIDUAL HEAT REMOVAL SYSTEM E12

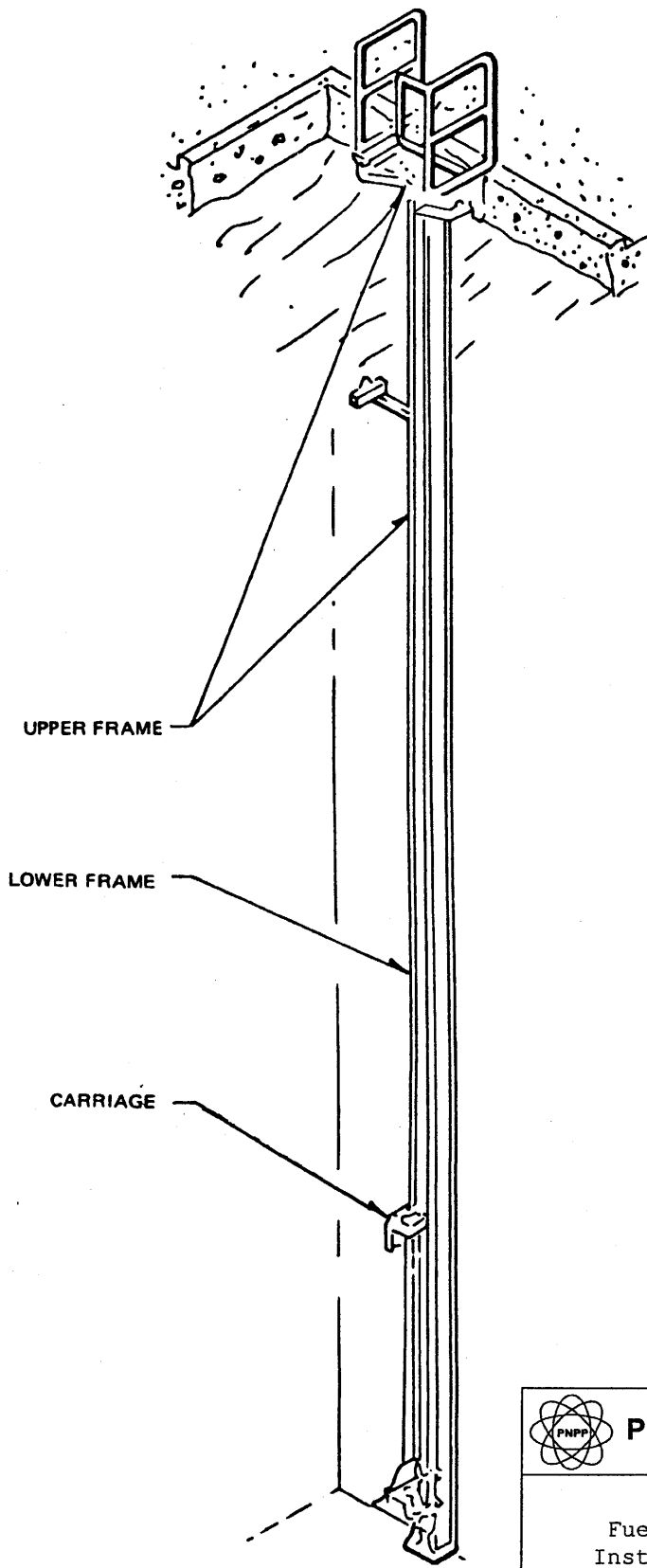


(REV. 20 10/2017)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

FUEL POOL STORAGE  
AND TRANSFER SYSTEM  
FIGURE 9.1-9 (SHEET 4 OF 4)  
(DWG. D-302-0655-00000)





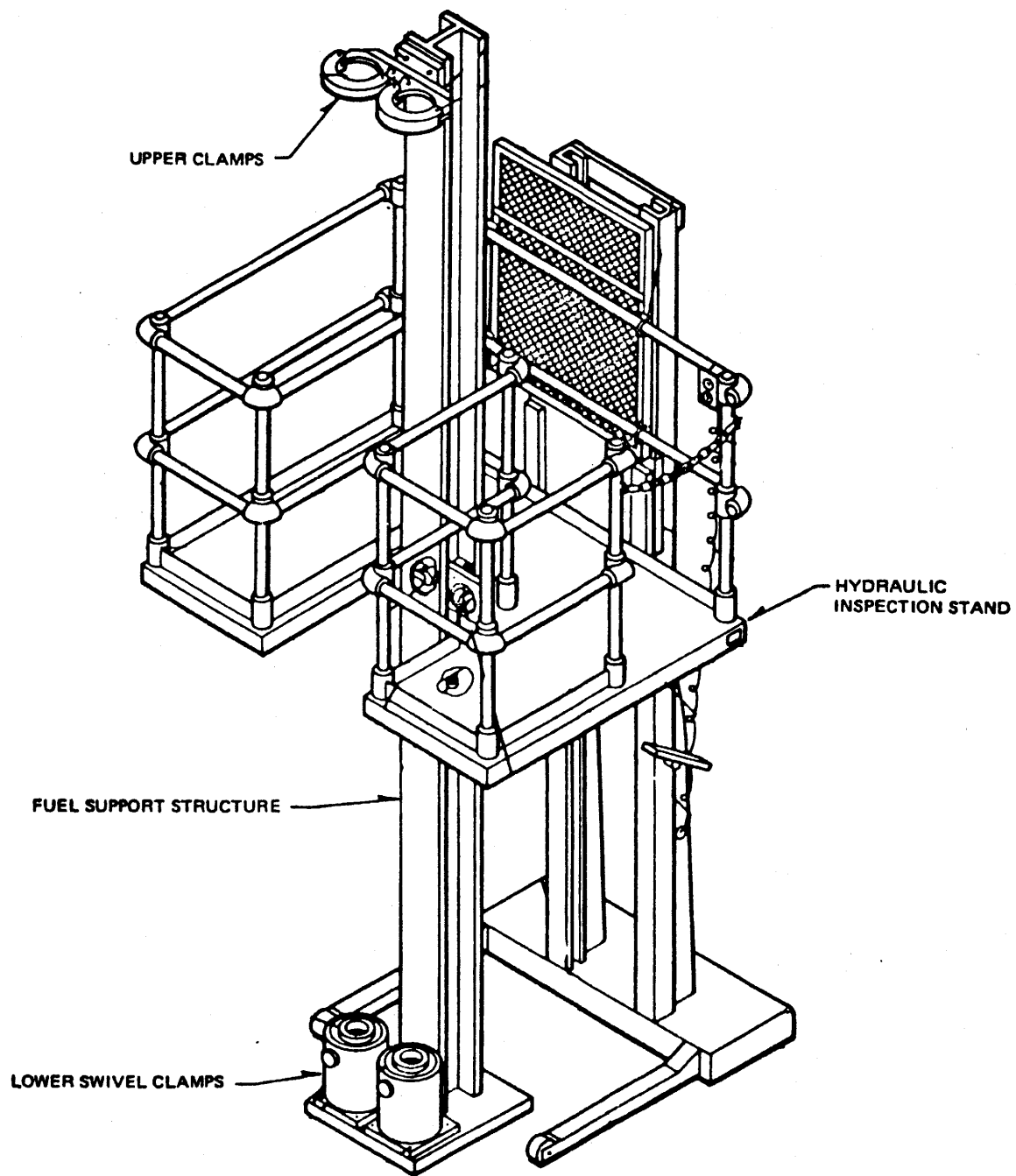
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Fuel Preparation Machine Shown  
Installed in Facsimile Fuel Pool

Figure 9.1-10



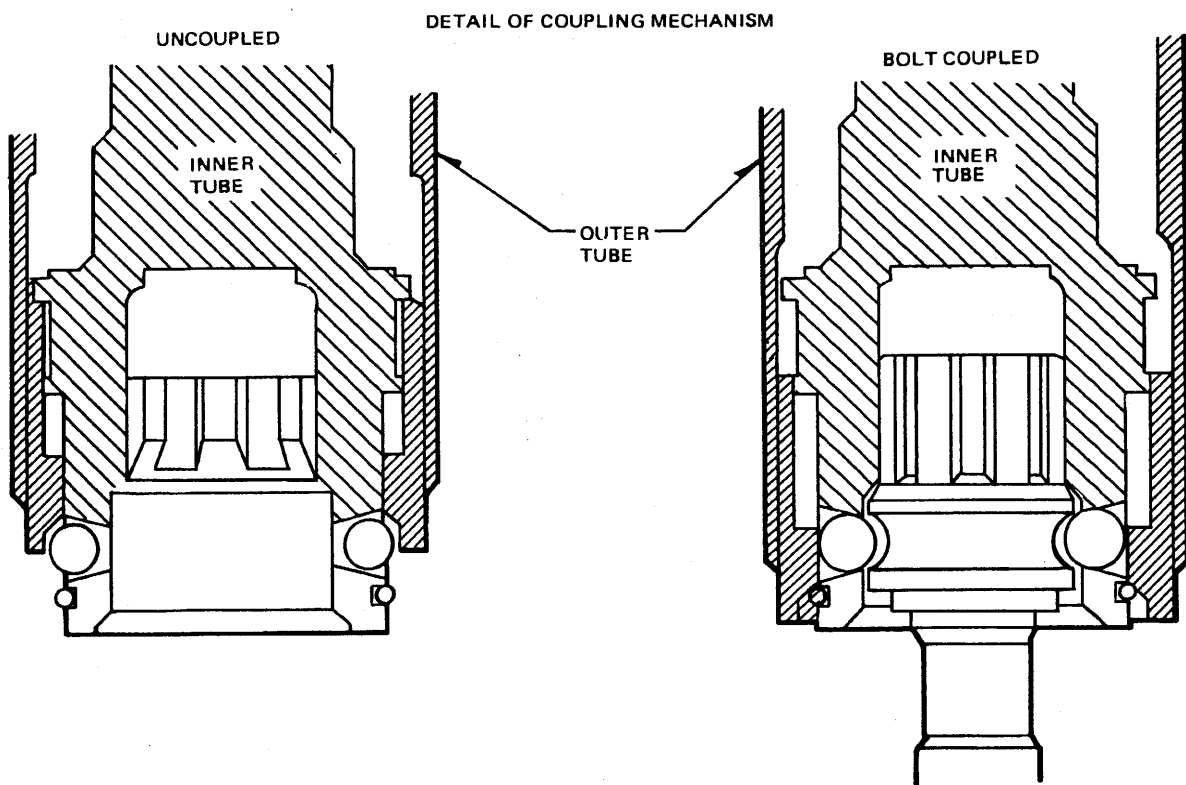
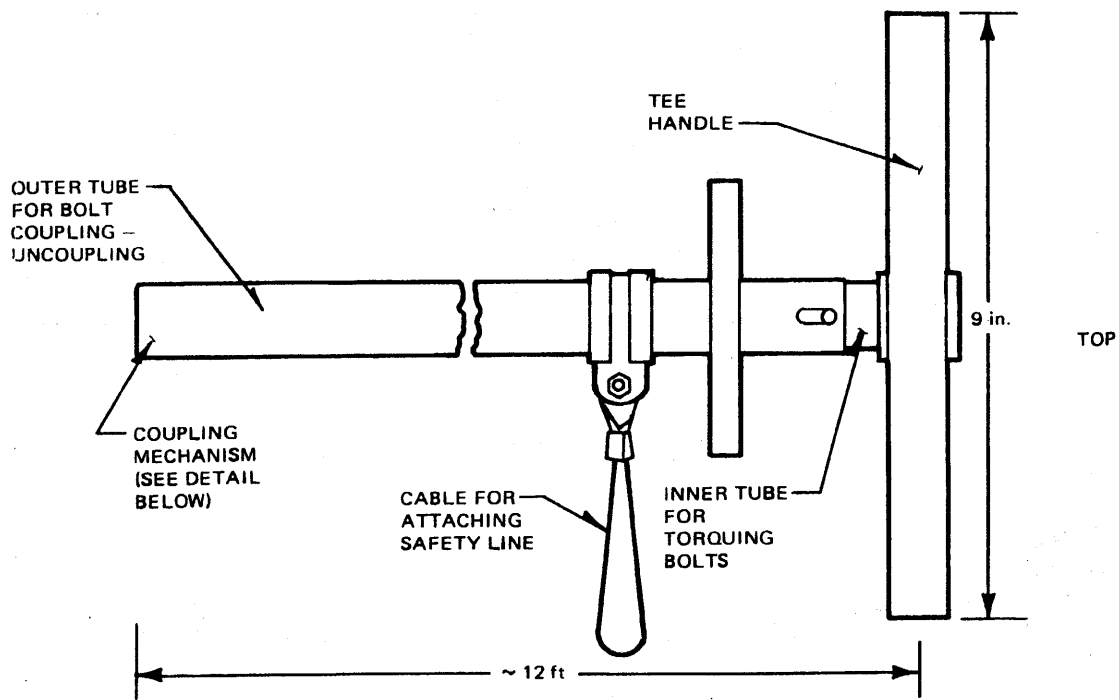
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

New Fuel Inspection Stand

Figure 9.1-11



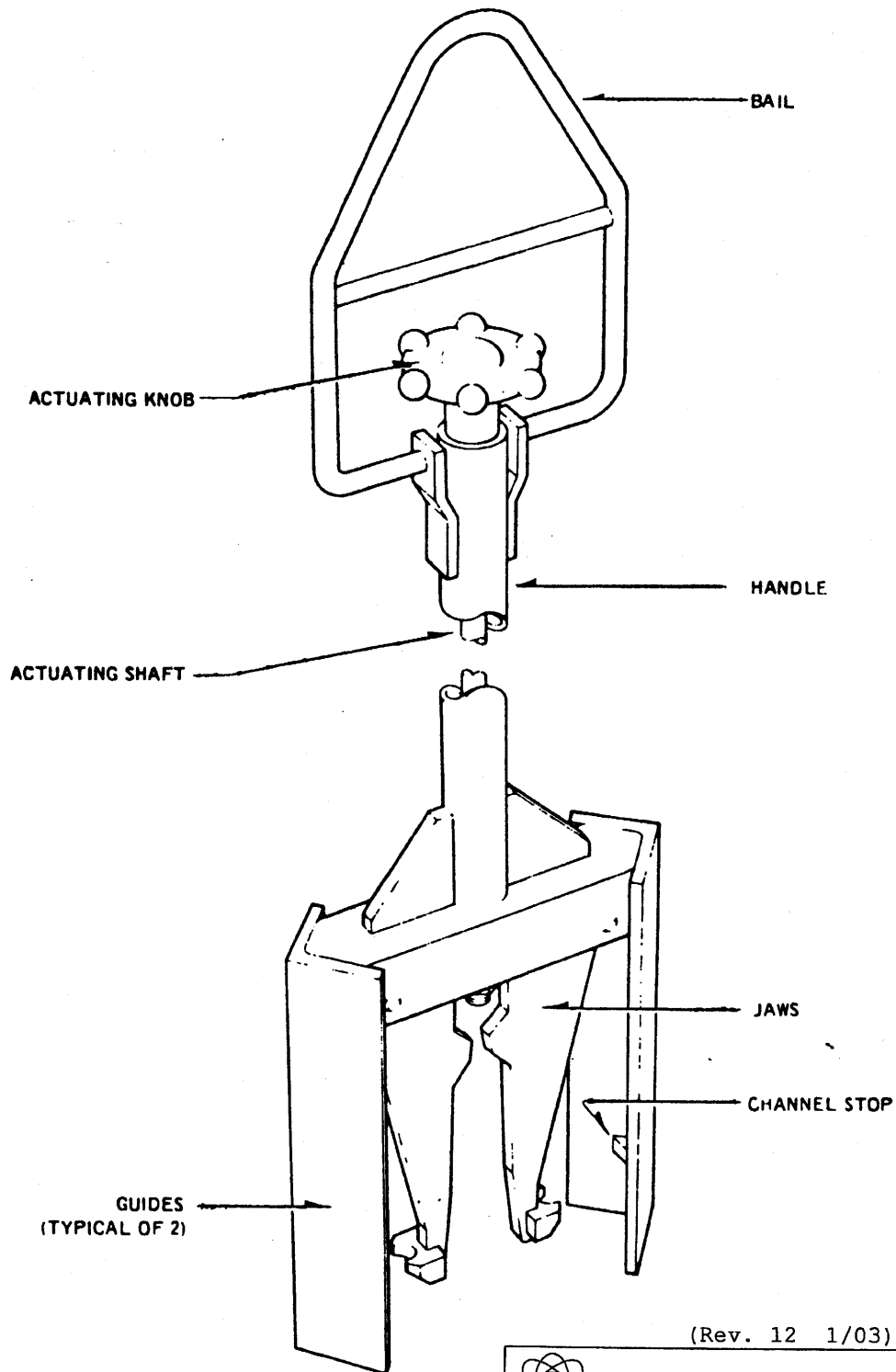
(Rev. 12 1/03)



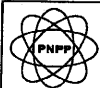
**PERRY NUCLEAR POWER PLANT**

Channel Bolt Wrench

Figure 9.1-12



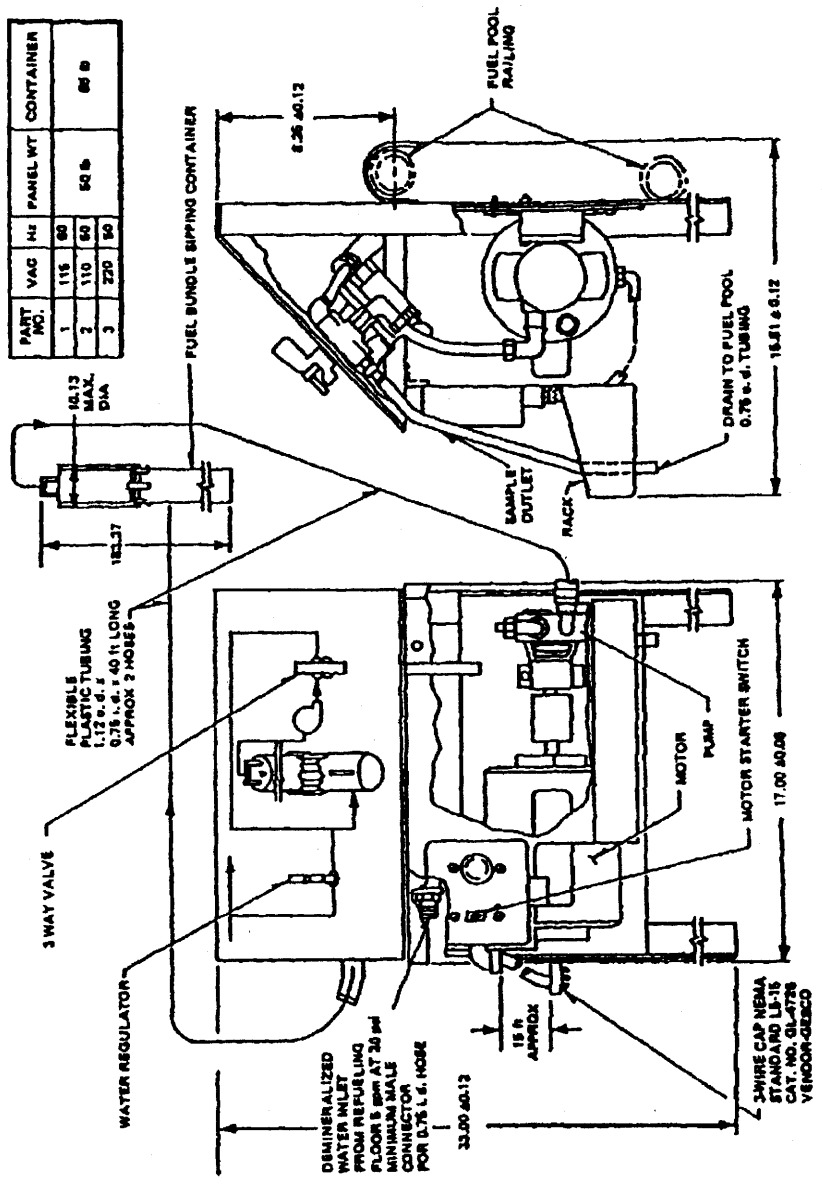
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**


Channel Handling Tool

Figure 9.1-13



Historical Information - Fuel Sipping is typically performed using vendor supplied equipment

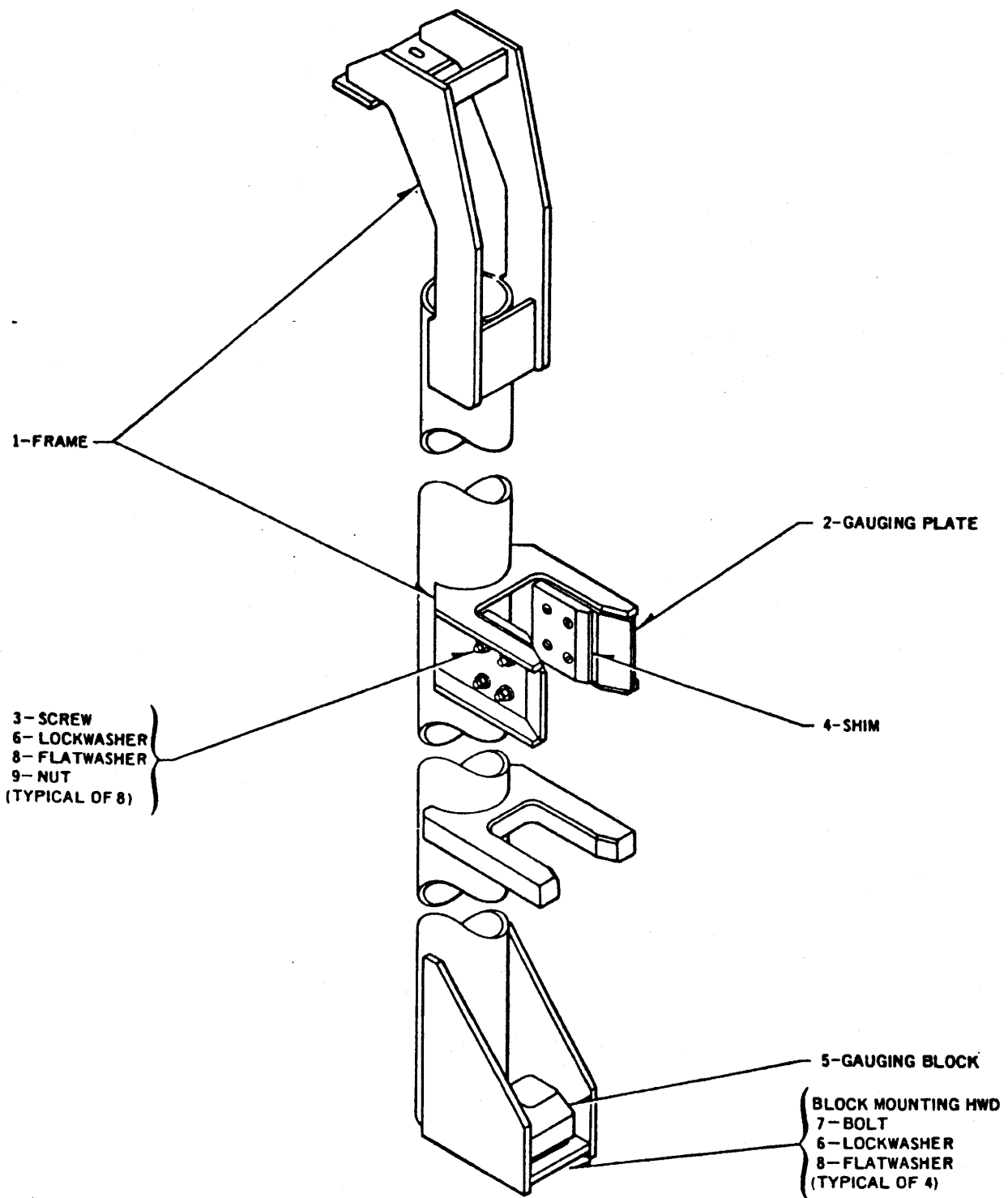
(Rev. 15 10/07)



**PERRY NUCLEAR POWER PLANT**

Fuel Pool Sipper

Figure 9.1-14



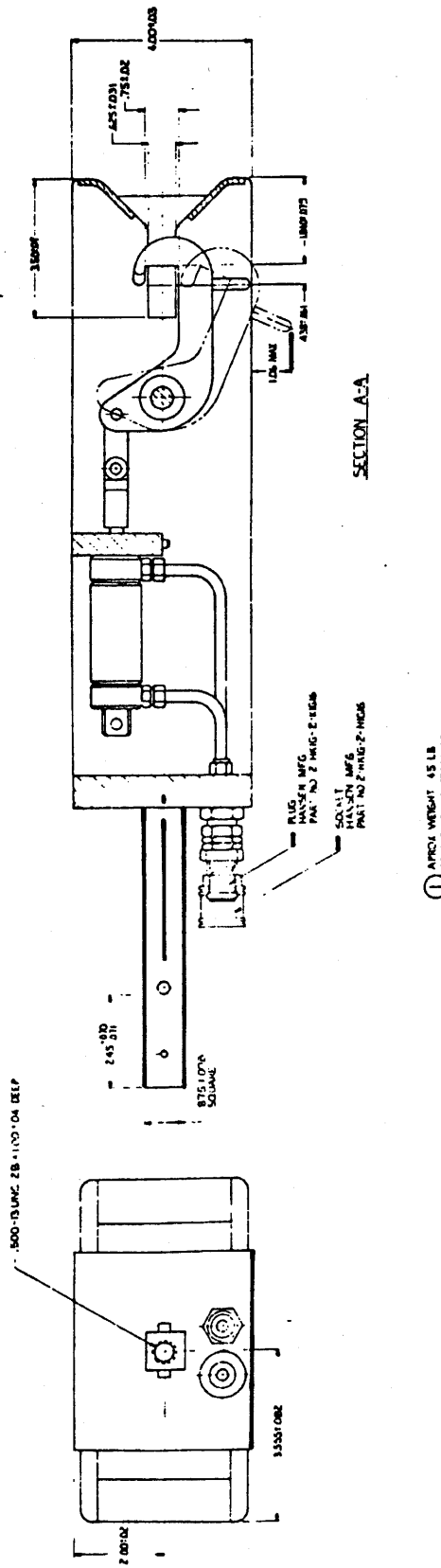
(Rev. 12 1/03)



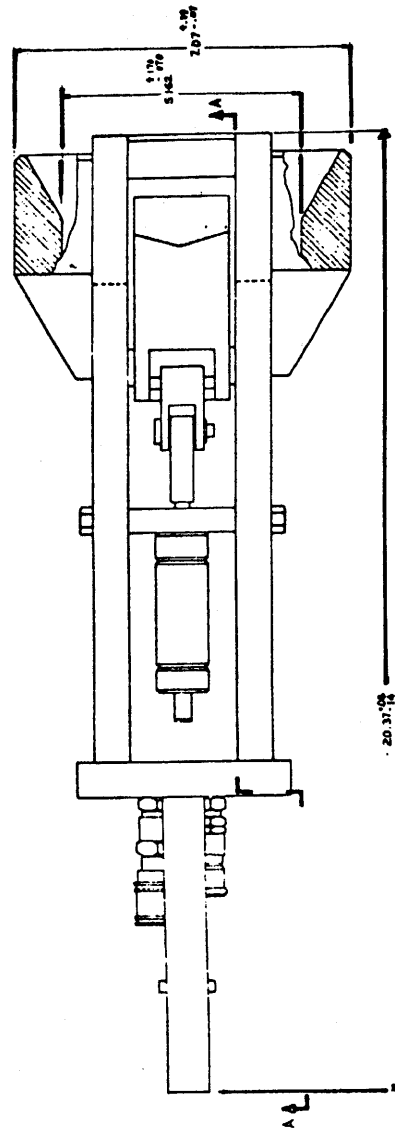
**PERRY NUCLEAR POWER PLANT**

Channel Gauging Fixture

Figure 9.1-15



(1) APPROX. WEIGHT 45 LB  
OPERATING AIR PRESSURE 80-100 PSI



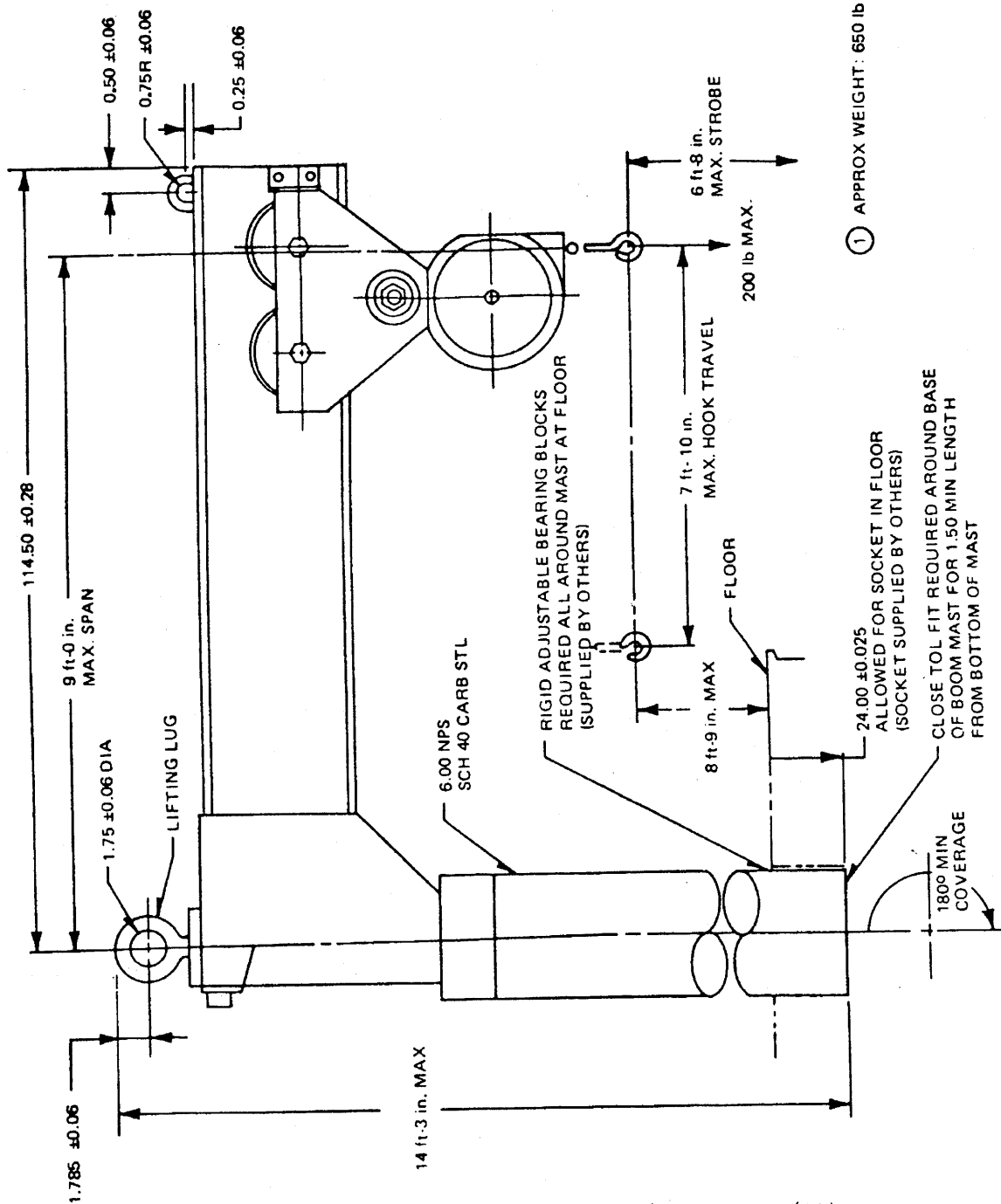
(Rev. 12 1/03)




**PERRY NUCLEAR POWER PLANT**

General Purpose Grapple

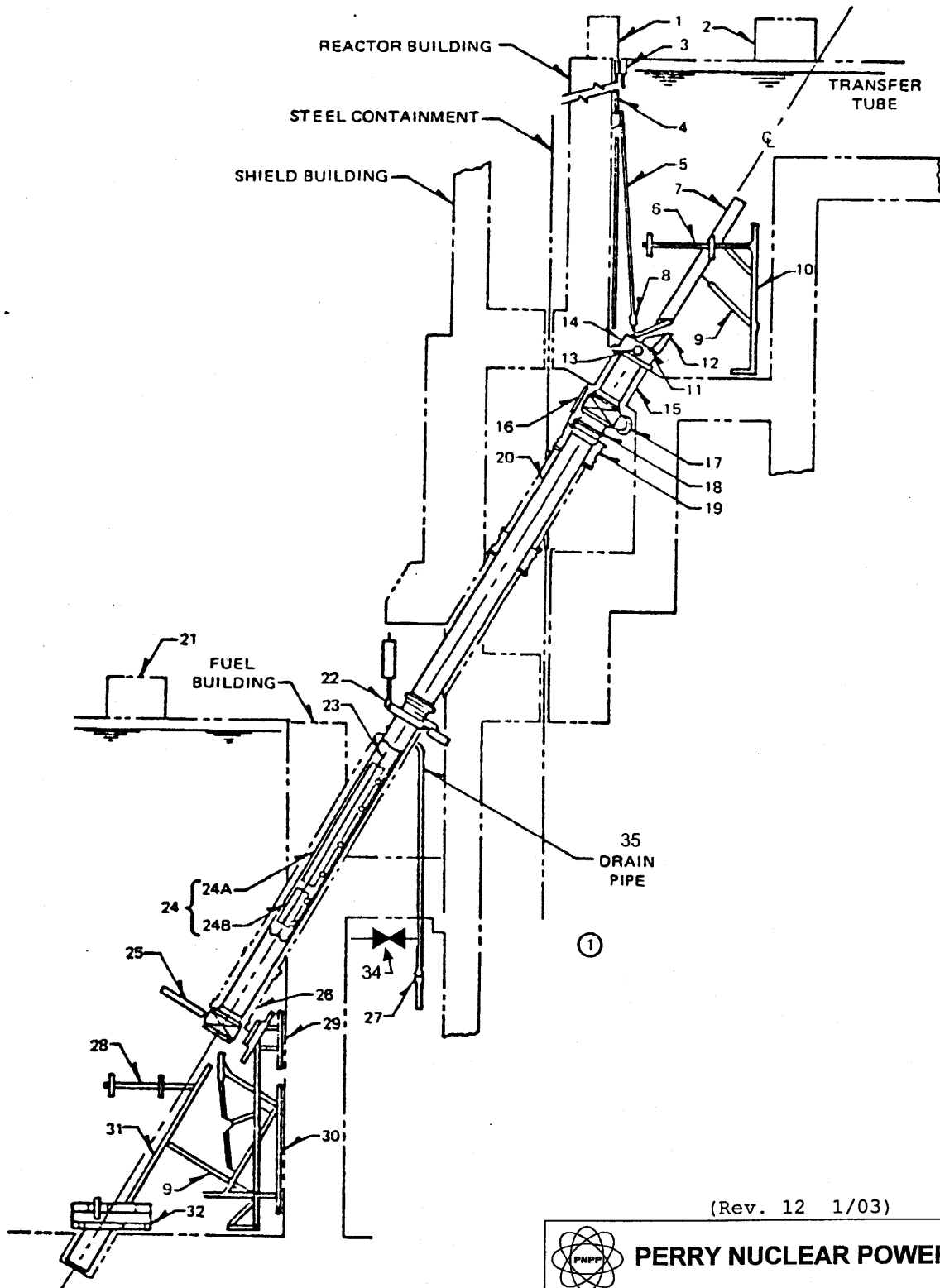
Figure 9.1-16




(Rev. 12 1/03)

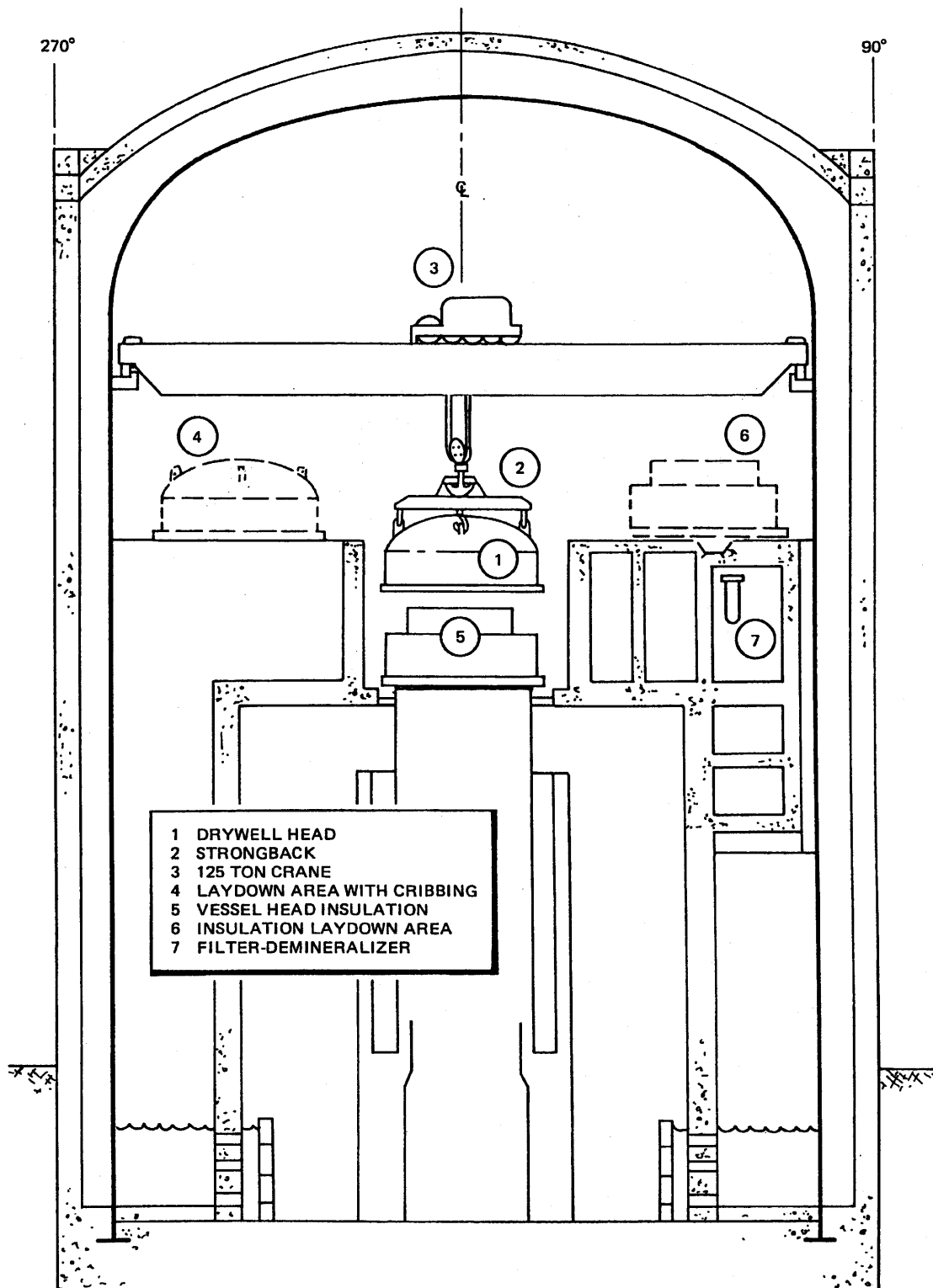
	<b>PERRY NUCLEAR POWER PLANT</b>
Channel Handling Boom	
Figure 9.1-18	





(Rev. 12 1/03)

	<b>PERRY NUCLEAR POWER PLANT</b>
Transfer Tube Figure 9.1-19	



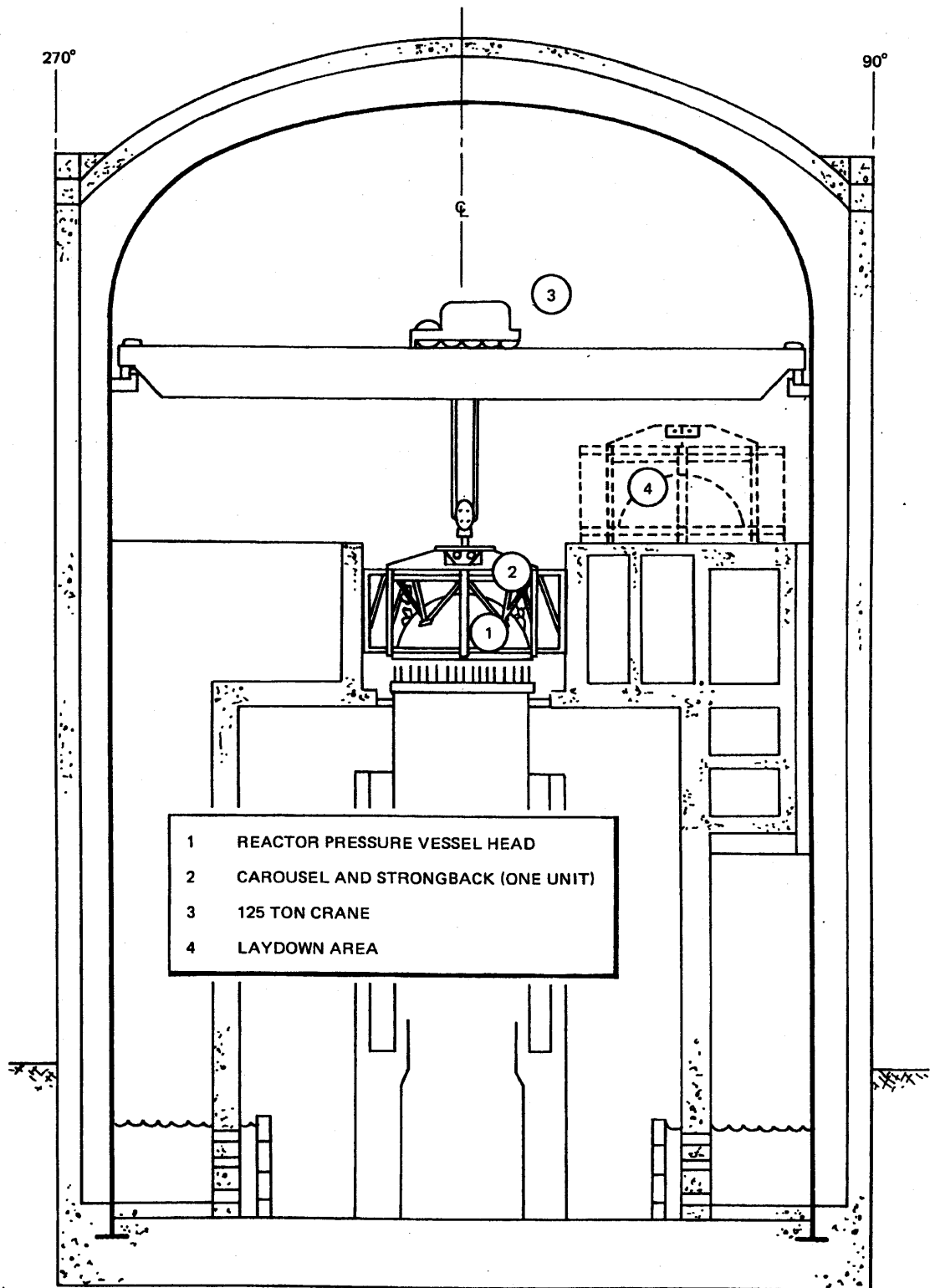
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**


Drywell Head Removal Sequence

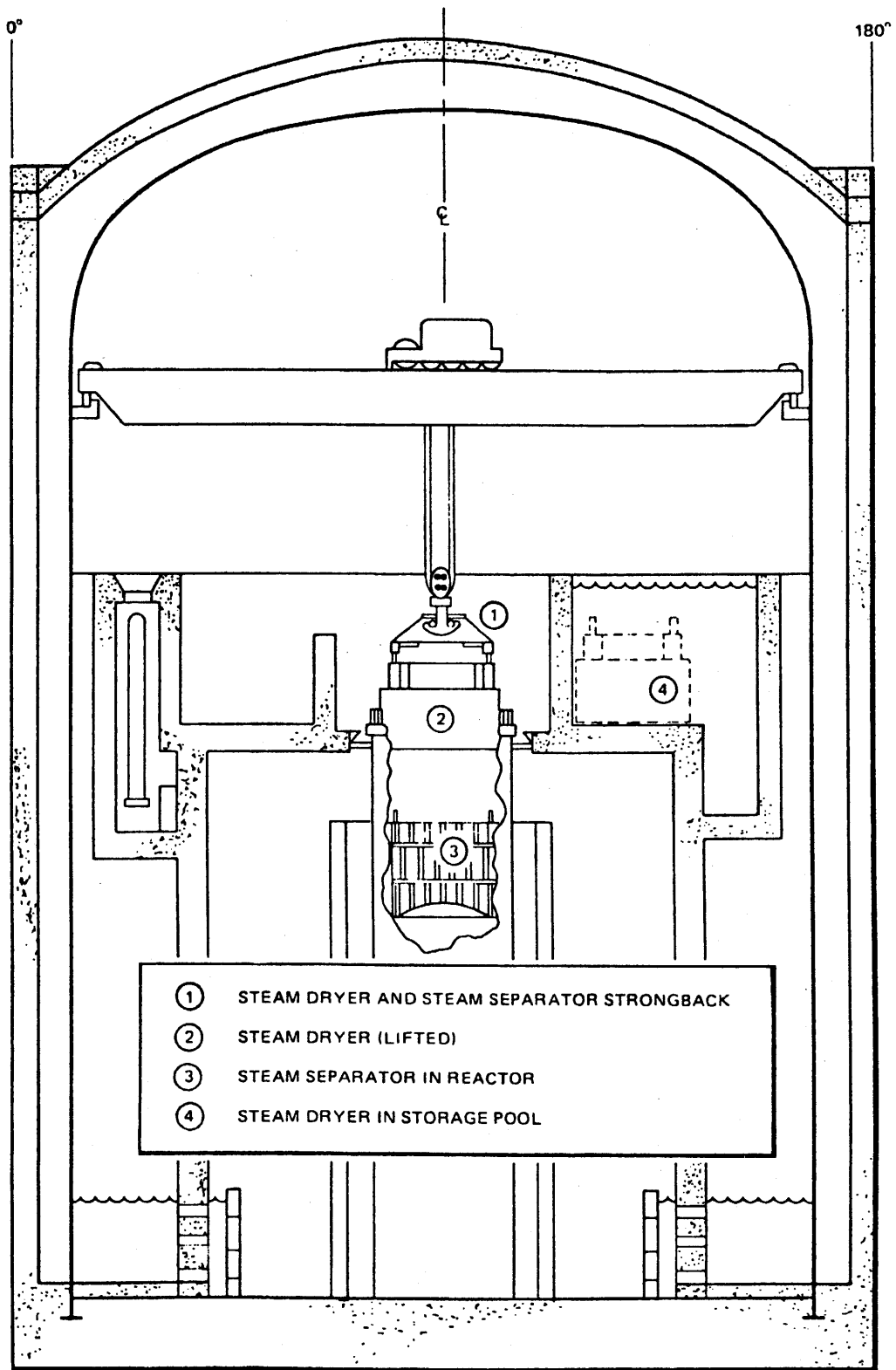
Figure 9.1-21



- |   |                                    |
|---|------------------------------------|
| 1 | REACTOR PRESSURE VESSEL HEAD       |
| 2 | CAROUSEL AND STRONGBACK (ONE UNIT) |
| 3 | 125 TON CRANE                      |
| 4 | LAYDOWN AREA                       |

(Rev. 12 1/03)

	<b>PERRY NUCLEAR POWER PLANT</b>
Reactor Vessel Head Removal Sequence	
Figure 9.1-22	



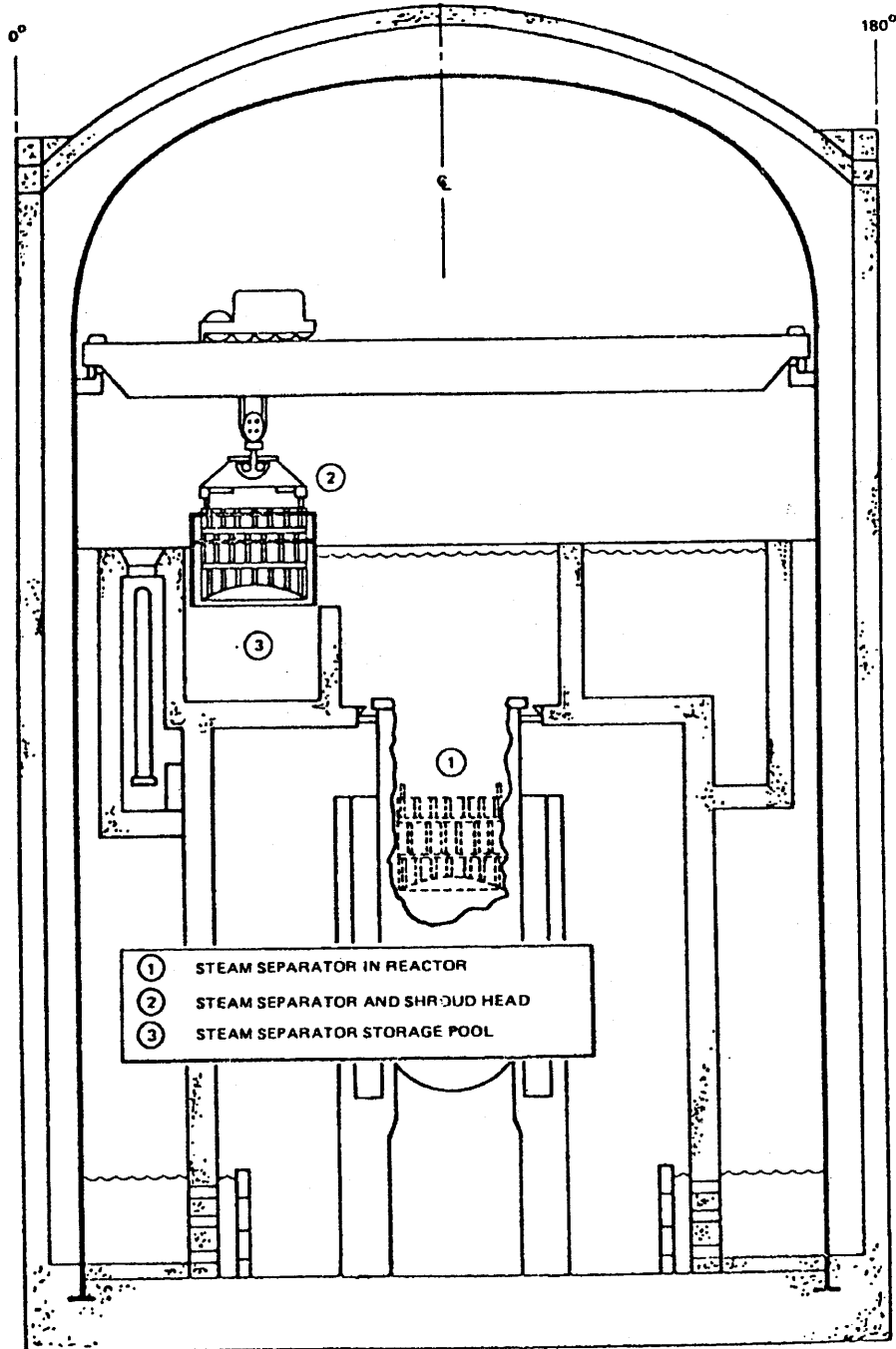
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Steam Dryer Removal Sequence

Figure 9.1-23



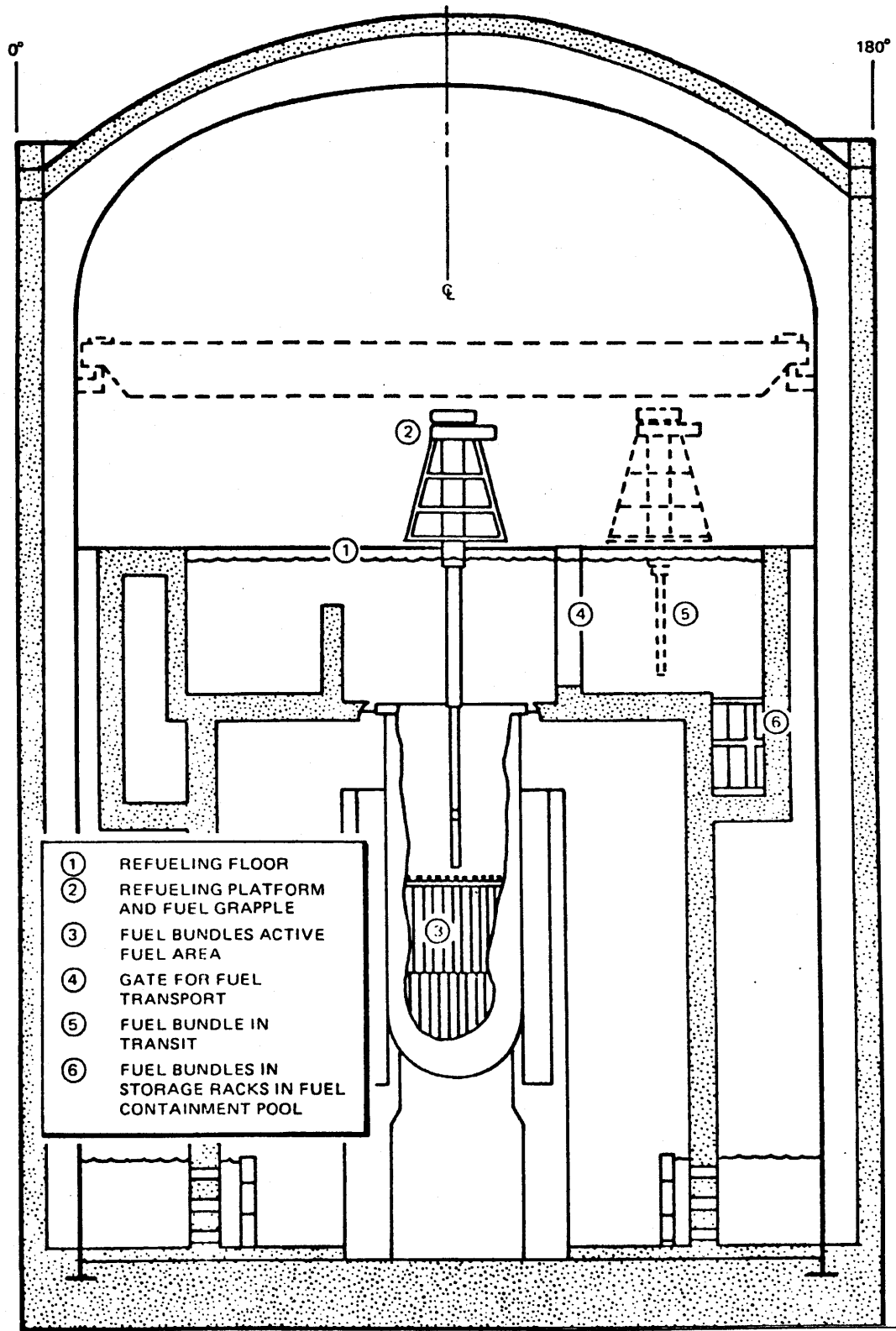
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

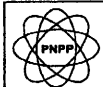
Steam Separator Removal Sequence

Figure 9.1-24



- ① REFUELING FLOOR
- ② REFUELING PLATFORM AND FUEL GRAPPLE
- ③ FUEL BUNDLES ACTIVE FUEL AREA
- ④ GATE FOR FUEL TRANSPORT
- ⑤ FUEL BUNDLE IN TRANSIT
- ⑥ FUEL BUNDLES IN STORAGE RACKS IN FUEL CONTAINMENT POOL

(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Fuel Bundle Transfer Sequence

Figure 9.1-25

Removed in Accordance with RIS 2015-17

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

FUEL HANDLING FACILITIES,  
LAYDOWN STUDY  
FIGURE 9.1-26  
(DWG. E-015-0045-00000)

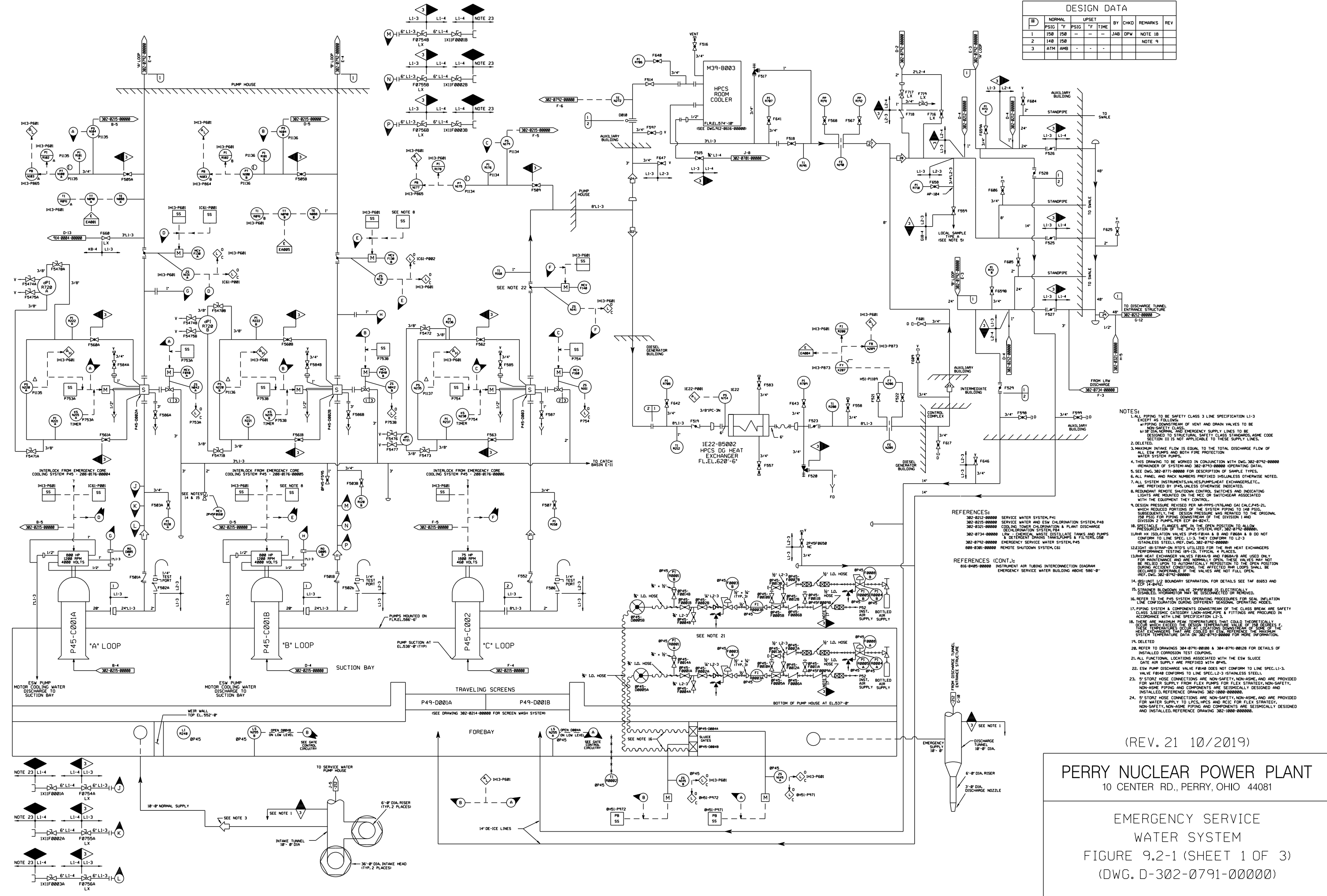
Removed in Accordance with RIS 2015-17

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

REACTOR REFUELING FLOOR  
LAYDOWN STUDY  
FIGURE 9.1-27  
(DWG. E-015-0044-00000)



DESIGN DATA							
#	NORMAL	UPSET	BY	CHKD	REMARKS	REV	
1	150	150	-	-	JAB	DPW	NOTE 18
2	140	150	-	-	-	-	NOTE 9
3	ATM	AMB	-	-	-	-	NOTE 9



(REV. 21 10/2019)

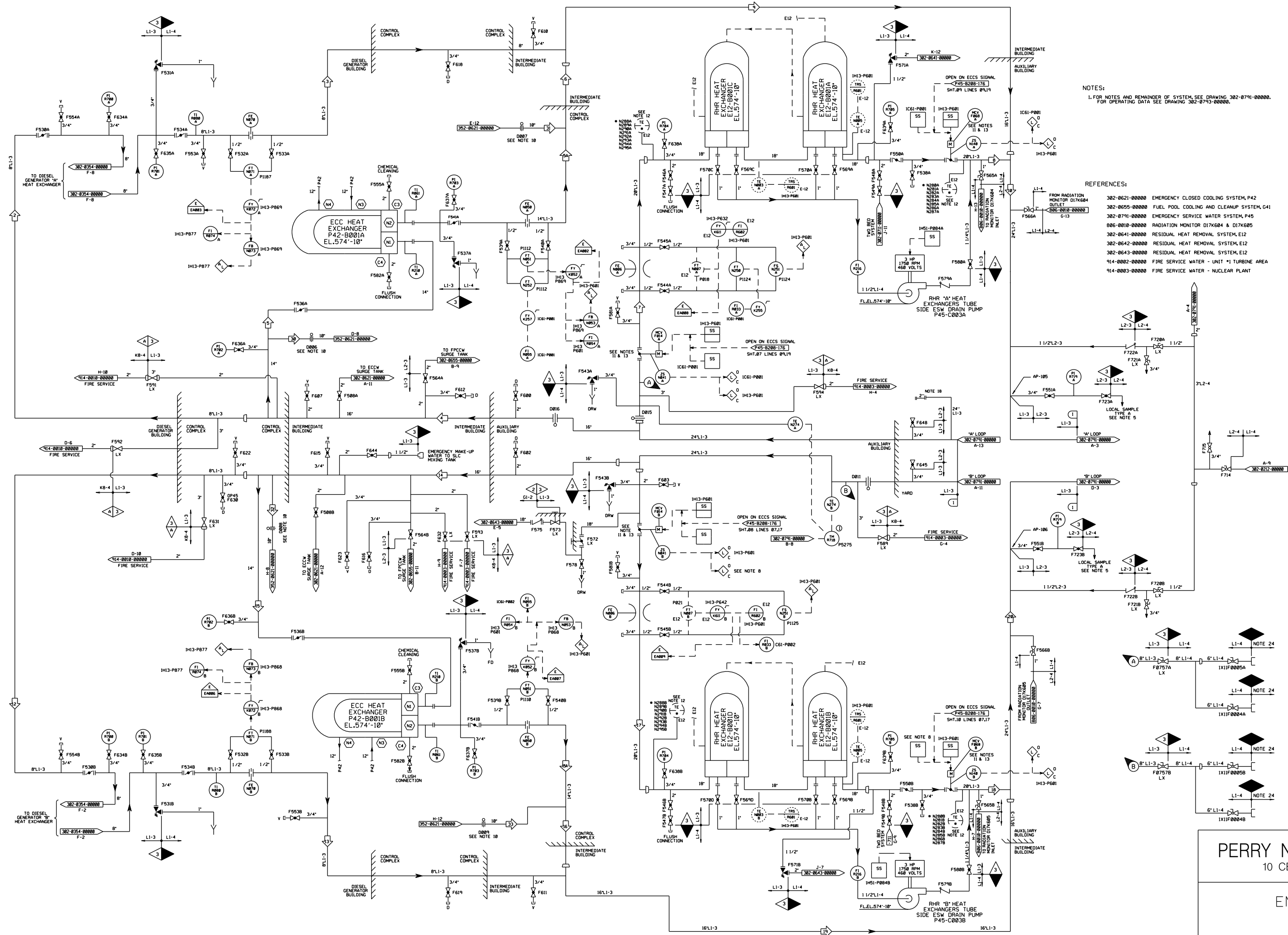
**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

**EMERGENCY SERVICE WATER SYSTEM**  
 FIGURE 9.2-1 (SHEET 1 OF 3)  
 (DWG. D-302-0791-00000)

- NOTES:**
1. ALL PIPING TO BE SAFETY CLASS 3 LINE SPECIFICATION L1-3 EXCEPT AS FOLLOWS:
    - a) PIPING CONTINUATION OF VENT AND DRAIN VALVES TO BE NON-SAFETY CLASS.
    - b) 18" DIA. NORMAL AND EMERGENCY SUPPLY LINES TO BE DESIGNED TO STRUCTURAL SAFETY CLASS STANDARDS, ASME CODE SECTION III IS NOT APPLICABLE TO THESE SUPPLY LINES.
  2. DELETED.
  3. MAXIMUM INTAKE FLOW IS EQUAL TO THE TOTAL DISCHARGE FLOW OF ALL ESW PUMPS AND BOTH FIRE PROTECTION WATER SYSTEM PUMPS.
  4. THIS DRAWING TO BE WORKED IN CONJUNCTION WITH DWG. 302-0792-00000 REMAINDER OF SYSTEM AND 302-0793-00000 OPERATING DATA.
  5. SEE DWG. 302-0771-00000 FOR DESCRIPTION OF SAMPLE TYPES.
  6. ALL PANEL AND RACK NUMBERS PREFIXED UNLESS OTHERWISE NOTED.
  7. ALL SYSTEM INSTRUMENTS, VALVES, PUMPS, HEAT EXCHANGERS, ETC., ARE PREFIXED BY IP45, UNLESS OTHERWISE INDICATED.
  8. REDUNDANT REMOTE SHUTDOWN CONTROL SWITCHES AND INDICATING LIGHTS ARE MOUNTED ON THE MCC OR SWITCHGEAR ASSOCIATED WITH THE EQUIPMENT THEY CONTROL.
  9. DESIGN PRESSURE REVISED PER WPPSS-1075LAND GAI CAL. P45-21, WHICH REDUCED PORTIONS OF THE SYSTEM PIPING TO 140 PSIG. SUBSEQUENTLY, THE DESIGN PRESSURE WAS REVERTED TO THE ORIGINAL 150 PSIG FOR PIPING DOWNSTREAM OF THE DIVISION 1 AND DIVISION 2 PUMPS. PER ECP 04-0247.
  10. SPECIFIC FLANGES ARE IN THE OPEN POSITION TO ALLOW PRESSURIZATION OF THE P45 SYSTEM. (REF. 302-0792-00000).
  11. LOW NO. ISOLATION VALVES (IP45-IP48 A & B AND IP48A & B) DO NOT CONFORM TO LINE SPEC. L1-3. THEY CONFORM TO L2-3 (STAINLESS STEEL, REF. DWG. 302-0792-00000).
  12. EIGHT (8) STRAIN-ON-RIDS UTILIZED FOR THE RHR HEAT EXCHANGERS PERFORMANCE TESTING (09-13). TYPICAL 4 PLACES.
  13. HEAT EXCHANGER VALVES (F848A & F848B) ARE USED ONLY FOR MAINTENANCE AND ARE NORMALLY OPEN. THESE VALVES MAY NOT BE RELIED UPON TO AUTOMATICALLY RESTRICT TO THE OPEN POSITION DURING ACCIDENT CONDITIONS. THE AFFECTED RHR LOOPS SHALL BE DECLARED INOPERABLE IF THE VALVES ARE NOT FULL OPEN. (REF. DWG. 302-0792-00000).
  14. (S) UNIT 1/2 BOUNDARY SEPARATION. FOR DETAILS SEE TAF 81653 AND ECP 14-0462.
  15. STRAINER BLOWDOWN VALVE (P45F816) IS ELECTRICALLY DISABLED. HYDROMOTOR MAY BE DISCONNECTED OR REMOVED.
  16. REFER TO THE P45 SYSTEM OPERATING PROCEDURES FOR SEAL INFLATION LINE CONFIGURATION DURING DIFFERENT SEASONAL OPERATING MODES.
  17. PIPING SYSTEM & COMPONENTS DOWNSTREAM OF THE CLASS B BREAK ARE SAFETY CLASS 3 SEISMIC CATEGORY L10N-ASME PIPE & FITTINGS ARE PROVIDED IN ACCORDANCE WITH LINE SPECIFICATION L2-3.
  18. THERE ARE MAXIMUM PEAK TEMPERATURES THAT COULD THEORETICALLY OCCUR WHICH EXCEED THE DESIGN TEMPERATURE VALUE OF THE GROUPS F, HEAT EXCHANGERS THAT ARE LOCATED DOWNSTREAM OF THE MAXIMUM SYSTEM TEMPERATURE DATA ON 302-0793-00000 FOR MORE INFORMATION.
  19. DELETED.
  20. REFER TO DRAWINGS 304-0791-00000 & 304-0791-00020 FOR DETAILS OF INSTALLED CORROSION TEST COUPONS.
  21. ALL FUNCTIONAL LOCATIONS ASSOCIATED WITH THE ESW SLUICE GATE AIR SUPPLY ARE PREFIXED WITH BP45.
  22. ESW PUMP DISCHARGE VALVE (F848) DOES NOT CONFORM TO LINE SPEC. L1-3. WHILE F848 CONFORMS TO LINE SPEC. L2-3 (STAINLESS STEEL).
  23. 5<sup>ST</sup> STORZ HOSE CONNECTIONS ARE NON-SAFETY, NON-ASME, AND ARE PROVIDED FOR WATER SUPPLY FROM FLEX PUMPS FOR FLEX STRATEGY, NON-SAFETY, NON-ASME PIPING AND COMPONENTS ARE SEISMICALLY DESIGNED AND INSTALLED. REFERENCE DRAWING 302-1000-00000.
  24. 15<sup>ST</sup> STORZ HOSE CONNECTIONS ARE NON-SAFETY, NON-ASME, AND ARE PROVIDED FOR WATER SUPPLY TO LPCS, HPCS AND RCIC FOR FLEX STRATEGY, NON-SAFETY, NON-ASME PIPING AND COMPONENTS ARE SEISMICALLY DESIGNED AND INSTALLED. REFERENCE DRAWING 302-1000-00000.

- REFERENCES:**
- 302-0212-00000 SERVICE WATER SYSTEM, P41
  - 302-0215-00000 SERVICE WATER AND ESW CHLORINATION SYSTEM, P48
  - 302-0221-00000 COOLING TOWER CHLORINATION & PLANT DISCHARGE DECHLORINATION SYSTEM, P44
  - 302-0724-00000 LW - CHEMICAL MASTER DISTILLATE TANKS AND PUMPS
  - 302-0792-00000 EMERGENCY SERVICE WATER SYSTEM, P45
  - 088-0281-00000 REMOTE SHUTDOWN SYSTEM, C61
- REFERENCES (CONT.):**
- 816-0495-00000 INSTRUMENT AIR TUBING INTERCONNECTION DIAGRAM EMERGENCY SERVICE WATER BUILDING ABOVE 580'-0"

DESIGN DATA							
#	NORMAL	UPSET	BY	CHKD	REMARKS	REV	
1	150	150	-	-	JAB	DPW	NOTE 18



NOTES:  
 1. FOR NOTES AND REMAINDER OF SYSTEM, SEE DRAWING 302-0791-00000.  
 FOR OPERATING DATA SEE DRAWING 302-0793-00000.

- REFERENCES:
- 302-0621-00000 EMERGENCY CLOSED COOLING SYSTEM, P42
  - 302-0655-00000 FUEL POOL COOLING AND CLEANUP SYSTEM, G41
  - 302-0791-00000 EMERGENCY SERVICE WATER SYSTEM, P45
  - 806-0010-00000 RADIATION MONITOR D17K604 & D17K605
  - 302-0641-00000 RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 302-0642-00000 RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 302-0643-00000 RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 914-0002-00000 FIRE SERVICE WATER - UNIT #1 TURBINE AREA
  - 914-0003-00000 FIRE SERVICE WATER - NUCLEAR PLANT

(REV. 22 10/2021)

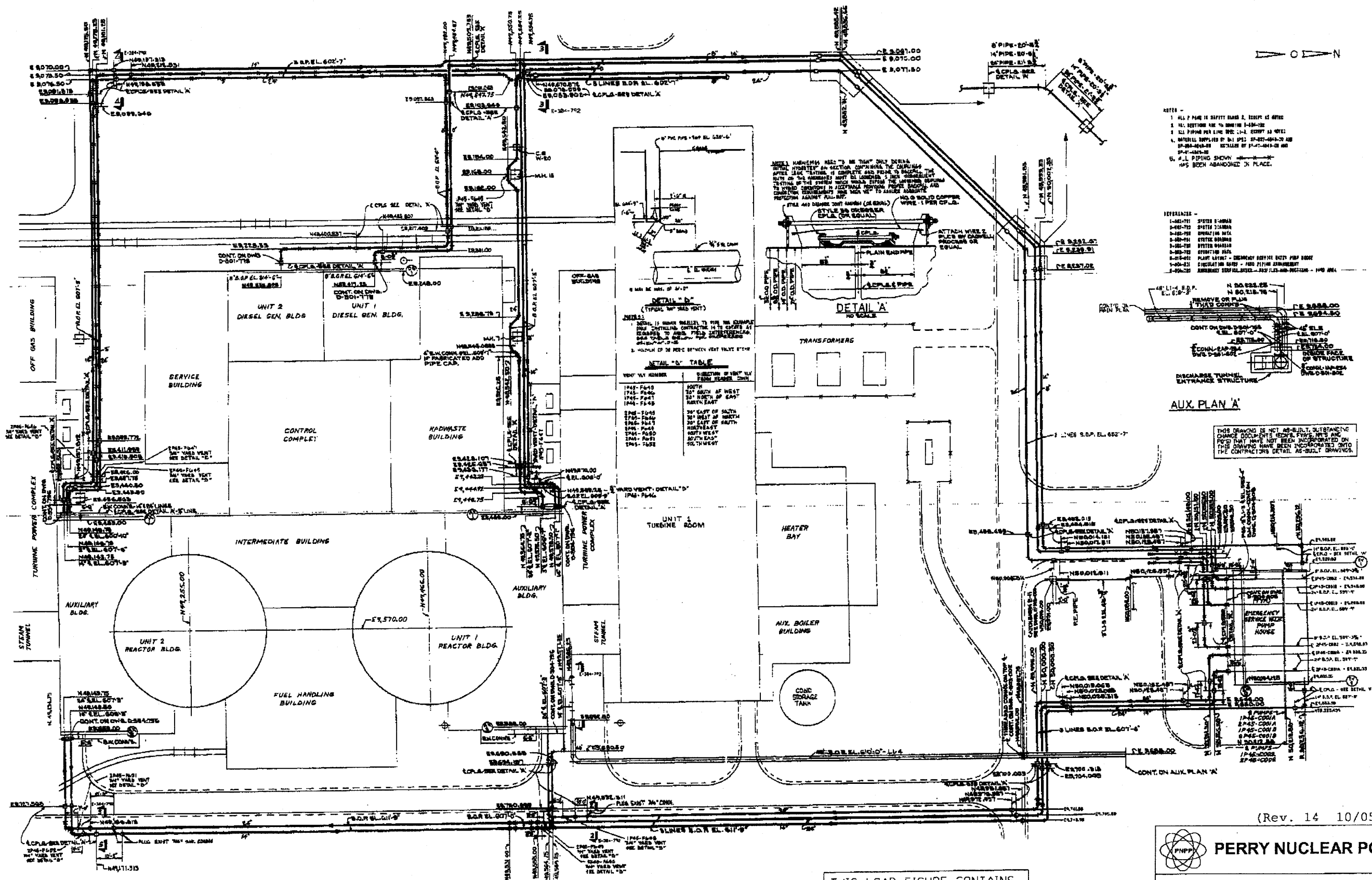
**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

EMERGENCY SERVICE  
 WATER SYSTEM  
 FIGURE 9.2-1 (SHEET 2 OF 3)  
 (DWG. D-302-0792-00000)

COMPONENT	HEAT LOADS (x 10 BTU/HR)						OPERATING DATA																														
	MODE OF OPERATION					NOTES	MODE A HOT STANDBY WITH LOSS OF PREFERRED AC POWER (NOTE 10)					MODE B NORMAL SHUTDOWN (NOTE 11)					MODE C CONTINUATION OF NORMAL SHUTDOWN (NOTE 5 & 11)					MODE D POST ACCIDENT WITH LOSS OF PREFERRED AC POWER (NOTE 10)					MODE E POST ACCIDENT WITH LOSS OF PREFERRED AC POWER AND CROSS TIE TO G41 FPCC HX VALVED IN (NOTE 10)					MAXIMUM SYSTEM TEMPERATURES SAME AS MODE 'E' EXCEPT HX'S ARE CLEAN AND OTHER IDEAL CONDITIONS EXIST (NOTES 10 & 12)					
	A	B	C	D	E		PSIG	GPM	T	BY	REMARKS	REV	PSIG	GPM	T	BY	REMARKS	REV	PSIG	GPM	T	BY	REMARKS	REV	PSIG	GPM	T	BY	REMARKS	REV	PSIG	GPM	T	BY	REMARKS	REV	
STANBY D/G 'A'	28,650	0	0	28,650	28,650	2	54	787	85			2	54	875	85			2	54	875	85			2	54	787	85			2	54	787	85	787	85		
ECC HX 'A'	7,583	8,524	8,216	8,291	8,291 (17)	3	34	797	138			3	34	875	85			3	34	875	85			3	34	797	138			3	34	885	169**	797	138*	**SAME AS MODES DAE	**SEE NOTE 16
RHR HX 'A'	83,149	135,108	46,900	158,488	158,488	4	63	3431	85			4	63	3794	85			4	63	3795	85			4	63	3431	85			4	63	3431	85	3431	85		
FUEL POOL HX	0	0	0	0	14,800	5	58	2812	85			5	58	2211	85			5	58	2211	85			5	58	2812	85			5	58	2812	85	2812	85		
TOTALS FOR LOOP 'A'	111,382	135,624	47,116	187,341	281,341	5A	57	2814	93			5A	57	2212	86			5A	57	2212	86			5A	57	2815	94			5A	57	2819	182	2819	182*	**SAME AS PEAK	
STANBY D/G 'B'	28,650	0	0	28,650	28,650	7	57	6687	85			6	56	2928	86			6	56	2653	103			6	56	2653	103			6	56	2658	113	2658	109		
ECC HX 'B'	7,583	8,524	8,216	8,291	8,291 (17)	8	49	5938	114			8	49	6669	125			8	49	5972	139			8	49	5972	139			8	49	6803	157**	5972	139*	**SAME AS MODES DAE	**SEE NOTE 16
RHR HX 'B'	83,149	135,108	46,900	158,488	158,488	9	22	3442	103			9	22	3775	86			9	22	3775	86			9	22	3447	112			9	22	3459	126	3451	116		
FUEL POOL HX	0	0	0	0	14,800	10	19	9378	118			10	19	10441	111			10	19	9487	126			10	19	9416	130			10	19	9466	146	9419	131		SEE NOTE 14
TOTALS FOR LOOP 'B'	111,382	135,624	47,116	187,341	281,341	11	69	9327	85			11	69	10481	85			11	69	9327	85			11	69	9327	85			11	69	9327	85	9327	85		
HPCS D/G	8,588	8,588	8,588	8,588	8,588	13	31	797	138			13	31	875	85			13	31	875	85			13	31	797	138			13	31	885	169**	797	138*	**SAME AS MODES DAE	**SEE NOTE 16
HPCS IM CLR	8,473	8,473	8,473	8,473	8,473	14	65	3431	85			14	65	3794	85			14	65	3431	85			14	65	3431	85			14	65	3431	85	3431	85		
TOTALS FOR COOLING LOOP FOR HPCS	9,053	9,053	9,053	9,053	9,053	15A	57	2814	93			15A	57	2212	86			15A	57	2212	86			15A	57	2815	94			15A	57	2819	182	2819	182*	**SAME AS PEAK	
						16	56	2646	92			16	56	2928	86			16	56	2653	103			16	56	2653	103			16	56	2658	113	2658	109		
						17	55	5896	85			17	55	6687	85			17	55	5896	85			17	55	5896	85			17	55	5896	85	5896	85		
						18	47	5938	114			18	47	6669	125			18	47	5972	139			18	47	5972	139			18	47	6803	157**	5972	139*	**SAME AS MODES DAE	**SEE NOTE 16
						19	22	3442	103			19	22	3775	86			19	22	3775	86			19	22	3447	112			19	22	3459	126	3451	116		
						20	20	9378	118			20	20	10441	111			20	20	9487	126			20	20	9416	130			20	20	9466	146	9419	131		SEE NOTE 14
						21	84	611	85			21	84	611	85			21	84	611	85			21	84	611	85			21	84	611	85	611	85		
						22	78	526	85			22	78	526	85			22	78	526	85			22	78	526	85			22	78	526	85	526	85		
						23	95	538	118			23	95	538	118			23	95	538	118			23	95	538	118			23	95	538	118	538	118*	**SAME AS MODES DAE	**SEE NOTE 16
						24	75	85	85			24	75	85	85			24	75	85	85			24	75	85	85			24	75	85	85	85	85		
						25	-	-	-			25	-	-	-			25	-	-	-			25	-	-	-			25	-	-	-	-	-		
						26	-	-	-			26	-	-	-			26	-	-	-			26	-	-	-			26	-	-	-	-	-		
						27	74	86	97			27	74	86	97			27	74	86	97			27	74	86	97			27	74	86	97	106*	86		**SAME AS PEAK
						28	21	615	116			28	21	615	116			28	21	622	152	615	117			28	21	622	152	615	117					SEE NOTE 14	
						29	8	19358	111	SEE NOTE 13		29	8	20801	111	SEE NOTE 13		29	8	19438	126	SEE NOTE 13		29	8	19449	130	SEE NOTE 13		29	8	19558	147*	19455	131		SEE NOTE 13
						30	56	632	85	SEE NOTE 8		30	56	788	85	SEE NOTE 8		30	56	632	85	SEE NOTE 8		30	56	632	85	SEE NOTE 8		30	56	632	85	632	85		SEE NOTE 8
						31	27	632	85	SEE NOTE 8		31	27	788	85	SEE NOTE 8		31	27	632	85	SEE NOTE 8		31	27	638	130	SEE NOTE 8		31	27	641	146	638	130*		**SAME AS MODE E SEE NOTE 8 & 16
						32	54	632	85	SEE NOTE 8		32	54	788	85	SEE NOTE 8		32	54	632	85	SEE NOTE 8		32	54	632	85	SEE NOTE 8		32	54	632	85	632	85		SEE NOTE 8
						33	26	632	85	SEE NOTE 8		33	26	788	85	SEE NOTE 8		33	26	632	85	SEE NOTE 8		33	26	638	130	SEE NOTE 8		33	26	641	146	638	130*		**SAME AS MODE E SEE NOTE 8 & 16

- NOTES:
1. MAXIMUM AT (POST ACCIDENT) FROM INLET TO OUTLET TUBE SIDE OF ONE RHR HX. LOOP ASSUMES ONLY ONE RHR HX LOOP IS OPERATING.
  2. DELETED.
  3. COOLING LOOP FOR HPCS COMPONENTS IS NOT REQUIRED DURING MODES 'B' AND 'C'.
  4. DELETED.
  5. HEAT LOADS FOR MODE 'C' OCCUR AFTER 20 HOURS OF OPERATION.
  6. DENOTES MAXIMUM OPERATING TEMPERATURE DURING NORMAL OPERATIONS WITH ESW INLET TEMPERATURE OF 85°F. MINIMUM TEMPERATURE FOR ALL MODES AND FLOWS IS 33°F.
  7. FLOW RATE, PRESSURE AND TEMPERATURE VALUES ARE BASED ON CALCULATIONS FOR THE APPLICABLE OPERATING CONDITIONS. MINIMUM REQUIRED FLOW RATES TO ALL OF THE ESW HEAT LOADS ARE AS SHOWN. OPERATIONAL PRESSURE MAY VARY AS LONG AS MINIMUM FLOW RATES TO THE ESW HEAT LOADS ARE MAINTAINED.
  8. FLOW TO THE FUEL POOL HEAT EXCHANGER IS NOT THROTTLED AND MAY BE SIGNIFICANTLY HIGHER THAN THE MINIMUM FLOW RATES SHOWN.
  9. THE VOLUMETRIC FLOW RATES SHOWN (GPM) HAVE BEEN CONVERTED FROM THE MASS FLOW RATE AT EACH LOCATION USING THE RESPECTIVE TEMPERATURE.
  10. THE FLOW RATES SHOWN FOR MODES 'D', 'E' AND THE MAXIMUM OPERATING TEMPERATURE CASE REPRESENT THE MINIMUM ESW FLOW RATES REQUIRED FOR HEAT REMOVAL DURING THE DESIGN BASIS ACCIDENT. THESE FLOW RATES ARE BASED ON SPECIFIC ASSUMPTIONS CONTAINED IN DESIGN BASIS HEAT EXCHANGER (HX) PERFORMANCE CALCULATIONS. THESE SAME FLOW RATES WERE ALSO CONSERVATIVELY ASSUMED FOR MODE 'A'. THESE VALUES REPRESENT DESIGN MINIMUMS AND DO NOT INCLUDE ALLOWANCES FOR FLOW DEGRADATION NOR INSTRUMENT INACCURACIES. FOR TESTING ACCEPTANCE CRITERIA REFER TO THE APPLICABLE TEST PROCEDURES AND SUPPORTING CALCULATIONS.
  11. THE FLOW RATES SHOWN FOR MODES 'B' AND 'C' REPRESENT THE MINIMUM ESW FLOW RATES THAT ARE REQUIRED TO BE PRESENT DURING NORMAL PLANT OPERATION. THESE FLOW RATES ARE HIGHER THAN THE ACCIDENT FLOW RATES SINCE THEY ACCOUNT FOR DEGRADATIONS THAT ARE EXPECTED TO OCCUR DURING AN ACCIDENT. THESE FLOW RATES DO NOT INCLUDE ALLOWANCES FOR INSTRUMENT INACCURACIES. FOR TESTING ACCEPTANCE CRITERIA REFER TO THE APPLICABLE TEST PROCEDURES AND SUPPORTING CALCULATIONS.
  12. THE MAXIMUM SYSTEM TEMPERATURES IDENTIFIED ARE BOUNDING VALUES THAT SHOULD BE USED FOR EVALUATION OF ASME CODE COMPONENTS ONLY. AT LOCATIONS WHERE PEAK TEMPERATURES OCCUR EXIT SIDE OF SOME HEAT EXCHANGERS THESE TEMPERATURES ARE CONSIDERED TO BE 'ABNORMAL' TEMPERATURE VALUES. REFERENCE THE APPROPRIATE DESIGN BASIS CALCULATIONS FOR DETAILS AND ADDITIONAL INFORMATION.
  13. THE FLOW RATES IDENTIFIED FOR LOCATION #29 REPRESENT THE COMBINATION OF FLOW FROM ALL THREE LOOPS OF ESW. THE TEMPERATURES IDENTIFIED AT FLOW LOCATION #29 ARE THE MAXIMUM VALUES POSSIBLE THAT COULD RESULT IN THIS CONFIGURATION OR IN ANY COMBINATION OF INSERVICE LOOPS ASSUMING SINGLE LOOP FAILURE.
  14. THE VALUES SHOWN ALSO REPRESENT THE TEMPERATURES THAT COULD BE PRESENT IN THE COMMON DISCHARGE HEADER (FLOW LOCATION #29) DURING NORMAL PLANT OPERATION WHEN LOOP SURVEILLANCE TESTING IS PERFORMED.
  15. THE TEMPERATURE SHOWN MAY BE EXCEEDED DURING NORMAL PLANT OPERATION WHEN DIV 3 DIESEL LOOP SURVEILLANCE TESTING IS PERFORMED. SEE TEMPERATURES AT FLOW LOCATIONS #10, #28 AND #29.
  16. THE PEAK PROCESS FLUID TEMPERATURE SHOWN IS CONSIDERED TO BE AN 'ABNORMAL' TEMPERATURE CONDITION AND SHALL BE TREATED AS SUCH DURING EVALUATION OF THE AFFECTED ASME CODE COMPONENTS (IE PIPING, SUPPORTS, VALVES, ETC.).
  17. THE HEAT LOAD VALUES IN THE TABLE FOR THE ECC HX REPRESENT THE MAXIMUM HEAT LOAD THAT COULD BE PRESENT FOR EITHER LOOP A OR LOOP B. THIS SIMPLIFIES THE INFORMATION SHOWN AND RESULTS IN THE IDENTIFICATION OF CONSERVATIVE HX OUTLET TEMPERATURES.

(REV. 22 10/2021)



- NOTES -
1. ALL PIPING IS SHOWN AS 2" DIA. UNLESS NOTED OTHERWISE.
  2. ALL PIPING PER LINE SPEC. IS TO BE INSTALLED AS SHOWN.
  3. MATERIAL SUPPLIED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
  4. ALL PIPING SHOWN IS TO BE INSTALLED AS SHOWN UNLESS NOTED OTHERWISE.
  5. ALL PIPING SHOWN IS TO BE INSTALLED AS SHOWN UNLESS NOTED OTHERWISE.

- REFERENCE -
- 1-100-100 SYSTEM SCHEDULE
  - 1-100-101 SYSTEM SCHEDULE
  - 1-100-102 SYSTEM SCHEDULE
  - 1-100-103 SYSTEM SCHEDULE
  - 1-100-104 SYSTEM SCHEDULE
  - 1-100-105 SYSTEM SCHEDULE
  - 1-100-106 SYSTEM SCHEDULE
  - 1-100-107 SYSTEM SCHEDULE
  - 1-100-108 SYSTEM SCHEDULE
  - 1-100-109 SYSTEM SCHEDULE
  - 1-100-110 SYSTEM SCHEDULE

AUX. PLAN 'A'

THIS DRAWING IS NOT AS-BUILT, OUTSTANDING DISCREPANCIES BETWEEN THIS DRAWING AND THE AS-BUILT DRAWINGS HAVE BEEN INDICATED BY THE CONTRACTOR'S DETAIL AS-BUILT DRAWINGS.

DETAIL 'D' TABLE

VENT NO. NUMBER	DIRECTION OF FLOW	FROM	TO
1745-1746	SOUTH	1745-1746	1745-1746
1745-1747	1/2" SOUTH OF WEST	1745-1747	1745-1747
1745-1748	1/2" NORTH OF EAST	1745-1748	1745-1748
1745-1749	1/2" EAST OF SOUTH	1745-1749	1745-1749
1745-1750	1/2" WEST OF NORTH	1745-1750	1745-1750
1745-1751	1/2" WEST OF SOUTH	1745-1751	1745-1751
1745-1752	NORTHWEST	1745-1752	1745-1752
1745-1753	SOUTHWEST	1745-1753	1745-1753

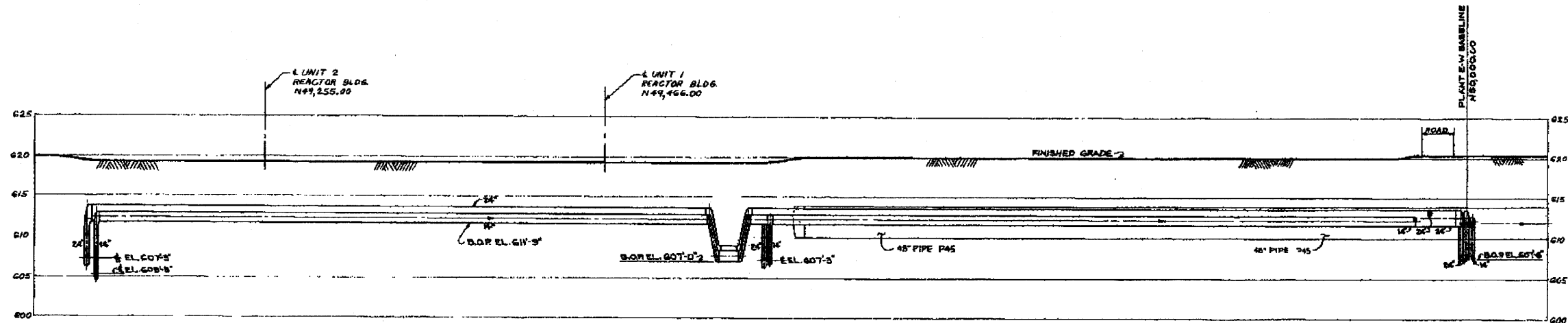
THIS USAR FIGURE CONTAINS HISTORICAL INFORMATION. FOR CURRENT INFORMATION SEE ASSOCIATED SYSTEM DIAGRAM USAR FIGURE.

(Rev. 14 10/05)

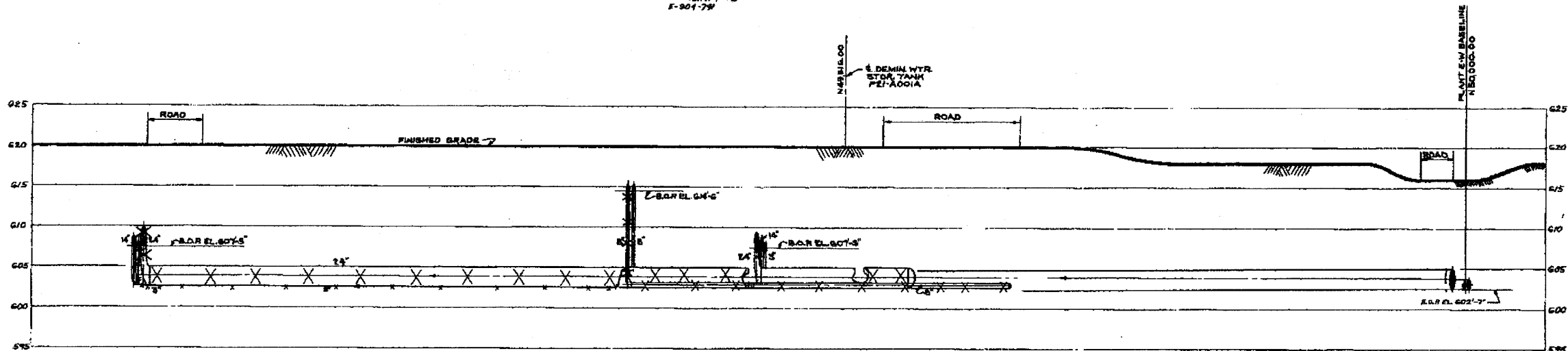
**PERRY NUCLEAR POWER PLANT**

Emergency Service Water Plan,  
Yard Area, Units 1 & 2

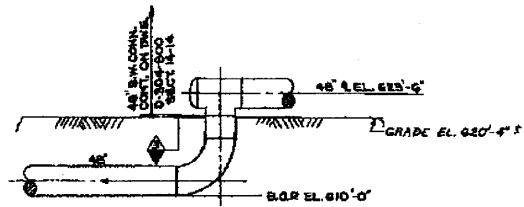
Figure 9.2-2 (Sheet 1 of 2)  
(Dwg. D-304-791)



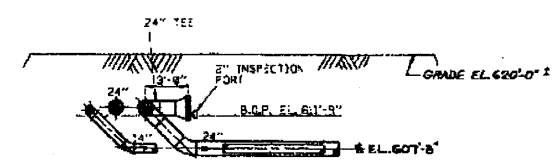
PROFILE - EAST SIDE (LOOKING WEST)  
SCALE: HORIZ. 1" = 25'  
VERT. 1" = 5'  
E-304-791



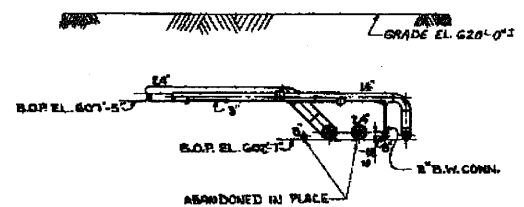
PROFILE - WEST SIDE (LOOKING WEST)  
SCALE: HORIZ. 1" = 25'  
VERT. 1" = 5'  
E-304-791



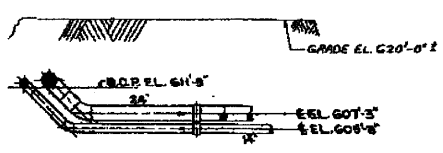
SECTION 1-1  
SCALE: 1" = 1'-0"  
E-304-791 (A-10)



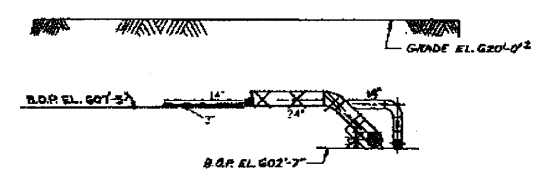
SECTION 2-2  
SCALE: 1" = 1'-0"  
E-304-791 (A-10)



SECTION 3-3  
SCALE: 1" = 1'-0"  
E-304-791 (A-11)



SECTION 5-5  
SCALE: 1" = 1'-0"  
E-304-791 (A-10)



SECTION 4-4  
SCALE: 1" = 1'-0"  
E-304-791 (A-10)

THIS DRAWING IS NOT A FINAL, CUSTOMER CHANGE OR REVISIONS. REVISIONS, MISC. AND PDS THAT HAVE NOT BEEN INCORPORATED ON THIS DRAWING HAVE BEEN INCORPORATED INTO THE CONTRACTOR'S DETAIL AS-BUILT DRAWINGS.

NOTES:  
1. FOR NOTES AND REFERENCES, SEE DWG. E-304-791.  
2. ALL PIPING SHOWN \* \* \* HAS BEEN ABANDONED IN PLACE.

(Rev. 14 10/05)

**PERRY NUCLEAR POWER PLANT**

Emergency Service Water Profile & Sections, Yard Area, Units 1 & 2

Figure 9.2-2 (Sheet 2 of 2)  
(Dwg. E-304-792)

DESIGN DATA						
D	PSIG #F	PSIG #F	BY	CHK	REMARKS	REV
1	ATM	110	JAB			
2	150	150	JAB			

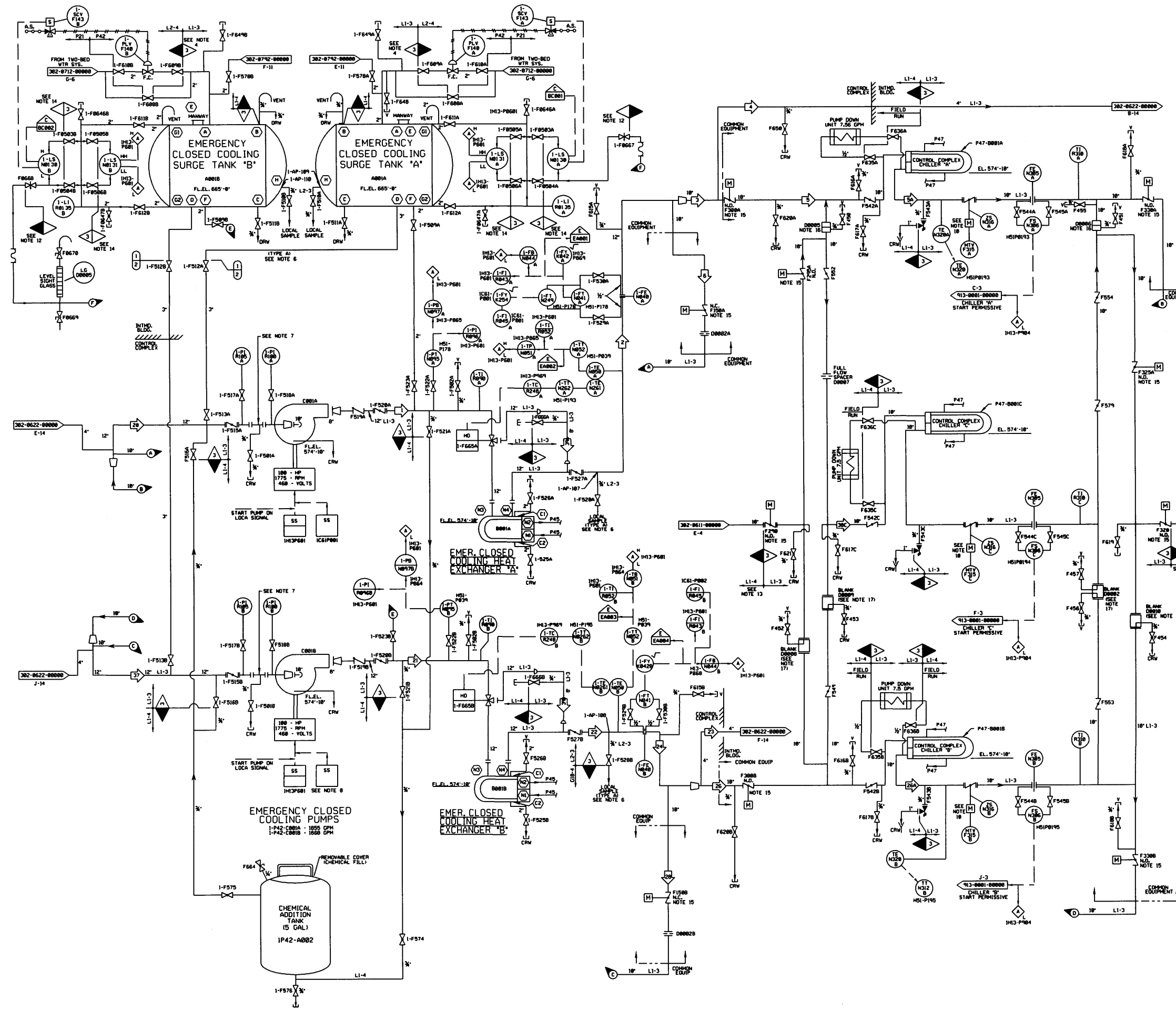
- NOTES:
- ALL VENTS AND DRAINS ARE NON-SAFETY CLASS LINE SPEC. AFTER SHUTDOWN VALVE, SURGE TANK VENT FLOW MUST BE DIRECTED TO COLLECTION FACILITY WITH NON-COLLAPSIBLE HOSE OR TUBING AS NECESSARY, END OF HOSE SHALL BE INSERTED WELL WITHIN FLOOR DRAIN TO AVOID SPRAYING. HOSE SHALL BE SUPPORTED WITH PLASTIC TIE WRAPS OR EQUIVALENT AT APPROX. 4'-0" SPACING.
  - BALANCE OF SYSTEM IS SAFETY CLASS 3, UNLESS OTHERWISE NOTED. SAFETY CLASS LINE SPECIFICATION IS LI-3.
  - FOR OPERATING DATA, SEE DWG. 302-0622-00000.
  - TWO-BED MAKEUP SYSTEM - VALVES ARE NON-SAFETY CLASS BECAUSE THEY WILL NOT RESTRICT THE SUPPLY OF MAKEUP TO THE ECCV SURGE TANKS DURING AN EMERGENCY CONDITION. EMERGENCY SERVICE WATER MAKEUP CONNECTION IS LOWER THAN THE TWO-BED WATER CONNECTION.
  - ALL SYSTEM INSTRUMENTS, VALVES, PUMPS, HEAT EXCHANGERS, ETC. ARE PREFIXED BY PA2, UNLESS OTHERWISE INDICATED.
  - SEE DWG. 302-0771-00000 FOR DESCRIPTION OF SAMPLE TYPES.
  - TEMPORARY STRAINERS D001A AND B USED FOR START-UP ONLY ARE REMOVED FOR PLANT OPERATION.
  - REDUNDANT REMOTE SHUTDOWN CONTROL SWITCH MOUNTED ON PUMP SWITCHGEAR.
  - DELETED.
  - TEMPERATURE ELEMENTS 0P42M02300B AND C AND TEMPERATURE TRANSMITTERS 0P42M03120A AND C ARE SPARED IN PLACE. VALVES 0P42F0300A AND C HAVE THEIR POWER REMOVED AND ARE CONTROLLED MANUALLY.
  - DELETED.
  - VALVES F0667/F0668 ARE NORMALLY CLOSED DURING OPERATION. THESE VALVES ARE BOUNDARY VALVES BETWEEN NON-CODE SAFETY PIPING AND NON-CODE. NON-SAFETY PIPING, THE VALVES ISOLATE THE NON-SAFETY SIGHT CLASS INSTRUMENT FROM THE ECCV SYSTEM. FLEX HOSES MAY BE REMOVED DURING PLANT OPERATION.
  - THE NON-SAFETY LINES UPSTREAM OF F0650 AND DOWNSTREAM OF F0228 HAVE BEEN SEISMICALLY QUALIFIED AS SEISMIC CATEGORY 1 UP TO PLANT ELEVATION 574'-3". THIS QUALIFICATION WILL PREVENT AN INVENTORY LOSS FROM THE PA2 SYSTEM IN A SEISMIC EVENT.
  - NON-CODE SAFETY RELATED.
  - VALVES HAVE HAD THEIR POWER REMOVED AND ARE CONTROLLED MANUALLY.
  - WELDED PIPING BLINDS D0005 & D0006 WITH INTEGRAL VENT VALVES HAVE BEEN INSTALLED TO ISOLATE ECCV LOOP 'W' FROM THE NCCV SYSTEM.
  - FLANGED PIPING BLANKS D0008, D0009 & D0010 WITH INTEGRAL DRAIN OR VENT VALVES AND PIPING BLANK D0002 HAVE BEEN INSTALLED TO ISOLATE ECCV LOOP 'B' FROM NCCV.

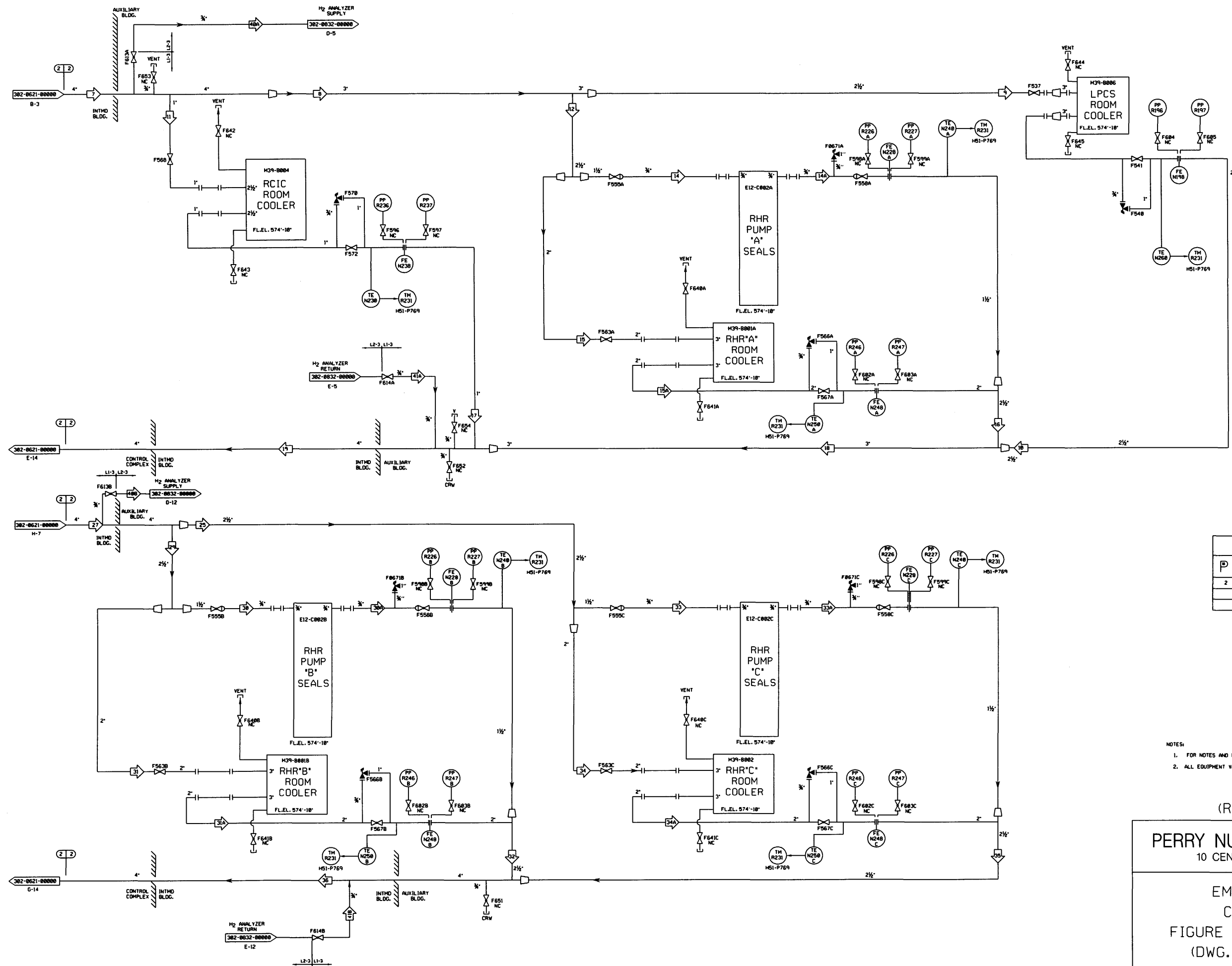
- REFERENCES:
- 302-0611-00000 NUCLEAR CLOSED COOLING SYSTEM, P43
  - 302-0622-00000 EMERGENCY CLOSED COOLING SYSTEM, P42
  - 302-0712-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM MIDDLE ZONE DISTRIBUTION, P21
  - 302-0771-00000 NUCLEAR SAMPLING SYSTEM, P34
  - 302-0792-00000 EMERGENCY SERVICE WATER SYSTEM, P45
  - 302-0832-00000 COMBUSTIBLE GAS CONTROL HYDROGEN ANALYSIS SYSTEM, H51
  - 913-0001-00000 CONTROL COMPLEX CHILLED WATER, P47

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

EMERGENCY CLOSED COOLING SYSTEM  
FIGURE 9.2-3 (SHEET 1 OF 4)  
(DWG. D-302-0621-00000)





DESIGN DATA							
D	NORMAL	UPSET	BY	CKD	REMARKS	REV	
2	PSIG #F	PSIG #F	TIME	JAB	RTW		
	150	150					

- NOTES:
- FOR NOTES AND REFERENCES, REFER TO DWG. D-302-0621-00000.
  - ALL EQUIPMENT VALVE AND INSTRUMENT NUMBERS HAVE A UNIT 1 PREFIX.

(REV. 19 10/2015)


**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

**EMERGENCY CLOSED COOLING SYSTEM**  
 FIGURE 9.2-3 (SHEET 2 OF 4)  
 (DWG. D-302-0622-00000)

OPERATING DATA															DESIGN FLOW MIN./MAX.			
MODE NOT STANDBY WITH LOSS OF PREHEATED A-C POWER (A)				MODE NORMAL SHUTDOWN (B)				MODE CONTINUATION OF A-CRM SHUTDOWN AFTER 28 HOURS (C)				MODE POST-ACCIDENT WITH LOSS OF PREHEATED A-C POWER (D)			#	CPM	REMARKS	
#	PSI	OPN	F°	BY	REMARKS	#	PSI	OPN	F°	BY	REMARKS	#	PSI	OPN				F°
1	79	2832	182			1	182	2873	95			1	94	1947	183			1
2	80	2824	95			2	85	2873	95			2	79	1944	95			2
3	77	2824	95			3	78	2873	95			3	73	1944	95			3
4	74	162	95			4	76	168	95			4	71	197	95			4
5	78	1682	95			5	80	1986	95			5	75	1977	95			5
5A	68	1881	183			5A	68	1986	95			5A	64	1997	183			5A
6	N/A	N/A	N/A		CLOSED	6	N/A	N/A	N/A		CLOSED	6	N/A	N/A	N/A		CLOSED	6
7	74	164	95			7	76	168	95			7	71	197	95			7
8	71	149	95			8	73	148	95			8	68	139	95			8
9	73	12	95			9	74	94	95			9	78	89	95			9
10	42	92	95			10	42	94	95			10	41	89	125			10
11	71	14	95			11	72	14	95			11	68	13	95			11
12	72	52	95			12	73	53	95			12	69	58	95			12
13					SEE 302-8611-00000	13					SEE 302-8611-00200	13					SEE 302-8611-00000	13
14	70	15	95		SEE NOTE 5	14	71	15	95		SEE NOTE 5	14	57	14	95		SEE NOTE 5	14
14A	57	15	182			14A	57	15	182			14A	57	15	182			14A
15	72	37	95			15	74	38	95			15	69	36	95			15
15A	70	37	183			15A	71	38	182			15A	66	36	183			15A
16	41	52	185			16	42	53	181			16	41	52	187			16
17	48	14	184			17	41	14	95			17	48	13	183			17
18	37	145	95			18	48	148	97			18	29	139	185			18
19	37	164	95			19	37	156	181			19	37	152	184			19
20	38	202	182			20	38	2073	95			20	36	1947	183			20
21	48	204	182			21	48	2025	95			21	43	1925	183			21
22	83	2811	95			22	85	2853	95			22	79	1927	95			22
23	77	123	95			23	79	125	95			23	73	117	95			23
24	75	2411	95			24	81	2855	95			24	75	1922	95			24
25	76	87	95			25	76	88	95			25	72	53	95			25
26	81	1889	95			26	83	1929	95			26	77	1834	95			26
26A	68	1881	183			26A	69	1929	95			26A	65	1827	183			26A
27	77	123	95			27	79	125	95			27	73	117	95			27
28	N/A	N/A	N/A		CLOSED	28	N/A	N/A	N/A		CLOSED	28	N/A	N/A	N/A		CLOSED	28
29	75	59	95			29	77	60	95			29	72	55	95			29
30	74	18	95		SEE NOTE 5	30	75	18	95		SEE NOTE 5	30	71	17	95		SEE NOTE 5	30
30A	57	18	181			30A	58	18	181			30A	56	17	181			30A
31	78	41	95			31	80	42	95			31	74	35	95			31
31A	73	41	186			31A	75	42	187			31A	71	40	187			31A
32	37	59	185			32	37	61	181			32	37	57	189			32
33	75	16	95		SEE NOTE 5	33	76	17	95		SEE NOTE 5	33	72	16	95		SEE NOTE 5	33
33A	58	16	181			33A	59	17	181			33A	57	16	181			33A
34	78	41	95			34	80	42	95			34	76	39	95			34
34A	78	41	185			34A	75	42	185			34A	78	39	188			34A
35	37	57	95			35	38	58	95			35	37	55	186			35
36	37	123	183			36	37	125	183			36	35	118	185			36
37	38	2884	187			37	38	2925	95			37	38	1925	183			37
38	N/A	N/A	N/A		SEE 302-8611-00000	38	N/A	N/A	N/A		SEE 302-8611-00000	38	N/A	N/A	N/A		SEE 302-8611-00000	38
38A	N/A	N/A	N/A		SEE NOTE 7 & 8	38A	N/A	N/A	N/A		SEE NOTE 7 & 8	38A	N/A	N/A	N/A		SEE NOTE 7 & 8	38A
38B	N/A	N/A	N/A		SEE NOTE 7 & 8	38B	N/A	N/A	N/A		SEE NOTE 7 & 8	38B	N/A	N/A	N/A		SEE NOTE 7 & 8	38B
408A	89	6	95			408A	78	6	95			408A	86	5	77			408A
408B	73	8	95			408B	74	7	95			408B	69	5	95			408B
41A	37	6	95			41A	37	6	95			41A	37	5	95			41A
41B	36	6	95			41B	36	7	95			41B	36	6	92			41B

- NOTES:
- DELETED
  - CAUTION: LOSS OF PREHEATED A-C POWER MODES 'A' AND 'B' WILL BE OPERATIONAL.
  - OPERATING DATA POINT NUMBER 83C SHOWS FLOW CONDITIONS FROM P42 SYSTEM FOR MODES 'A', 'B', AND 'C'.
  - DELETED
  - MINIMUM FLOW RATE TO PWR PLNF SEA-5 EQUAL TO 18 GPM. MAXIMUM FLOW RATE TO PWR PLNF SEA-3 EQUAL TO 28 GPM.
  - # DENOTES MAXIMUM OPERATING TEMPERATURE.
  - FLOW IS PROPORTIONED BETWEEN THIS PIPE SEGMENT AND THROUGH HEAT EXCHANGER 1P42-88818 BASED ON TEMPERATURE DOWNSIDE OF THE HEAT EXCHANGER. DESIGN FLOW CONDITIONS FOR PIPE SEGMENT 1 APPLY TO THIS PIPE SEGMENT.
  - FLOW IS PROPORTIONED BETWEEN THIS PIPE SEGMENT AND THROUGH HEAT EXCHANGER 1P42-88818 BASED ON TEMPERATURE DOWNSIDE OF THE HEAT EXCHANGER. DESIGN FLOW CONDITIONS FOR PIPE SEGMENT 2 APPLY TO THIS PIPE SEGMENT.
  - DELETED.
  - OPERATING DATA TABLE INFORMATION OBTAINED FROM CALCULATION P42-28. DATA REPRESENTS ANALYTICALLY SYSTEMS RELIABILITY PROVIDE REDUCED MINIMUM COMPONENT FLOWS.

(REV.22 10/2021)



**PERRY NUCLEAR POWER PLANT**

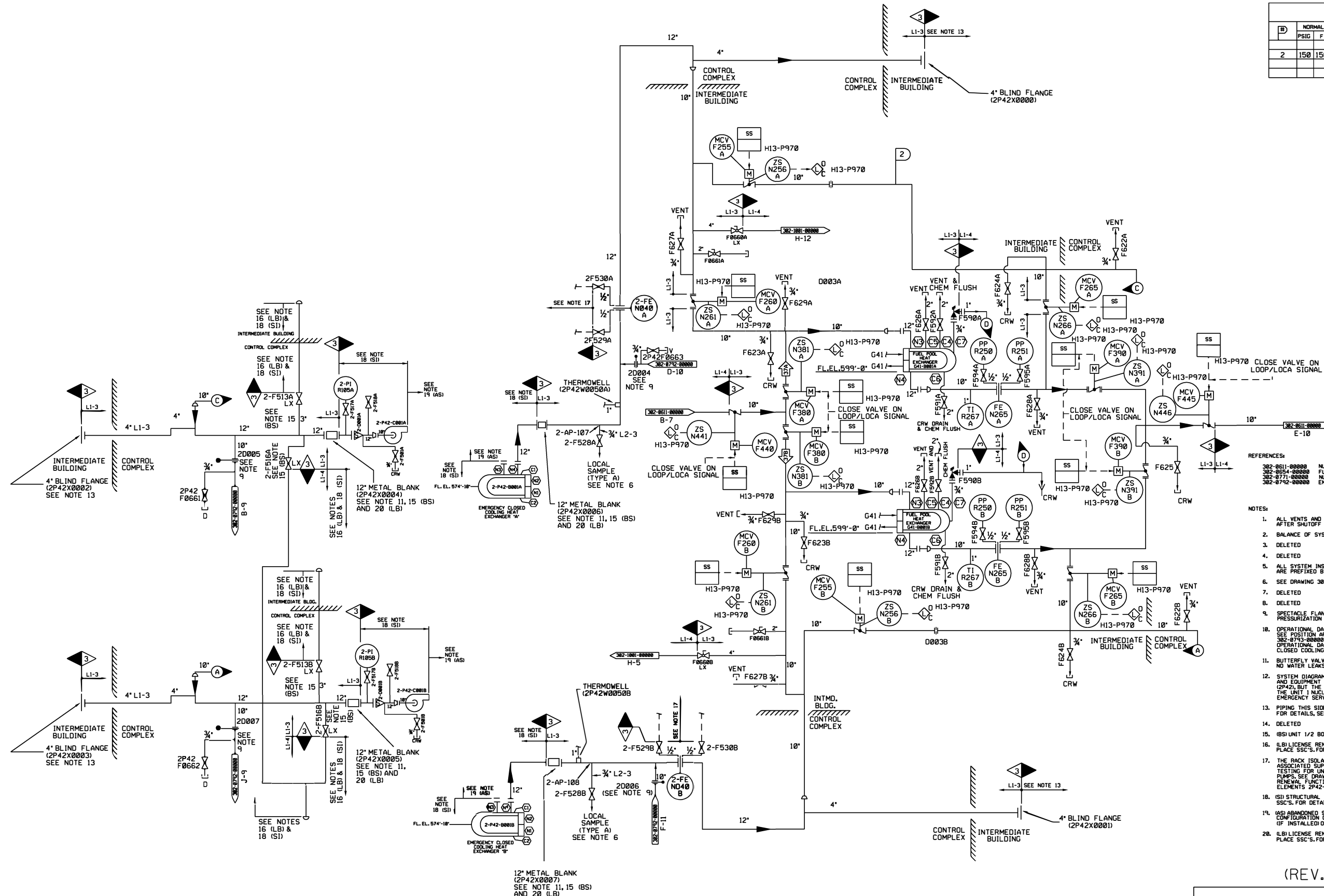
Emergency Closed Cooling System

Figure 9.2-3 (Sheet 3 of 4)

(Dwg. D-302-623)



DESIGN DATA						
NO.	NORMAL	UPSET	BY	CHKD	REMARKS	REV
PSIG	F	PSIG	F	TIME		
2	150	150			JAB/DFW	



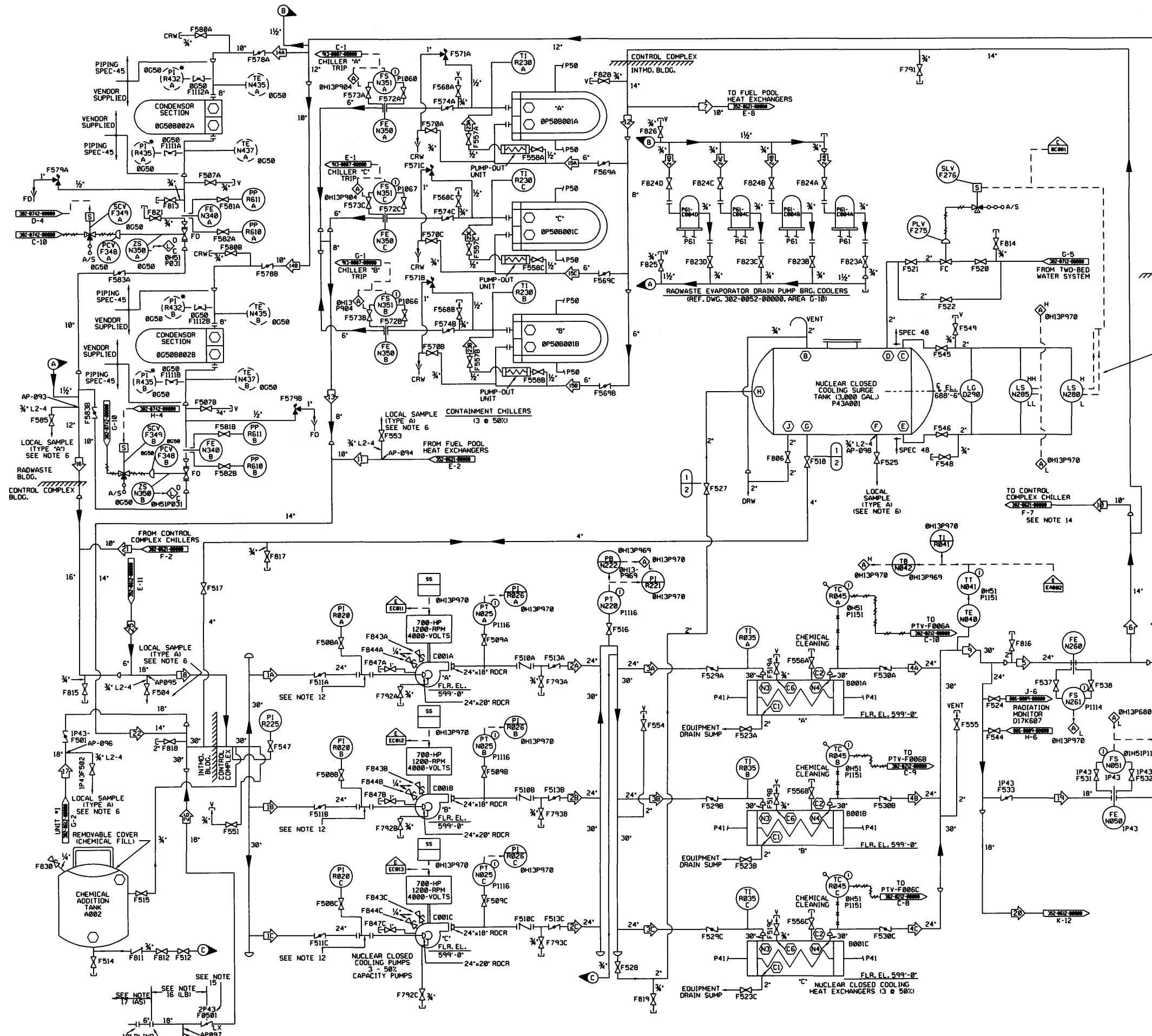
- REFERENCES:
- 302-0611-00000 NUCLEAR CLOSED COOLING SYSTEM, P43
  - 302-0654-00000 FUEL POOL COOLING AND CLEAN-UP SYSTEM, G41
  - 302-0771-00000 NUCLEAR SAMPLING SYSTEM, P34
  - 302-0742-00000 EMERGENCY SERVICE WATER SYSTEM, IP45
- NOTES:
1. ALL VENTS AND DRAINS ARE NON-SAFETY CLASS LINE SPECIFICATION LI-4 AFTER SHUTOFF VALVE.
  2. BALANCE OF SYSTEM IS SAFETY CLASS 3, UNLESS OTHERWISE NOTED.
  3. DELETED
  4. DELETED
  5. ALL SYSTEM INSTRUMENTS VALVES, PUMPS, HEAT EXCHANGERS, ETC. ARE PREFIXED BY 0P42, UNLESS OTHERWISE INDICATED.
  6. SEE DRAWING 302-0771-00000 FOR DESCRIPTION OF SAMPLE TYPES.
  7. DELETED
  8. DELETED
  9. SPECTACLE FLANGES ARE IN THE OPEN POSITION TO ALLOW PRESSURIZATION BY THE IP45 EMERGENCY SERVICE WATER SYSTEM.
  10. OPERATIONAL DATA ARROWS REFLECTED SYSTEM FLOW CHARACTERISTICS. SEE POSITION ARROWS 30 TO 33 FROM P&ID 302-0742-00000 AND 302-0743-00000 FOR FLOW DATA INTO AND OUT OF THE 2P42 PIPING. OPERATIONAL DATA ARROWS 37A AND 37B REFLECT NORMAL NUCLEAR CLOSED COOLING FLOW CONFIGURATION ON THIS DRAWING.
  11. BUTTERFLY VALVES HAVE BEEN REPLACED WITH SOLID BLANKS TO ENSURE NO WATER LEAKS INTO THE UNIT 2 PUMPS AND HEAT EXCHANGERS.
  12. SYSTEM DIAGRAM 302-0621-00000 WAS DESIGNED TO INDICATE THE PIPING AND EQUIPMENT FOR THE UNIT 2 EMERGENCY CLOSED COOLING SYSTEM (2P42), BUT THE ACTUAL OPERATION OF THE 2P42 SYSTEM IS WITH EITHER THE UNIT 1 NUCLEAR CLOSED COOLING SYSTEM (IP43) OR THE UNIT 1 EMERGENCY SERVICE WATER SYSTEM (IP45). SEE PIPRA 97-1728-001.
  13. PIPING THIS SIDE OF ISOLATION IS ABANDONED. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81653.
  14. DELETED
  15. (BS) UNIT 1/2 BOUNDARY SEPARATION FOR DETAILS SEE TAF 81653.
  16. (LB) LICENSE RENEWAL LEAKAGE BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-8491.
  17. THE RACK ISOLATION VALVES, INSTRUMENT 5-VALVE MANIFOLD, TUBING AND ASSOCIATED SUPPORTS ARE UTILIZED TO SUPPORT PERIODIC OPERABILITY TESTING FOR UNIT 1, DIVISION 1 AND 2 EMERGENCY SERVICE WATER (ESW) PUMPS. SEE DRAWING 853-0713-00001 AND 853-0713-00002 FOR LICENSE RENEWAL FUNCTIONS AND COMPONENT DETAILS ASSOCIATED WITH FLOW ELEMENTS 2P42-N0840A AND 2P42-N0840B RESPECTIVELY.
  18. (SI) STRUCTURAL INTEGRITY BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-0998.
  19. (AS) ABANDONED SSC'S OUTSIDE THE SCOPE OF LICENSE RENEWAL. CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSC'S IF INSTALLED OUTSIDE THE SCOPE OF LICENSE RENEWAL.
  20. (LB) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-0596.

OPERATING DATA																					
MODE HOT STANDBY (A)				MODE NORMAL SHUTDOWN (B)				MODE CONTINUATION OF NORMAL SHUTDOWN (C)				MODE POST ACCIDENT (D)									
PSIG	GPM	F*	BY	REMARKS	PSIG	GPM	F*	BY	REMARKS	PSIG	GPM	F*	BY	REMARKS	PSIG	GPM	F*	BY	REMARKS		
37A	100	1000	95	DRL		37A	100	1000	95	DRL		37A	100	1000	95	DRL		37A		JAB	CLOSED
37B	100	1000	95	DRL		37B	100	1000	95	DRL		37B	100	1000	95	DRL		37B		JAB	CLOSED

(REV. 22 10/2021)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

**EMERGENCY CLOSED COOLING SYSTEM**  
FIGURE 9.2-3 (SHEET 4 OF 4)  
(DWG. D-352-0621-00000)



OPERATING DATA  
SEE NOTE 13

#	GPM	PSIG	°F	BY	REMARKS	
1	6605.5	34	110	JCM	SEE NOTE #3	
2	6605.5	112	110	JCM		
3	6605.5	109	110	JCM		
4	6605.5	96	95	JCM		
5	7744	98	95	JCM		
6	4900	101	95	JAB		
7	2000	100	95	JAB		
8	2844	100	95	JCM		
9	13,211	97	95	JCM		
10	1700	100	95	JAB		
11	2000	36	105	JAB		
12	1200	100	95	JAB		
13	1200	36	105	JAB		
14	1410	93	95	JAB		
15	600	104	95	JAB		
16	2844	48	105	JCM		
17	4921	35	110	JAB		
18	5090	44	110	JCM		
19	5194	97	95	JCM		
20	273	97	95	JCM		
21	1700	48	105	JAB		
22	3200	34	110	JAB		
23	7.5	99	100	JAB	INTERMITTENT FLOW	
24	A,B,C,D	6	70	95	JCM	
25	546	47	105	DRL		
26	0	35	110	DRL		

DESIGN DATA

ID	NORMAL PSIG °F	UPSET PSIG °F	TIME	BY	CHKD	REMARKS	REV
1	ATM 150	-	-	-	-	JAB/DPW	
2	150 150	-	-	-	-	JAB/DPW	

- NOTES:
- NUCLEAR CLOSED COOLING SYSTEM IS NON-SAFETY CLASS. EXCEPT WHERE NOTED.
  - DRYWELL ATMOSPHERE COOLING UNITS ARE ALL CONTINUOUSLY SUPPLIED WITH COOLING WATER. ALL 3 UNITS ARE IN NORMAL OPERATION.
  - DATA IS FOR NORMAL OPERATING CONDITIONS (PRELIMINARY ONLY).
  - INSTRUMENT AIR IS NORMALLY SUPPLIED BY PLANT SERVICE AIR COMPRESSORS.
  - INSTRUMENTS FURNISHED BY OTHERS SHALL HAVE PREFIX 833.
  - FOR DESCRIPTION OF SAMPLE TYPES, SEE DWG. 302-0771-00000.
  - ALL PIPING ON THIS SYSTEM IS L1-4, EXCEPT WHERE NOTED.
  - ASTERISK DENOTES EQUIPMENT SUPPLIED BY VENDOR.
  - ALL PANEL AND RACK MEMBERS ARE PREFIXED N51, UNLESS OTHERWISE NOTED.
  - ALL SYSTEM INSTRUMENTS, VALVES, PUMPS, HEAT EXCHANGERS, ETC. ARE PREFIXED BY 0P43, UNLESS OTHERWISE INDICATED.
  - FOR THERMOCOUPLES ON NUCLEAR CLOSED COOLING PUMPS SEE DWG. 290-0049-00194.
  - TEMPORARY STRAINERS 0001A, B & C, USED FOR START UP ONLY, ARE REMOVED FOR PLANT OPERATION.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE INSTRUMENT DATA INFORMATION AND SHALL BE USED WITH CAUTION. GENERAL OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP, TO DETERMINE THE REQUIRED VALVES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVISED.
  - MCW IS ONLY SUPPLIED TO THE 'C' CONTROL COMPLEX CHILLER.
  - VALVE 2P43F0501 IS LOCKED CLOSED. FOR DETAILS SEE ECP 14-8409.
  - IF LICENSE RENEWAL LEAKAGE DIAGNOSIS FOR ABANDONED, RETIRED IN PLACE SSC'S, FOR DETAILS SEE ECP 14-8409.
  - AS ABANDONED SSC'S OUTSIDE SCOPE OF LICENSE RENEWAL, CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSC'S (IF INSTALLED OUTSIDE SCOPE OF LICENSE RENEWAL).

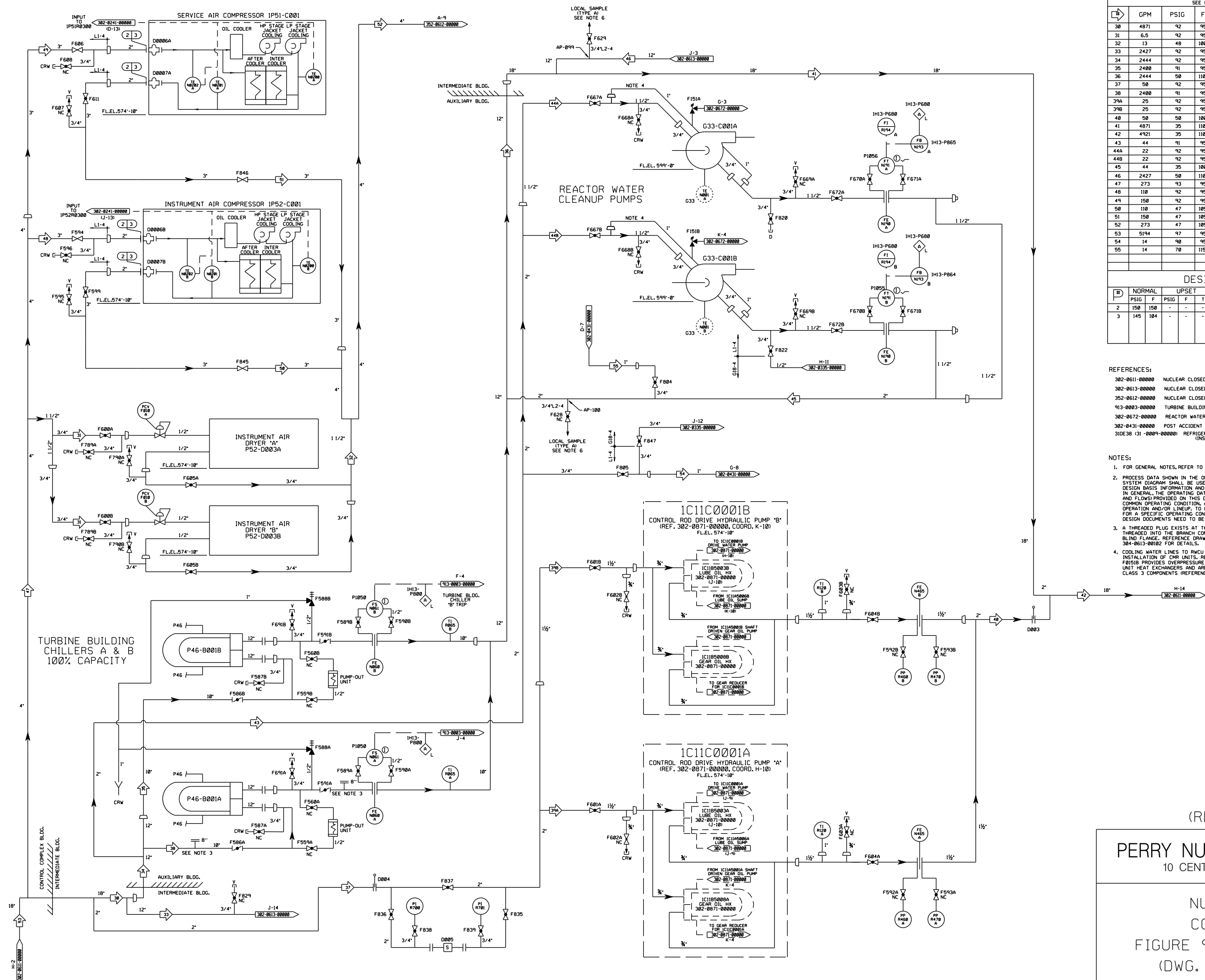
REFERENCES:

302-0052-00000	AUXILIARY STEAM P61
302-0212-00000	SERVICE WATER SYSTEM P41
302-0612-00000	NUCLEAR CLOSED COOLING SYSTEM P43
302-0621-00000	EMERGENCY CLOSED COOLING SYSTEM P42
302-0712-00000	TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM/MIDDLE ZONE DISTRIBUTION P21
302-0742-00000	LAW - WASTE EVAPORATOR/CONDENSERS C50
352-0612-00000	NUCLEAR CLOSED COOLING SYSTEM P43
352-0621-00000	EMERGENCY CLOSED COOLING SYSTEM P42
806-0009-00000	RADIATION MONITOR D17K607A
913-0007-00000	CONTAINMENT VESSEL CHILLED SYSTEM P54

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

**NUCLEAR CLOSED COOLING SYSTEM**  
FIGURE 9.2-4 (SHEET 1 OF 5)  
(DWG. D-302-0611-00000)



OPERATING DATA						
SEE NOTE 2						
NO.	GPM	PSIG	F	BY	REMARKS	REV
30	4871	92	95	JAB		
31	6.5	92	95	DRL		
32	13	48	100	JAB		
33	2427	92	95	JAB		
34	2444	92	95	JAB		
35	2400	91	95	JAB		
36	2444	50	110	DRL		
37	50	92	95	JAB		
38	2400	91	95	JAB		
39A	25	92	95	DRL		
39B	25	92	95	DRL		
40	50	50	100	JAB		
41	4871	35	110	JAB		
42	4921	35	110	JAB		
43	44	91	95	JAB		
44A	22	92	95	JAB		
44B	22	92	95	JAB		
45	44	35	100	JAB		
46	2427	50	110	DRL		
47	273	93	95	DRL		
48	110	92	95	DRL	MIN. REQ. FLOW IS 59 GPM	
49	150	92	95	DRL	MIN. REQ. FLOW IS 59 GPM	
50	110	47	105	JAB	MIN. REQ. FLOW IS 59 GPM	
51	150	47	105	JAB	MIN. REQ. FLOW IS 59 GPM	
52	273	47	105	DRL		
53	5194	97	95	DRL		
54	14	90	95	TFP	INTERMITTENT FLOW	
55	14	70	115	TFP	INTERMITTENT FLOW	

DESIGN DATA						
ID	NORMAL	UPSET	BY	CKD	REMARKS	REV
2	150	150	-	-	JAB	DPW
3	145	184	-	-	-	-

TEMPERATURE LIMIT FOR ATLAS COPCO COMPRESSORS IS 122 DEG. F MAX (OUTLET, 122 DEG. F MAX (OUTLET))

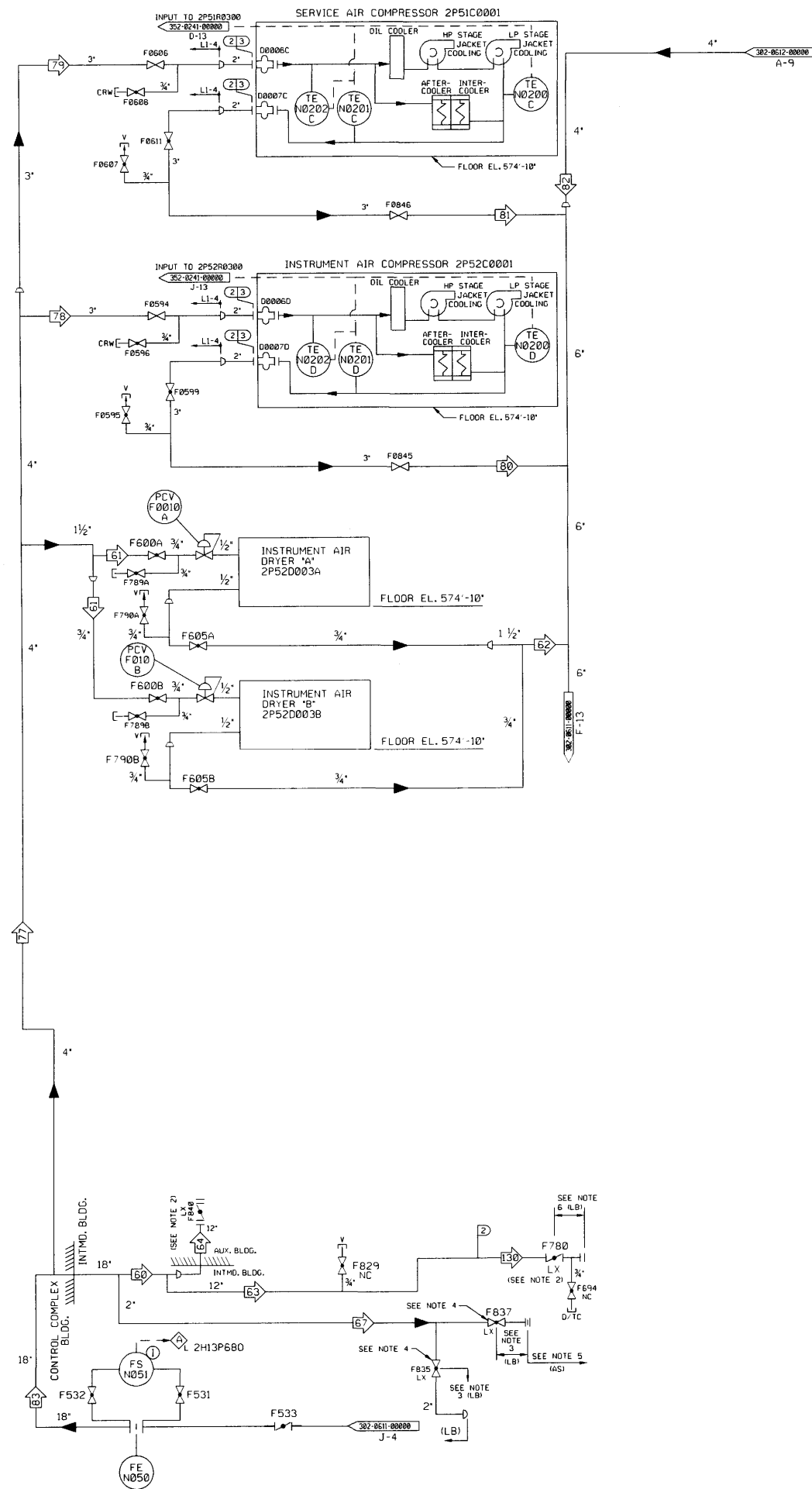
- REFERENCES:
- 302-0611-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 302-0613-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 352-0612-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 913-0003-00000 TURBINE BUILDING CHILLED WATER P45
  - 302-0672-00000 REACTOR WATER CLEANUP SYSTEM G33
  - 302-0431-00000 POST ACCIDENT SAMPLING SYSTEM P87
  - 310E38 (31-0009-00000) REFRIGERATION SCHEMATIC (INSTRUMENT AIR DRYER)

- NOTES:
- FOR GENERAL NOTES, REFER TO DRAWING 302-0611-00000.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - A THREADED PLUG EXISTS AT THESE LOCATIONS. THE PLUG IS THREADED INTO THE BRANCH CONNECTION AND COVERED BY A BLIND FLANGE. REFERENCE DRAWINGS 304-0611-00000 AND 304-0613-00102 FOR DETAILS.
  - COOLING WATER LINES TO RWCU PUMPS MODIFIED FOR INSTALLATION OF CDR UNITS. RELIEF VALVE FB51A AND FB15B PROVIDES OVERPRESSURE PROTECTION FOR THE CDR UNIT HEAT EXCHANGERS AND ARE ASME SECTION III CLASS 3 COMPONENTS (REFERENCE ECP 15-0208).

(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

NUCLEAR CLOSED  
COOLING SYSTEM  
FIGURE 9.2-4 (SHEET 2 OF 5)  
(DWG. D-302-0612-00000)



OPERATING DATA					
#	GPM	PSIG	F	REMARKS	REV
60	0	92	95	ISOLATED	
61	6.5	92	95		
62	13	48	100		
63	0	92	95	ISOLATED	
64	0	92	95	ISOLATED	
65				DELETED	
66	0	0	AMBIENT	ISOLATED	
67	0	92	95	ISOLATED	
68				DELETED	
69 A&B				DELETED	
70				DELETED	
71				DELETED	
72				DELETED	
73				DELETED	
74 A&B				DELETED	
75				DELETED	
76				DELETED	
77	273	93	95		
78	110	92	95	MIN. REQUIRED FLOW IS 59 GPM	
79	150	92	95	MIN. REQUIRED FLOW IS 59 GPM	
80	110	47	105	MIN. REQUIRED FLOW IS 59 GPM	
81	150	47	105	MIN. REQUIRED FLOW IS 59 GPM	
82	273	47	105		
83	273	97	95		
84	0	0	AMBIENT	ISOLATED	
85	0	0	AMBIENT	ISOLATED	
130	0	0	AMBIENT	ISOLATED	

DESIGN DATA							
#	NORMAL PSIG	UPSET PSIG	F TIME	BY	CHKD	REMARKS	REV
2	150	150	-	JAB	DPW		
3	145	104	-			TEMPERATURE LIMIT FOR ATLAS SCPCO COMPRESSORS 104 DEG. F MAX (INLET), 122 DEG. F MAX (OUTLET)	

- REFERENCES:
- 310330 (31-0009-00000) REFRIGERATION SCHEMATIC (INSTRUMENT AIR DRYER)
  - 302-0611-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 302-0612-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 352-0241-00000 SERVICE AND INSTRUMENT AIR SUPPLY P51, P52

- NOTES:
- FOR GENERAL NOTES, REFER TO DRAWING 302-0611-00000.
  - UNIT 2 BOUNDARY ISOLATION VALVES 2P43F0700 AND 2P43F0840 ARE LOCKED CLOSED.
  - (LBI) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED-IN-PLACE SSCs. FOR DETAILS SEE ECP 14-0489.
  - UNIT 1/2 BOUNDARY ISOLATION VALVES 2P43F0835 AND 2P43F0837 ARE LOCKED CLOSED (L.I.), FOR DETAILS SEE ECP 14-0489.
  - (AS) ABANDONED SSCs OUTSIDE THE SCOPE OF LICENSE RENEWAL CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSCs (IF INSTALLED) OUTSIDE THE SCOPE OF LICENSE RENEWAL.
  - (LBI) LICENSE RENEWAL, LEAKAGE BOUNDARY, FOR DETAILS SEE ECP 14-0488.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

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NUCLEAR CLOSED  
COOLING SYSTEM  
FIGURE 9.2-4 (SHEET 3 OF 5)  
(DWG. D-352-0612-00000)

OPERATING DATA  
SEE NOTE 2

ID	GPM	PSIG	°F	BY	REMARKS	REV
90	2427	92	95	JAB		
91	781	86	95	JAB		
92	40	86	95	JAB		
93	636	86	95	JAB		
94	636	47	152	JAB		
95	40	50	100	DRL		
96	25	70	95	JAB		
97	25	50	100	DRL		
98	800	84	95	JAB		
99	400	64	95	JAB		
100	400	50	105	DRL		
101	400	64	95	JAB		
102	400	50	105	DRL		
103	135	50	105	JAB		
104	178	91	95	JAB		
105	35	91	95	JAB		
106	5	91	95	JAB		
107	135	91	95	JAB		
108	20	91	95	JAB		
109	48	92	95	JAB		
110	35	90	95	JAB		
111	5	90	95	JAB		
112	135	90	95	JAB		
113	20	90	95	JAB		
114	330	50	110	DRL		
115	135	50	105	JAB		
116	40	45	100	JAB		
117	226	93	95	JAB		
118	226	94	110	JAB		
119	330	40	110	DRL		
120	330	40	95	DRL		
121	956	90	95	DRL		
122	226	91	95	DRL		
123	426	50	110	DRL		
124	2427	50	110	DRL		

DESIGN DATA

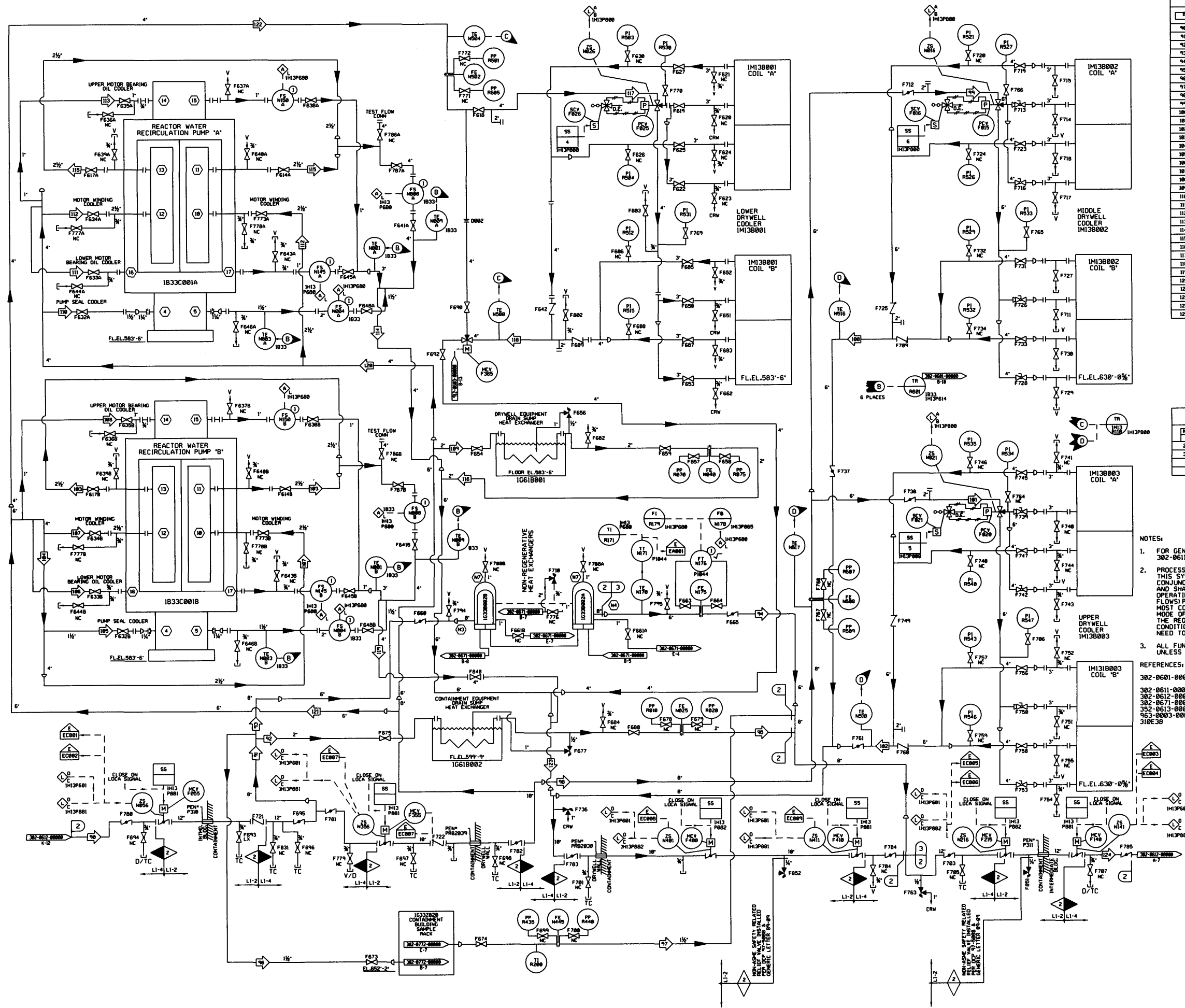
ID	NORMAL	UPSET	BY	CHKD	REMARKS	REV
2	150	150	-	-	JAB	DRL
3	150	200	-	-		

NOTES:

- FOR GENERAL NOTES, REFER TO DRAWING 302-0611-00000.
- PROCESS DATA SHOWN IN THE OPERATING TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP, TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONDITION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
- ALL FUNCTIONAL LOCATIONS ARE PREFIXED BY IP43, UNLESS OTHERWISE NOTED.

REFERENCES:

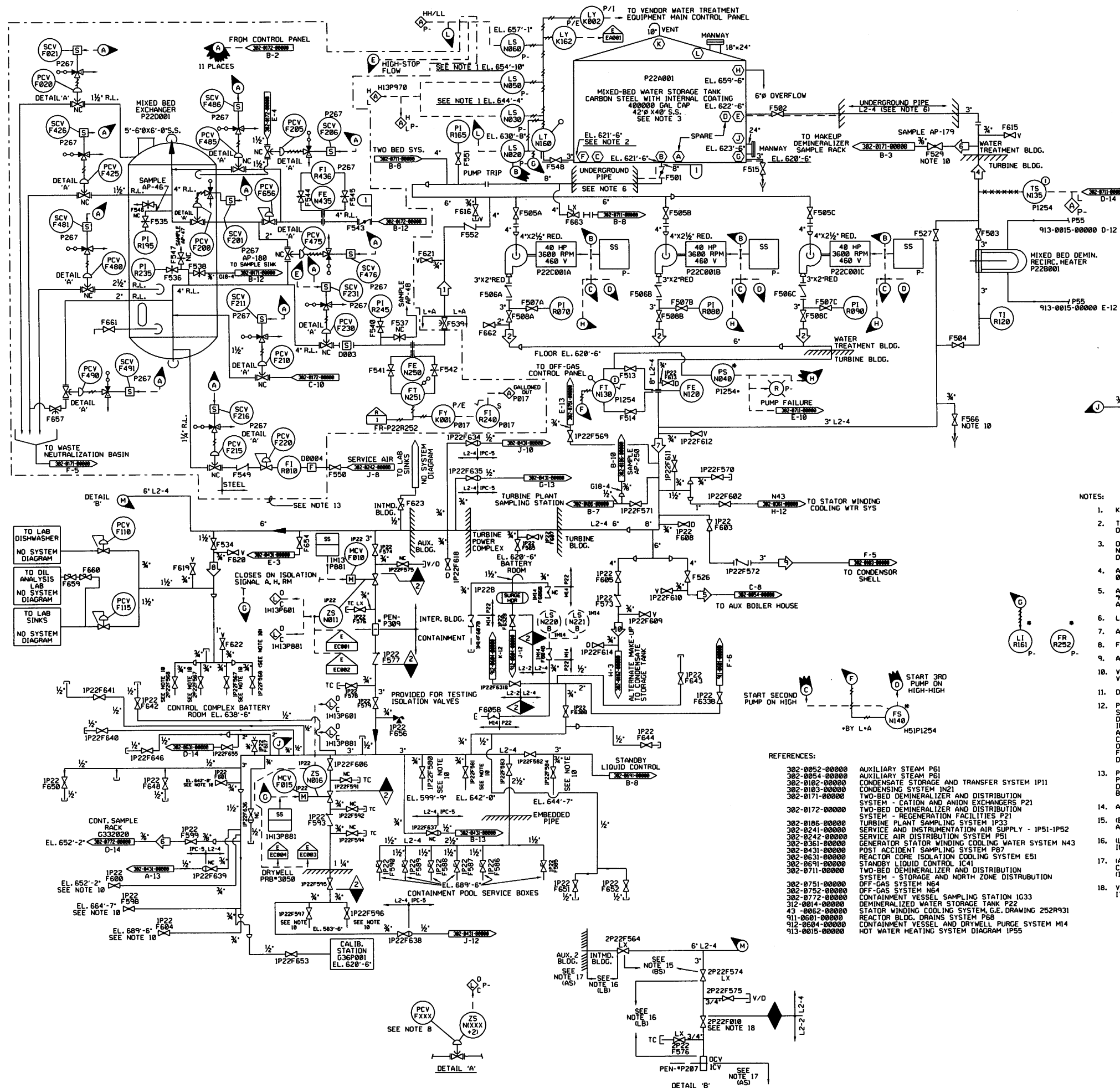
- 302-0601-00000 REACTOR WATER RECIRCULATION SYSTEM B33
- 302-0611-00000 NUCLEAR CLOSED COOLING SYSTEM P43
- 302-0612-00000 NUCLEAR CLOSED COOLING SYSTEM P43
- 302-0671-00000 REACTOR WATER CLEANUP SYSTEM G33
- 352-0613-00000 NUCLEAR CLOSED COOLING SYSTEM P43
- 953-0003-00000 TURBINE BUILDING CHILLED WATER P45
- 310E3B REFRIGERATION SCHEMATIC (INSTRUMENT AIR DRYER)



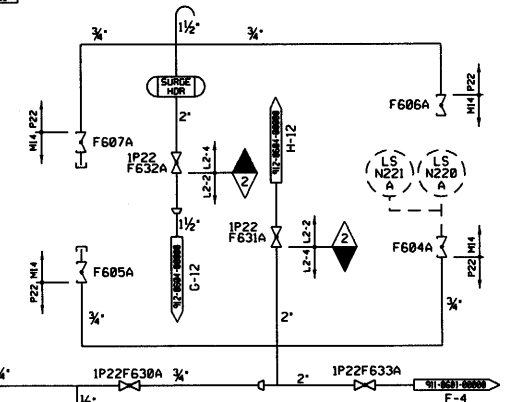
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

NUCLEAR CLOSED  
COOLING SYSTEM  
FIGURE 9.2-4 (SHEET 4 OF 5)  
(DWG. D-302-0613-00000)



OPERATING DATA					
SEE NOTE 12					
#	PSIG	GPM	T	BY	REMARKS
1	70	360	36-85		MAX. GPM
2	80	335	36-85		
4	80	120	36-85		CONTINUOUS
5	80	350	36-85		INTERMITTENT
6	80	800	36-85		INTERMITTENT
7	80	800	36-85		MAX. GPM
8	80	10	36-85		MAX. GPM
9	80	500	36-85		INTERMITTENT
10	80	500	36-85		INTERMITTENT



DESIGN DATA							
ID	NORMAL	UPSET	TIME	BY	CHKD	REMARKS	REV
1	150	85	150	85	WFO		

NOTES:

- KEY SWITCH OVERRIDE ON PANEL.
- TANK LEVEL INSTRUMENTATION BY L+A, HEAT TRACING AND CONTROLS BY OTHERS - VALVES BY OTHERS.
- ORIENTATION OF NOZZLES AS SHOWN FOR CLARITY OF PRESENTATION DOES NOT CORRESPOND WITH ACTUAL ORIENTATION, FOR WHICH REFER TO DWG. 312-0014-00000.
- ALL INSTRUMENTS AND CONTROLS DESIGNATED P- TO BE MOUNTED ON PANEL 0451P017, UNLESS OTHERWISE NOTED.
- ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED ON SIGNAL WINDOW "MAKEUP WATER TREATMENT TROUBLE 0451P017" ON PANELS 1H13P680 AND 2H13P680 IN THE CONTROL ROOM, EXCEPT STORAGE TANK LOW.
- DELETED.
- ALL PIPING IS L2-4, UNLESS OTHERWISE INDICATED.
- FXXX-VALVE IDENTIFICATION NUMBER.
- ALL PANELS AND RACKS ARE PREFIXED 0451.
- VALVE IS NOT IN ACCORDANCE WITH LINE SPEC L2-4. VALVE HAS THREADED ENDS PER DCN 4002 & DCN 4170.
- DELETED.
- PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
- PIPING THAT IS ADJACENT TO VALVE AND NOT SHOWN ON THIS P&ID IS EXCLUDED FROM DESIGN CONTROL. FOR DETAILS SEE DEER 06-0003. PIPING SHOWN CONNECTS TO WATER TREATMENT BUILDING.
- ALL COMPONENTS ARE @P22 UNLESS OTHERWISE NOTED.
- (B5) UNIT 1/2 BOUNDARY SEPARATION. FOR DETAILS SEE TECHNICAL ASSIGNMENT FILE 01603.
- (LB) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-0427.
- (AS) ABANDONED SSC'S OUTSIDE SCOPE OF LICENSE RENEWAL. CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSC'S (IF INSTALLED) OUTSIDE SCOPE OF LICENSE RENEWAL.
- VALVE SYMBOL DISPLAYS ONLY VALVE BODY OF MOV IN ORDER TO SHOW IT'S FUNCTION OF A LEAKAGE BARRIER.

REFERENCES:

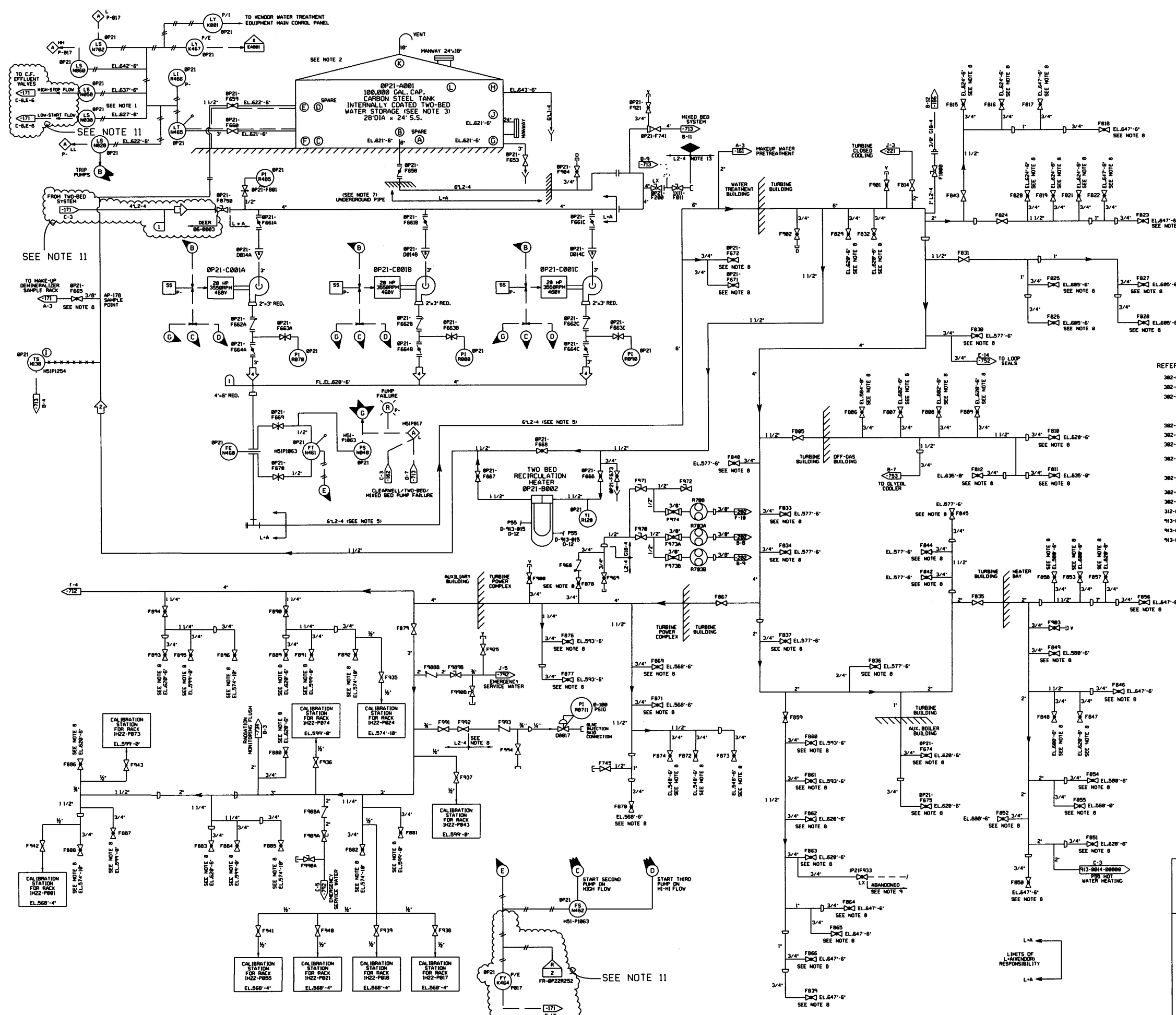
- 302-0052-00000 AUXILIARY STEAM P61
- 302-0054-00000 AUXILIARY STEAM P61
- 302-0102-00000 CONDENSATE STORAGE AND TRANSFER SYSTEM IP11
- 302-0103-00000 CONDENSING SYSTEM IN21
- 302-0171-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - CATION AND ANION EXCHANGERS P21
- 302-0172-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - REGENERATION FACILITIES P21
- 302-0186-00000 TURBINE PLANT SAMPLING SYSTEM IP33
- 302-0241-00000 SERVICE AND INSTRUMENTATION AIR SUPPLY - IP51-IP52
- 302-0242-00000 SERVICE AIR DISTRIBUTION SYSTEM P51
- 302-0361-00000 GENERATOR STATOR WINDING COOLING WATER SYSTEM N43
- 302-0431-00000 POST ACCIDENT SAMPLING SYSTEM P87
- 302-0631-00000 REACTOR CORE ISOLATION COOLING SYSTEM E51
- 302-0691-00000 STANDBY LIQUID CONTROL IC41
- 302-0711-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - STORAGE AND NORTH ZONE DISTRIBUTION
- 302-0751-00000 OFF-GAS SYSTEM N64
- 302-0752-00000 OFF-GAS SYSTEM N64
- 302-0772-00000 CONTAINMENT VESSEL SAMPLING STATION IG33
- 312-0014-00000 DEMINERALIZED WATER STORAGE TANK P22
- 43-0062-00000 REACTOR BLDG. DRAINS SYSTEM, G.E. DRAWING 252R931
- 911-0501-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM P68
- 912-0604-00000 CONTAINMENT VESSEL AND DRYWELL PURGE SYSTEM M14
- 913-0015-00000 HOT WATER HEATING SYSTEM DIAGRAM IP55

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

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MIX BED DEMINERALIZER  
AND DISTRIBUTION SYSTEM  
FIGURE 9.2-5  
(DWG. D-302-0713-00000)



DESIGN DATA						
NO.	NORMAL	UPSET	BY	CHKD	REV	
1	PSIG	°F	PSIG	°F	TIME	
1	150	85	150	85	-	
OPERATING DATA						
NO.	PSIG	GPM	°F	BY	REMARKS	REV
1	25	360	85	-	MAN. OPH	SEE NOTE 8
2	25	30	85	-	CONTINUOUS	SEE NOTE 8
3	100	10	85	-	MAN. OPH	SEE NOTE 8
4	100	200	85	-	1 PUMP MAN.	SEE NOTE 8
6	100	3	85	-	INTERMITTENT	SEE NOTE 8
7	100	6	85	-	2 PUMPS	SEE NOTE 8

- REFERENCES:
- 302-0110-00000 CONDENSATE DEMINERALIZER SYSTEM N24
  - 302-0162-00000 MAKEUP WATER PRETREATMENT P20
  - 302-0171-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - CATION AND ANION EXCHANGERS P21
  - 302-0186-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0221-00000 TURBINE BUILDING CLOSED COOLING SYSTEM IP44
  - 302-0712-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - MIDDLE ZONE DISTRIBUTION P21
  - 302-0713-00000 MIXED BED DEMINERALIZER AND DISTRIBUTION SYSTEM - MIXED BED EXCHANGER STORAGE & NORTH ZONE DISTRIBUTION P21
  - 302-0734-00000 LRV - CHEMICAL WASTE DISTILLATE TANKS AND PUMPS
  - 302-0752-00000 OFF-GAS SYSTEM M64
  - 302-0753-00000 OFF-GAS SYSTEM M64
  - 312-0034-00000 TWO-BED STORAGE TANK P21
  - 913-0003-00000 TURBINE BUILDING CHILLED WATER P46
  - 913-0014-00000 HOT WATER HEATING SYSTEM P55
  - 913-0015-00000 HOT WATER HEATING SYSTEM P55

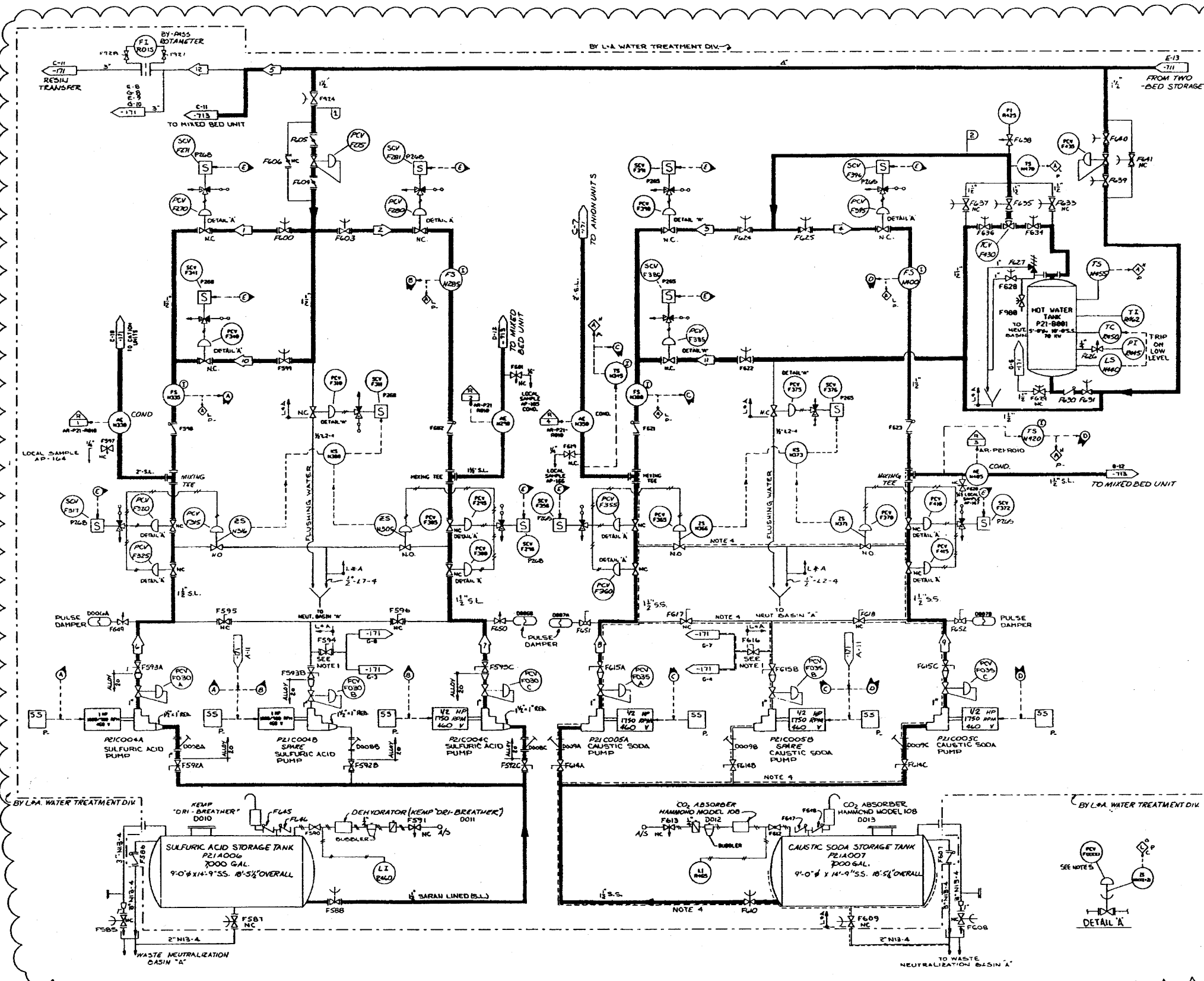
- NOTES:
- KEY SWITCH OVERRIDE ON PANEL.
  - TANK LEVEL INSTRUMENTATION BY LVA, HEAT TRACING AND CONTROLS BY OTHERS - VALVES BY OTHERS.
  - ORIENTATION OF NOZZLES AS SHOWN FOR CLARITY DOES NOT CORRESPOND WITH ACTUAL ORIENTATION FOR WHICH REFER TO DWG. 312-0034-00000.
  - ALL ALARMS FROM THIS SYSTEM ARE ANNOUNCED ON SINGLE WINDOW OF MAKEUP WATER TREATMENT - TRSL - HSP017 ON PANELS 1H13-P880 AND 2H13-P880 IN CONTROL ROOM.
  - ALL PIPE, VALVES, AND FITTINGS PER LINE SPEC L2-4, UNLESS OTHERWISE NOTED.
  - ALL INSTRUMENTS AND CONTROLS DESIGNATED P- TO BE MOUNTED ON PANEL H51-P817, UNLESS OTHERWISE NOTED.
  - L2-4, COATED AND WRAPPED.
  - VALVE IS NOT IN ACCORDANCE WITH LINE SPEC L2-4. VALVE HAS THREADED ENDS PER DCN 4802 AND DCN 4178 AND ECP 05-0110-002.
  - ALL PIPING ON THIS SIDE OF ISOLATION IS ABANDONED. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 01777.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - DOWNSTREAM PIPING AND SIGNALS ARE EXCLUDED FROM DESIGN CONTROL. FOR DETAILS SEE DEER 06-0003.
  - LINE TO BE CUT AND CAPPED PER ECP 02-0174, UNTIL IMPLEMENTATION OF THIS ECP, THIS LINE IS CONNECTED TO DESIRED WATER TREATMENT PIPING.
  - 5" DIA. STORZ HOSE CONNECTION NORMAL PLANT CONFIGURATION IS NON-SAFETY, NON-ASME, AND IS PROVIDED FOR WATER SUPPLY FROM P21 AND P22 SYSTEMS FOR FLEX STRATEGY, INSTALLED PER ECP 13-0017, REFERENCE DRAWING 302-1000-00000.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
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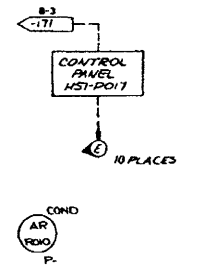
**TWO BED DEMINERALIZER & DISTRIBUTION SYSTEM STORAGE & NORTH ZONE DISTRIBUTION**  
 FIGURE 9.2-6  
 (DWG. D-302-0711-00000)





OPERATING DATA  
SEE NOTE 7

PSIG	GPM	F°	BY	REMARKS
1	18.5	85	WTD	INTERMITTENT
2	11.9	85	WTD	"
3	10	120	WTD	"
4	5.5	120	WTD	"
5	4.0	85	WTD	MAX.
6	1.0	85	WTD	INTERMITTENT
7	0.298	85	WTD	"
8	0.5	85	WTD	"
9	0.632	85	WTD	"
10	2.5	85	WTD	"
11	4.5	85	WTD	"
12	100	"	WTD	MAX INTERMITTENT



DESIGN DATA

PSIG	NORMAL	UPSET	F TIME	BY	REMARKS	
1	150	85	150	85	WTD	MAX
2	150	180	150	180	WTD	"

- NOTES:
1. VALVE BY L.A. PIPING BY OTHERS.
  2. ALL INSTRUMENTS AND CONTROLS DESIGNATED "P" ARE MOUNTED ON PANEL HST-1017.
  3. ALL ALARMS FROM THIS SYSTEM ARE ANNOUNCED ON SINGLE WINDOW PANEL WATER TREATMENT - TREAT - HST-1017 ON PANELS IN PIPING AND SHOPPING IN CONTROL ROOM.
  4. HEAT TRACING BY OTHERS.
  5. FEED - VALVE IDENTIFICATION NUMBER.
  6. ALL PANELS AND RACKS ARE PREFIXED HSL.
  7. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA PRESENTED, TEMPERATURES, AND FLOWSHOWN ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, UNLESS OTHERWISE NOTED. FOR OPERATION AND/OR MAINTENANCE, TO DETERMINE THE INCLUDED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:
- 302-871-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - CATION AND ANION EXCHANGERS - P21
  - 302-871-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - STORAGE AND NORTH ZONE DISTRIBUTION - P21
  - 302-871-00000 TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM - ANION EXCHANGERS, STORAGE AND NORTH ZONE DISTRIBUTION - P22

THIS DRAWING IS EXCLUDED FROM DESIGN CONTROL. SEE DEER 06-0003 FOR DETAILS.

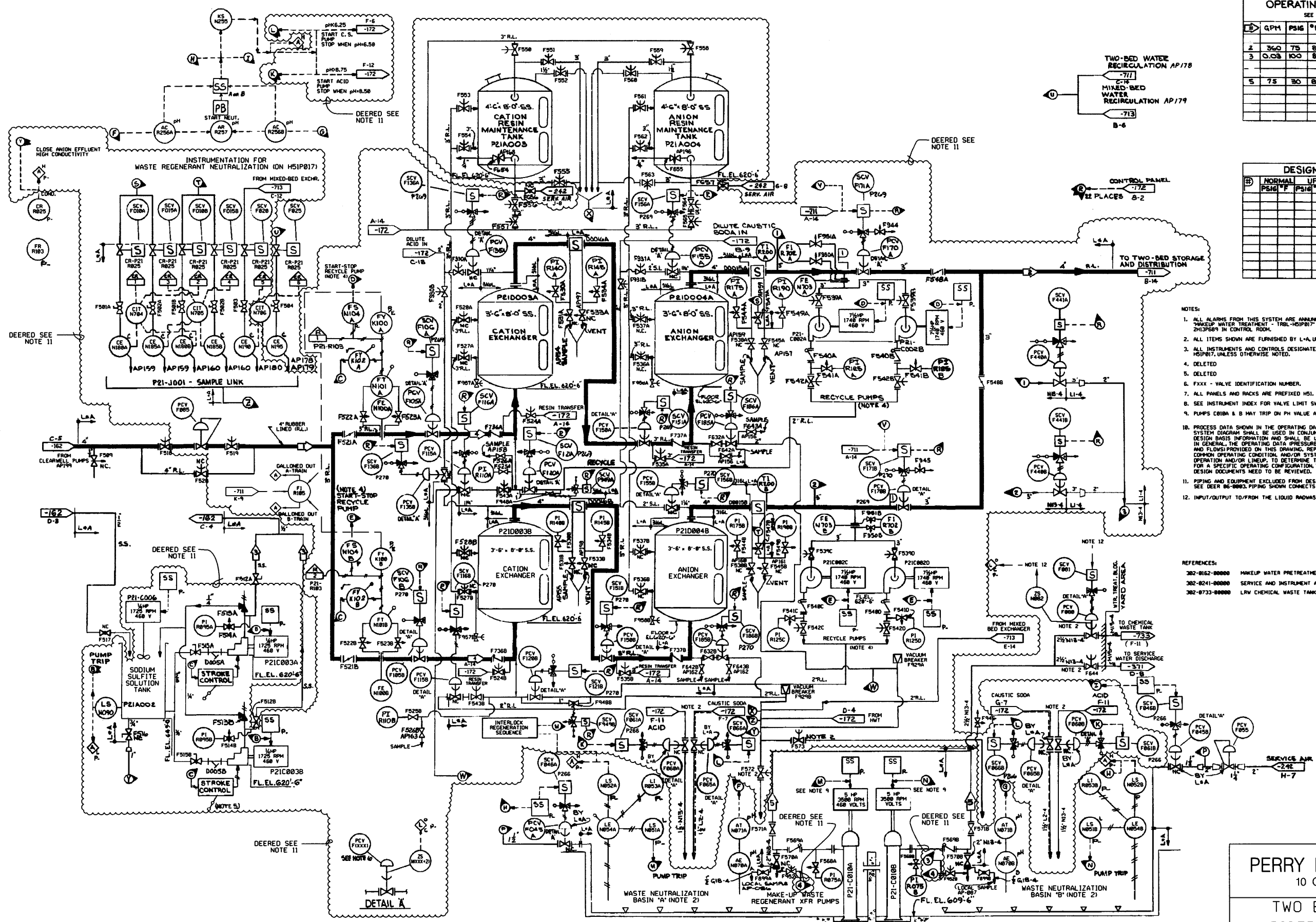
(Rev. 15 10/07)

**PERRY NUCLEAR POWER PLANT**

Two Bed Demineralizer and Distribution System Regeneration Facilities

Figure 9.2-7  
(Dwg. D-302-172)





**OPERATING DATA**  
SEE NOTE 10

ID	GPM	PSIG	°F	BY	REMARKS
2	360	75	85	WFO	TWO STREAMS MAX.
3	0.03	100	85	WFO	1.5 GPM MAX.
5	75	80	85	WFO	INTERMITTENT

**DESIGN DATA**

ID	NORMAL PSIG	UPSET PSIG	TIME	BY	REMARKS

- NOTES:**
- ALL ALARMS FROM THIS SYSTEM ARE ANNOUNCED ON SINGLE WINDOWS MAKEUP WATER TREATMENT - TRBL-HCIB017 ON PANELS 1H13P500 AND 2H13P500 IN CONTROL ROOM.
  - ALL ITEMS SHOWN ARE FURNISHED BY L-A, UNLESS OTHERWISE INDICATED.
  - ALL INSTRUMENTS AND CONTROLS DESIGNATED "P" ARE MOUNTED ON PANEL H51001, UNLESS OTHERWISE NOTED.
  - DELETED
  - DELETED
  - FXXX - VALVE IDENTIFICATION NUMBER.
  - ALL PANELS AND RACKS ARE PREFIXED H51.
  - SEE INSTRUMENT INDEX FOR VALVE LIMIT SWITCH IDENTIFICATION.
  - PUMPS C018A & B MAY TRIP ON PH VALUE AS READ BY PORTABLE METER.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - PIPING AND EQUIPMENT EXCLUDED FROM DESIGN CONTROL. FOR DETAILS SEE DEER 06-0003. PIPING SHOWN CONNECTS TO WATER TREATMENT PIPING.
  - INPUT/OUTPUT TO/FROM THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.

- REFERENCES:**
- 302-0162-00000 MAKEUP WATER PRETREATMENT - P20
  - 302-0241-00000 SERVICE AND INSTRUMENT AIR SUPPLY IP51-IP52
  - 302-0733-00000 LRW CHEMICAL WASTE TANKS - G00

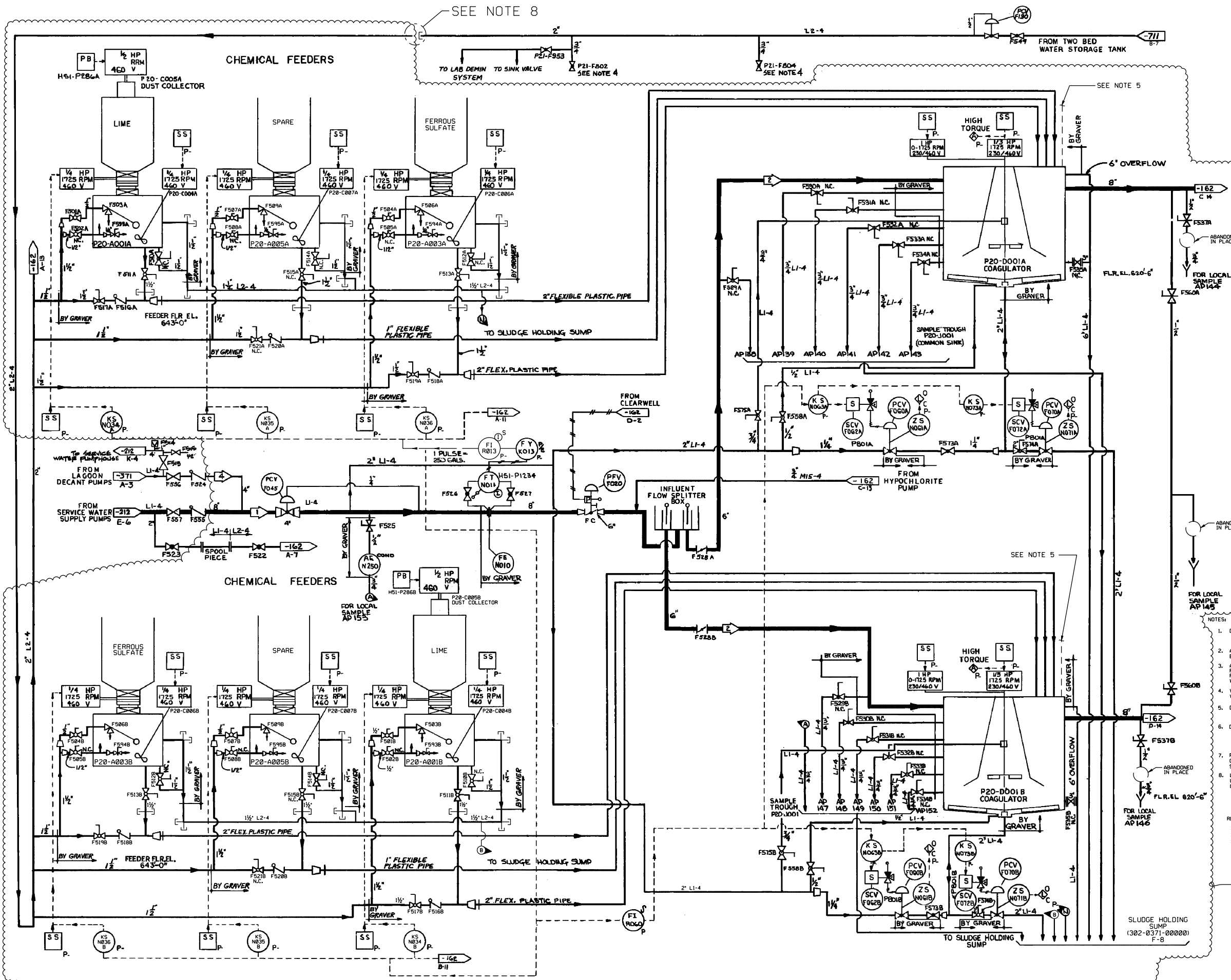
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

**TWO BED DEMINERALIZER AND DISTRIBUTION SYSTEM CATION AND ANION EXCHANGERS**  
FIGURE 9.2-8  
(DWG. D-302-0171-00000)

NO	PSIG	GPM	F	BY	REMARKS	REV

DESIGN DATA						
NO	DESCRIPTION	DATE	BY	CHK	REMARKS	REV



- NOTES:
1. DELETED
  2. ALL VALVE AND INSTRUMENT NUMBERS TO BE PREFIXED BY P20.
  3. ANNUNCIATED ALARMS ON PANEL HSI-P2016 WILL BE TRANSMITTED AS A SINGLE ALARM TO MAIN CONTROL ROOM PANEL HSI3-P688 AS "MAKEUP WATER PRETREATMENT TROUBLE HSI-P2016".
  4. VALVE IS NOT IN ACCORDANCE WITH LINE SPEC. L2-4. VALVE HAS THREADED ENDS PER DCN 4178.
  5. DELETED
  6. DELETED
  7. PIPING AND EQUIPMENT IS EXCLUDED FROM DESIGN CONTROL. FOR DETAILS SEE DEER 06-0003. PIPING SHOWN CONNECTS TO WATER TREATMENT PIPING.
  8. LINE TO BE CUT AND CAPPED PER ECP 02-0174. UNTIL IMPLEMENTATION OF THIS ECP, THIS LINE IS CONNECTED TO DEERED WATER TREATMENT PIPING.

REFERENCES:  
 302-0162-00000 MAKEUP WATER SYSTEM PRETREATMENT P20  
 302-0171-00000 MAKEUP WATER DEMINERALIZER SYSTEM P21  
 302-0212-00000 SERVICE WATER SYSTEM P41

SEE NOTE 7

(Rev. 17 10/11)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

Makeup Water System  
 Pretreatment

Figure 9.2-9 (Sheet 1 of 2)  
 (DWG. D-302-0161-00000)

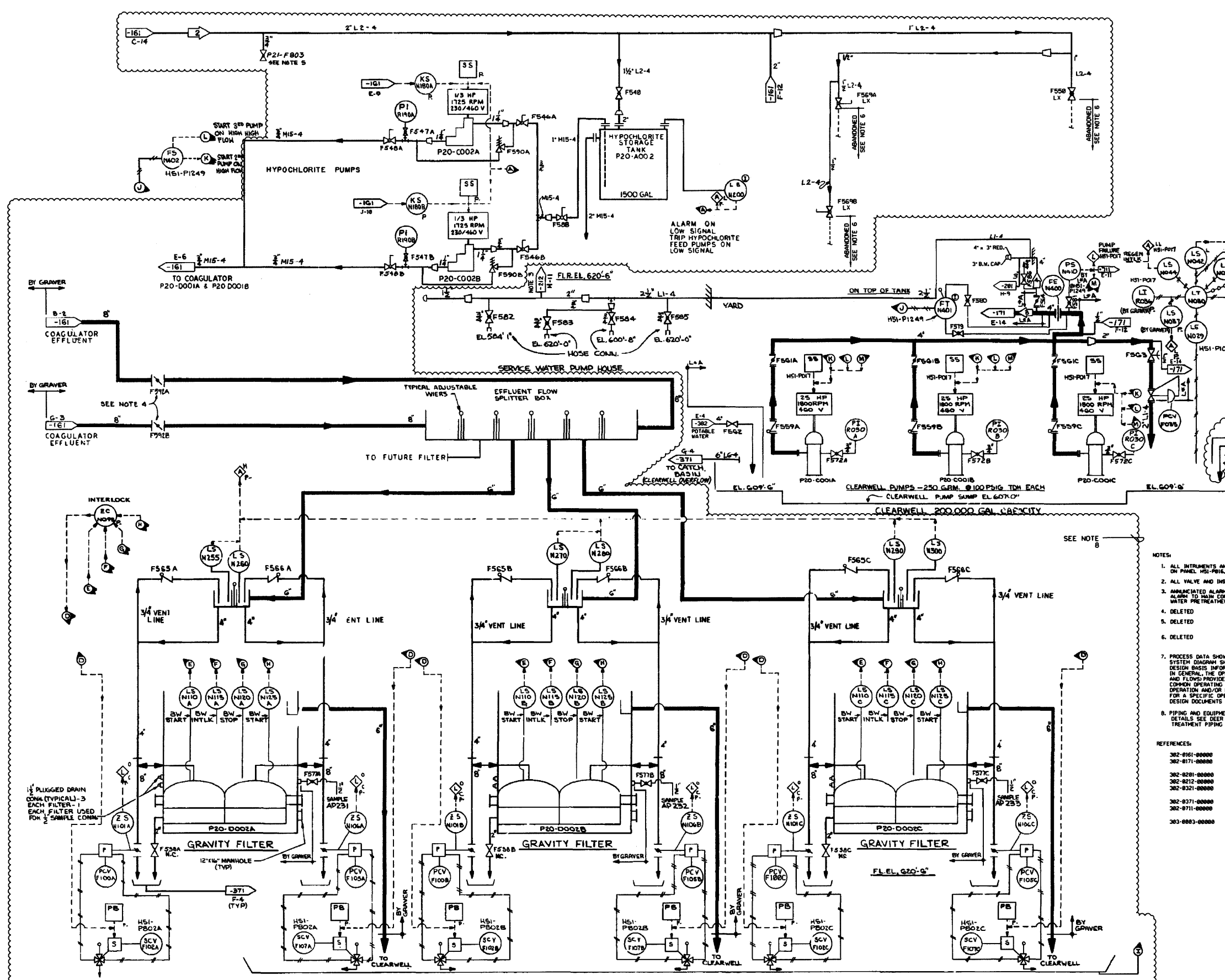
OPERATING DATA

SEE NOTE 7

PSIG	GPM	F	BY	REMARKS	REV
3	100	8-350	AMB		
4	100	8-350	AMB		

DESIGN DATA

PSIG	F	TIME	BY	CHG	REMARKS	REV

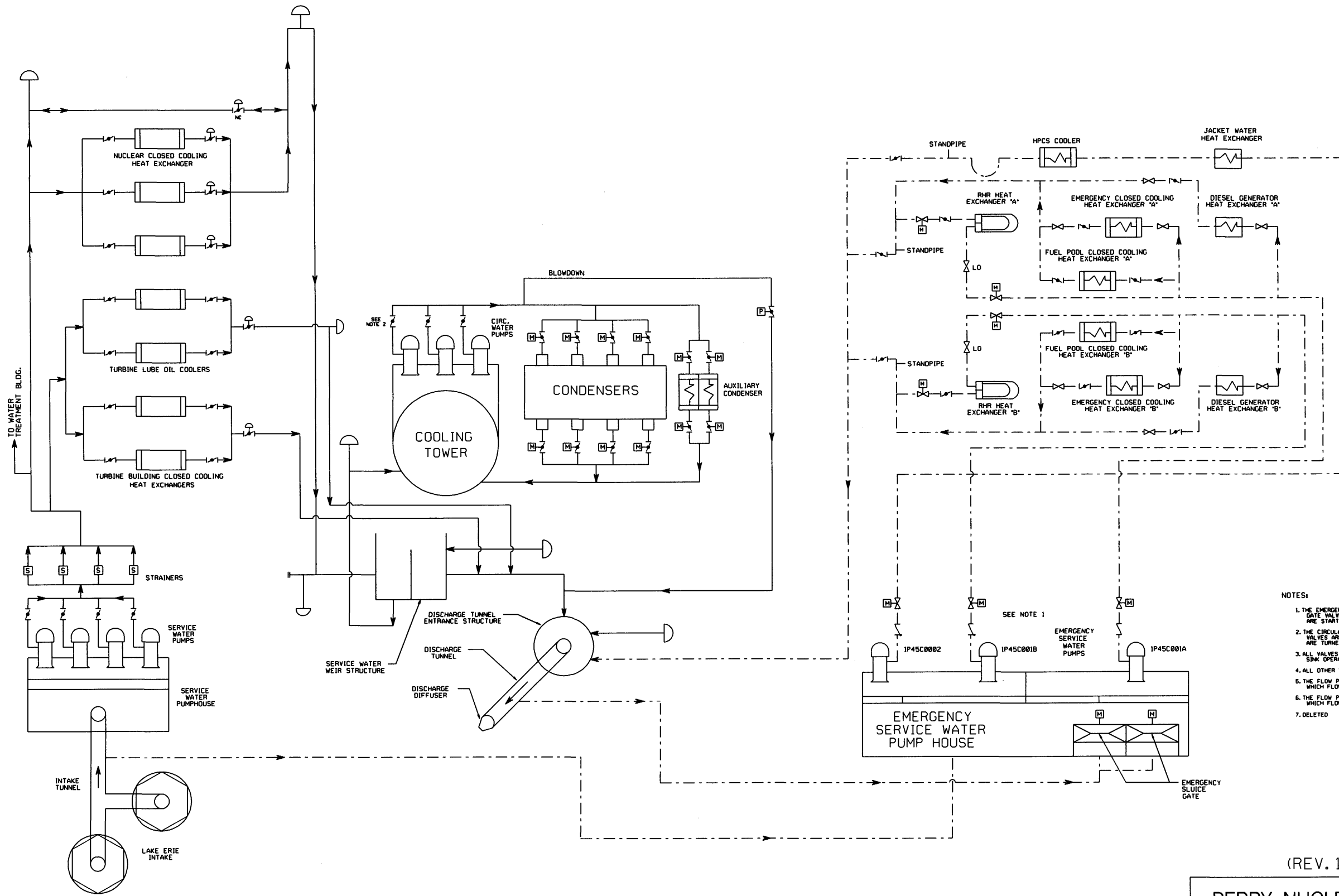


- NOTES:
1. ALL INSTRUMENTS AND CONTROLS DESIGNATED "P" TO BE MOUNTED ON PANEL HSI-P016, UNLESS NOTED.
  2. ALL VALVE AND INSTRUMENT NUMBERS TO BE PREFIXED BY P20.
  3. ANNUNCIATED ALARMS ON PANEL HSI-P016 WILL BE RETRANSMITTED AS A SINGLE ALARM TO MAIN CONTROL ROOM PANELS HSI-P008 AND HSI-P009 AS MAKEUP WATER PRETREATMENT TROUBLE HSI-P016.
  4. DELETED
  5. DELETED
  6. DELETED
  7. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA PRESSURES, TEMPERATURES, AND FLOWS PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  8. PIPING AND EQUIPMENT EXCLUDED FROM DESIGN CONTROL, FOR DETAILS SEE DEER 86-0003. PIPING SHOWN CONNECTS TO WATER TREATMENT PIPING.
- REFERENCES:
- 302-0161-00000 MAKEUP WATER PRETREATMENT - P20
  - 302-0171-00000 TWO-BED DEMINERALIZER & DISTRIBUTION SYSTEM - CATION & ANION EXCHANGERS - P21
  - 302-0201-00000 CIRCULATING WATER SYSTEM - M71
  - 302-0212-00000 SERVICE WATER SYSTEM - P41
  - 302-0321-00000 COOLING TOWER CHLORINATION AND PLANT DISCHARGE DECHLORINATION SYSTEM - P84
  - 302-0371-00000 PLANT INDUSTRIAL WASTE SYSTEM - P54
  - 302-0711-00000 TWO-BED DEMINERALIZER & DISTRIBUTION SYSTEM - STORAGE 7 NORTH ZONE DISTRIBUTION - P21
  - 303-0003-00000 NORTHWEST PLANT AREA

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

MAKEUP WATER  
SYSTEM PRETREATMENT  
FIGURE 9.2-9 (SHEET 2 OF 2)  
(DWG. D-302-0162-00000)



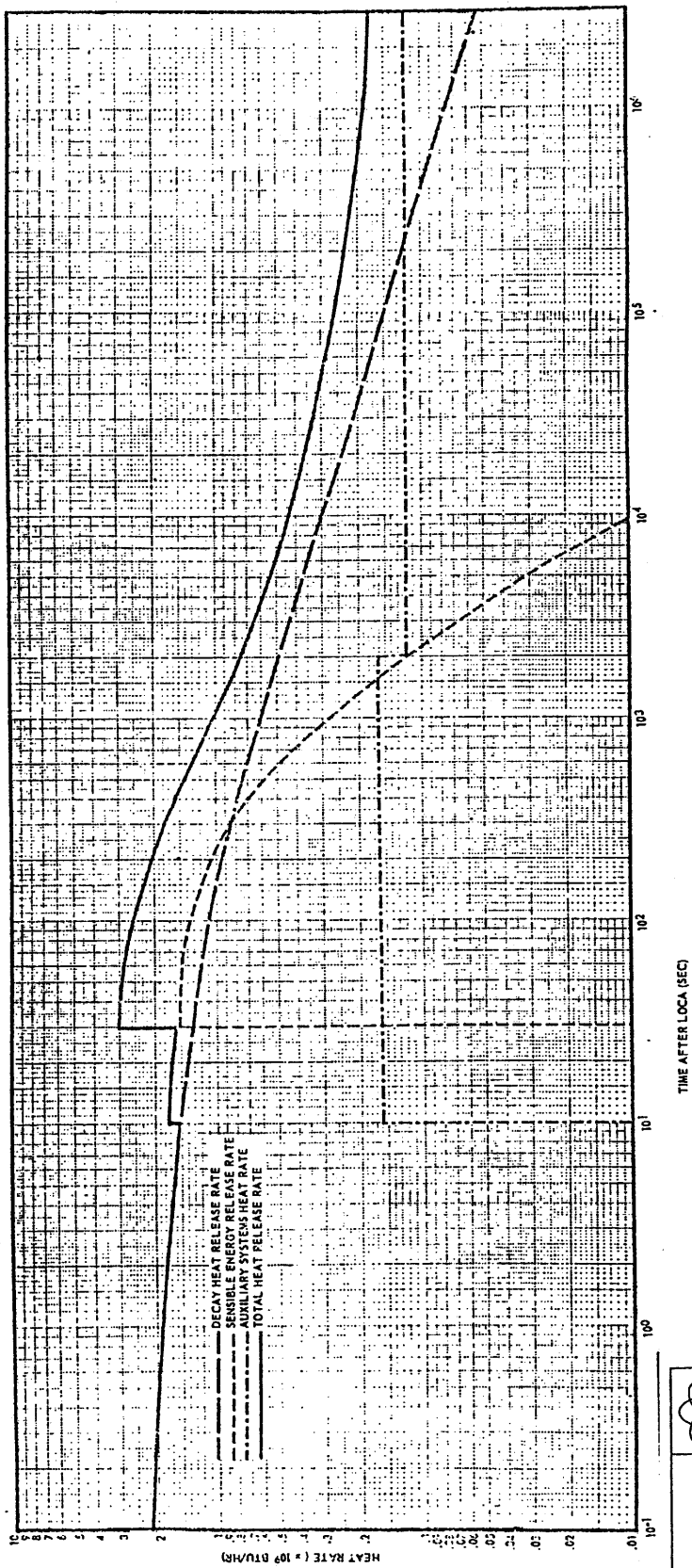
- NOTES:
1. THE EMERGENCY SERVICE WATER PUMP DISCHARGE MOTOR OPERATED GATE VALVES ARE NORMALLY CLOSED BUT WILL BE OPENED AS THE PUMPS ARE STARTED UP DURING ULTIMATE HEAT SINK OPERATION.
  2. THE CIRCULATING WATER PUMP DISCHARGE MOTOR OPERATED BUTTERFLY VALVES ARE ALWAYS OPEN EXCEPT WHEN THE CIRCULATING WATER PUMPS ARE TURNED OFF DURING LOCK OR BLACKOUT.
  3. ALL VALVES CLOSED DURING NORMAL OPERATION AND ULTIMATE HEAT SINK OPERATION ARE DESIGNATED BY "NC".
  4. ALL OTHER VALVES ARE ALWAYS OPEN EXCEPT FOR MAINTENANCE.
  5. THE FLOW PATHS SHOWN AS DASHED LINES INDICATE THE LINES IN WHICH FLOWS OCCUR DURING ULTIMATE HEAT SINK OPERATION.
  6. THE FLOW PATHS SHOWN AS SOLID LINES INDICATE THE LINES IN WHICH FLOWS OCCUR DURING NORMAL OPERATION.
  7. DELETED

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

ULTIMATE HEAT SINK

FIGURE 9.2-10  
 (DWG. D-300-0060-00002)



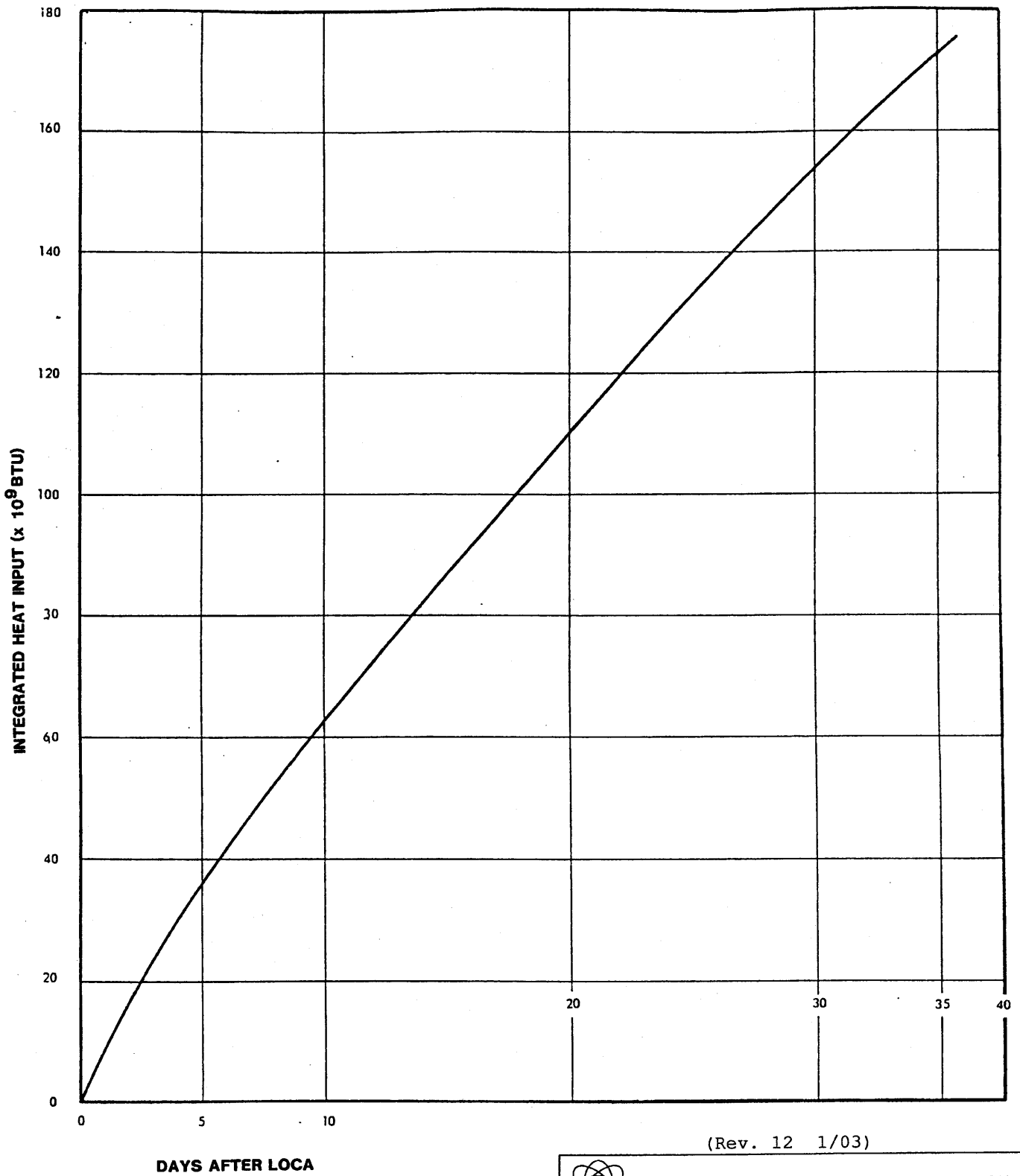
(Rev. 12 1/03)



**PERRY NUCLEAR POWER PLANT**

Heat Rate Input to  
Ultimate Heat Sink

Figure 9.2-11



(Rev. 12 1/03)

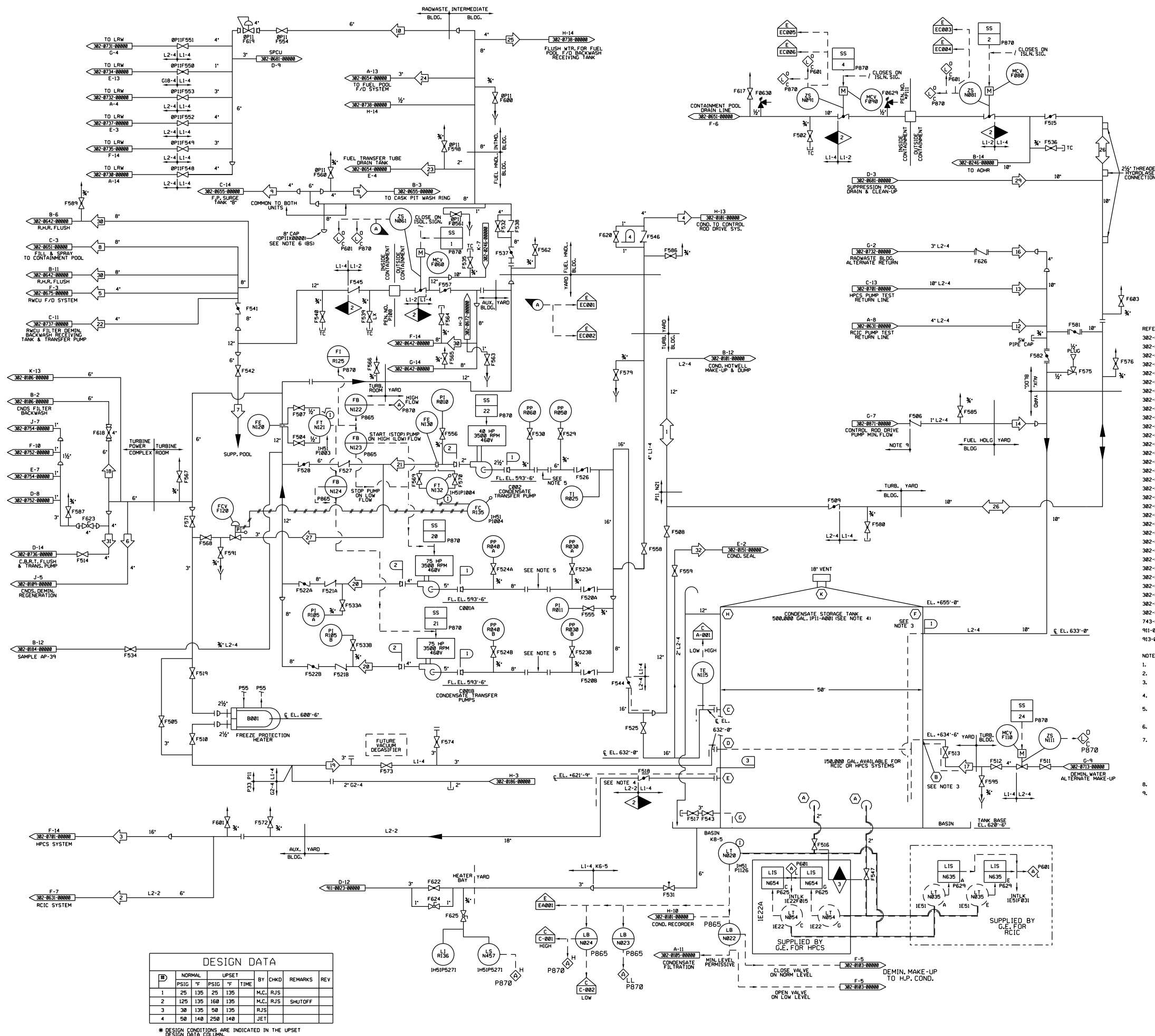
**DAYS AFTER LOCA**



**PERRY NUCLEAR POWER PLANT**

Total Integrated Heat Input to  
Ultimate Heat Sink

Figure 9.2-12



OPERATING DATA  
SEE NOTE 7

LINE NO.	PSIG	GPM	°F	BY	REMARKS	REV
1	13	1200	130	M.C.	5% CYCLE FLOW	
2	19	700	135	M.C.	TO RCIC PUMP	
3	28	1550	135	M.C.	6110CPM MAX @20PSIG	
4	25	105	135	M.C.	200 GPM MAX	
5	75	560	135	M.C.	7000 GAL/MK	
6	115	450	135	M.C.	40000 GAL/MK	
7	0	2000	135	M.C.	24000 GAL	
8	70	2000	135	M.C.	2000 GPM REFUELING	
9	95	200	135	M.C.	12500 GAL	
10	110	500	135	M.C.	15000 GAL/DAY	
12	50	700	135	M.C.	PUMP TEST	
13	130	1465/6110	135	M.C.	PUMP TEST	
14	100	20	135	M.C.	CONTINUOUS	
16	20	200	85	M.C.	SHUTDOWN	
17	20	500	80	M.C.	SHUTDOWN	
18	115	479	135	M.C.	10000 GAL/MK	
19	119	100	135	M.C.	MIN. FLOW RECIRC.	
20	119	1000	135	M.C.	220" T.D.H.	
21	119	330	135	M.C.	220" T.D.H.	
22	75	100	135	M.C.	TANK SPARGE	
23	110	100	135	M.C.	TANK SPARGE	
24	105	500	135	M.C.	F/D BACKWASH	
25	110	100	135	M.C.	TANK SPARGE	
26	10	3000	110	M.C.	UPPER POOL DRAIN	
27	119	100	135	M.C.	MIN. FLOW RECIRC.	
29	75	2000	90	J.T.	POOL DRAIN	
30	75	2000	135	J.T.	R.H.R. FLUSH	
31	115	50	135	J.J.J.	CBRT FLUSH	
32	35	7	135	J.T.	TROUGH SEAL	

- REFERENCES:
- 302-0101-00000 CONDENSATE SYSTEM N21
  - 302-0103-00000 CONDENSATE SYSTEM N21
  - 302-0105-00000 CONDENSATE FILTRATION N23
  - 302-0106-00000 CONDENSATE FILTRATION SYSTEM N23
  - 302-0109-00000 CONDENSATE DEMINERALIZER SYSTEM N24
  - 302-0151-00000 CONDENSATE SEAL P12
  - 302-0184-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0186-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0246-00000 ALTERNATE DECAY HEAT REMOVAL G40
  - 302-0531-00000 REACTOR CORE ISOLATION COOLING SYSTEM E51
  - 302-0542-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0551-00000 CONTAINMENT POOL SYSTEM G41
  - 302-0552-00000 SPENT FUEL POOL SYSTEM G41
  - 302-0553-00000 SPENT FUEL POOL FILTER DEMINERALIZER SYSTEM G41
  - 302-0554-00000 FUEL POOL COOLING AND CLEANUP G41
  - 302-0555-00000 FUEL POOL COOLING AND CLEANUP G41
  - 302-0572-00000 REACTOR WATER CLEANUP SYSTEM G33
  - 302-0575-00000 REACTOR WATER CLEANUP SYSTEM G36
  - 302-0581-00000 SUPPRESSION POOL CLEANUP SYSTEM G42
  - 302-0701-00000 HIGH PRESSURE CORE SPRAY SYSTEM E12
  - 302-0713-00000 MIXED BED DEMINERALIZER SYSTEM P22
  - 302-0730-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0731-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0732-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0734-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0735-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0736-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0737-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0738-00000 LIQUID RADWASTE SYSTEM G50
  - 302-0752-00000 OFF-GAS SYSTEM N64
  - 302-0754-00000 OFF-GAS SYSTEM N64
  - 302-0871-00000 CONTROL ROD DRIVE SYSTEM C11
  - 743-0003-00000 CATCH BASIN, STORM DRAINAGE
  - 911-0023-00000 TB, HB, AB, AND AUX. BLDG. DRAINS P68
  - 913-0015-00000 HOT WATER HEATING SYSTEM P55

- NOTES:
1. ALL PANEL NUMBERS SHOWN ARE PREFIXED IH3.
  2. ALL VENT AND DRAIN VALVES ARE NORMALLY CLOSED.
  3. LINES THAT PENETRATE C.S.T. AND GO BELOW EL. 631'-4" HAVE SYMPHON BREAKER HOLES.
  4. EFFECTIVE 6-12-94 THIS PART NUMBER IS SUBJECT TO APPENDIX "P" OF THE AUGMENTED QUALITY PROGRAM.
  5. TEMPORARY STRAINERS USED FOR START-UP ONLY, ARE REMOVED FOR PLANT OPERATION.
  6. IBS1 UNIT 2 BOUNDARY SEPARATION FOR DETAILS SEE TECHNICAL ASSIGNMENT FILE 81653.
  7. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA PRESSURES, TEMPERATURES, AND FLOWS PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  8. DELETED
  9. THE L2-4 PIPING BETWEEN THE RESTRICTING ORIFICE IC10007A/B DELETED ON 302-0871-00000 AND VALVE IP110506 IS SCHEDULE 80 SEAMLESS PIPE.

DESIGN DATA

#	NORMAL		UPSET		BY	CHKD	REMARKS	REV
	PSIG	°F	PSIG	°F				
1	25	135	25	135	M.C.	RJS	SHUTOFF	
2	125	135	160	135	M.C.	RJS	SHUTOFF	
3	30	135	50	135	RJS			
4	50	140	250	140	JET			

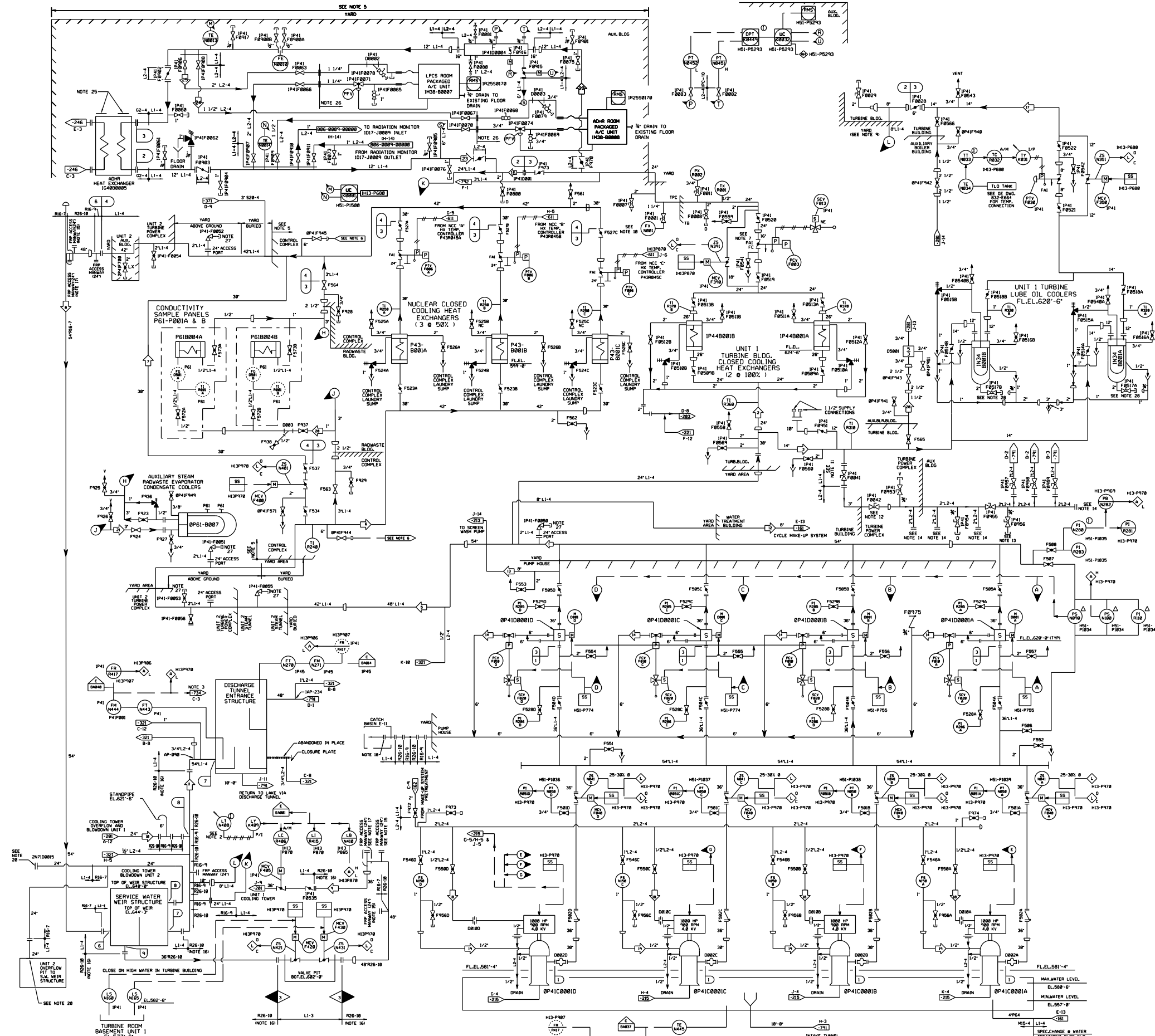
\* DESIGN CONDITIONS ARE INDICATED IN THE UPSET DESIGN DATA COLUMN.

(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

CONDENSATE TRANSFER AND STORAGE SYSTEM  
FIGURE 9.2-13  
(DWG. D-302-0102-00000)





OPERATING DATA SEE NOTE 21

PSIG	GPM	°F	REMARKS
1	44	46,000	81.5
2	38	4,800	81.5
3	38	1,748	81.5
5	44	34,768	81.5
6	48	18,200	81.5
7	25	24,428	81.5
8	16	34,768	87
9	6.5	25,908	87
10	3.2	18,330	94
11	3.8	23,850	98
12	44	500	81.5
13	35	1,800	81.5
14	35	520	81.5
15			DELETED
16	10	9,000	93 NOTE 24
17	9.8	1,720	95
18	100	8	AMB
19	100	5	AMB **
20	48	20	81.5 NOTE 19
21	48	20	81.5
22	43.8	4,538	81.5 ADR OPERATION
23	3.5	4,538	119.5 ADR OPERATION
24	34.8	9	81.5 ADR OPERATION
25	39.8	24	81.5 ADR OPERATION

\*\* 1 GPM MIN FLOW REQUIRED.

DESIGN DATA

ID	NORMAL	UPSET	REMARKS
1	180	125	N/A
2	50	125	N/A
3	90	125	N/A
4	36	125	N/A
6	22	125	N/A
7	7	125	N/A
8	5	94	N/A
9	17	125	N/A

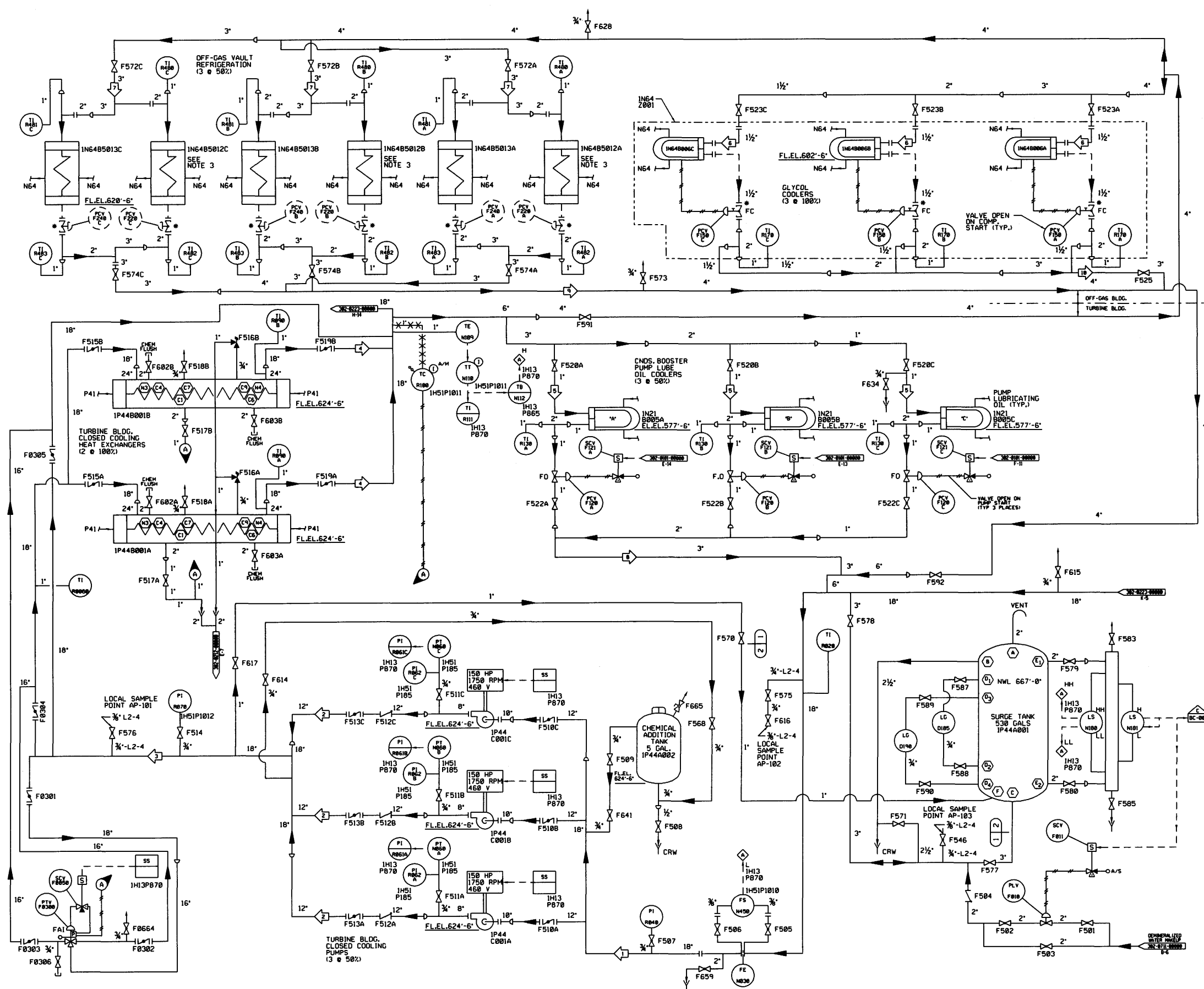
- REFERENCES:
- 382-0161-00000 MAKEUP WATER PRETREATMENT SYSTEM P20
  - 382-0162-00000 MAKEUP WATER PRETREATMENT SYSTEM P20
  - 382-0201-00000 CIRCULATING WATER SYSTEM P11
  - 382-0202-00000 CIRCULATING WATER CONDENSER WATER BOX VENTS & DRAINS
  - 382-0213-00000 SERVICE WATER SCREEN WASH SYSTEM P48
  - 382-0215-00000 SERVICE WATER AND EMERGENCY SERVICE WATER CHORINATION SYSTEM P48
  - 382-0221-00000 TURBINE BUILDING CLOSED COOLING SYSTEM P44
  - 382-0261-00000 AUXILIARY BOILER CHEMICAL TREATMENT SYSTEM P05
  - 382-0321-00000 COOLING TOWER CHORINATION AND PLANT DISCHARGE DECHORINATION SYSTEM P04
  - 382-0611-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 382-0734-00000 LRN-CHEMICAL WASTE DISTILLATE TANKS,PUMPS AND DETERGENT DRAIN TANKS,PUMPS & FILTERS SYSTEM G08
  - 382-0791-00000 EMERGENCY SERVICE WATER SYSTEM P45
  - 000-0210-00000 SERVICE WATER PUMP TEMPERATURE INSTRUMENTATION LOOP DIAGRAM

- NOTES:
- ALL PIPING SHALL BE AS PER LINE SPECIFICATION L1-4 UNLESS OTHERWISE NOTED.
  - LEVEL TRANSMITTERS ARE LOCATED IN THEIR RESPECTIVE COOLING TOWER BASINS.
  - INTERLOCK WITH VALVES D50-F153 AND D50-F155 WITH THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM STOPS RADWASTE FLOW TO ESW DISCHARGE PIPE.
  - TRANSITION FROM FIBER GLASS PIPING TO STEEL PIPING WILL BE AT THE BUILDING ENTRANCE UNLESS OTHERWISE NOTED.
  - 24", 30" AND 42" SERVICE WATER PIPING IN THE CONTROL COMPLEX AND UNIT 1 & 2 AUXILIARY BUILDINGS IS SEISMIC CATEGORY 1. ADRW SERVICE WATER PIPING IN THE UNIT 1 AUXILIARY BUILDING IS SEISMIC CATEGORY 1.
  - SUPPLY & RETURN FOR FUTURE VOLUME REDUCTION FACILITY.
  - VALVE IP41-F803 FAILS AS IS IF FAIL ON LOSS OF INSTRUMENT AIR SUPPLY AND FAILS CLOSED POSITION.
  - FUNCTIONAL LOCATION NUMBERS ON THIS DRAWING ARE PREFIXED WITH IP41- UNLESS NOTED OTHERWISE EXCEPT ALL SERVICE WATER COMPONENTS FOR ADRW ARE PREFIXED WITH IP41-.
  - APPROX. 60'-0" OF THE NEW 8" PIPE WHERE IT EXITS THE TURBINE BUILDING WILL USE THE EXISTING 14" FRP PIPE AS A CONDUIT.
  - COMPONENTS ASSOCIATED WITH FLOW INSTRUMENTATION (F1-F80) INCLUDING FLOW FITTINGS AND VALVE F801 DO NOT CONFORM TO LINE SPEC L1-4.
  - LINE SPEC. BREAK L1-4, L2-4 CARBON STEEL STAINLESS STEEL FLANGES MUST UTILIZE A FLANGE INSULATING KIT.
  - VALVE IP41-F842 DOES NOT CONFORM TO LINE SPEC L2-4 IN THAT IT IS A SOCKET WELDED VALVE. HOWEVER, MATERIAL AND CLASS RATING CONFORM TO L2-4 REQUIREMENTS.
  - THIS CONNECTION TO BE USED FOR ALTERNATE KEEPFLI.
  - THESE CONNECTIONS ARE CLEANOUTS AND SHALL BE PROVIDED WITH BEND FLANGES.
  - FRP ACCESS HANWAY IS NOT USABLE DUE TO INSTALLATION OF CURE-IN-PLACE-PIPE BUT MAY BE REINSTATED IF NEEDED AT A LATER DATE. THE LINE CLASS OF HANWAY REMAINS R16-7.
  - THE CIPP WILL EXTEND INTO THE STEEL PIPE WHERE END-SEALS ARE MADE.
  - EXISTING FRP PIPE HAS BEEN LINED WITH CURED-IN-PLACE-PIPE LINE SPEC. R16-7. INSPECTION POINTS FOR THE INSTALLATION OF CIPP UTILIZE NEW FRP SECTIONS (LINE SPEC. R16-9). THE CIPP WILL EXTEND INTO THE STEEL (L1-4) PIPE AND ENDS AT PLANT.
  - CONDUCTIVITY SAMPLE PANELS PG1-P001A & B ARE NOT UTILIZED. FLOW INDICATED BY DESIGN BUT NO MINIMUM FLOW IS REQUIRED.
  - PERMANENT ISOLATION HAS BEEN PROVIDED AT THE UNIT 2 COOLING TOWER OVERFLOW P11 AND AT THE UNIT 2 BLOWDOWN LINE (SPECIE 20710000). REFERENCE P11 97-2118 FOR DETAILS.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BAGS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - DELETED
  - DELETED
  - THIS OPERATING DATA POINT IS BEING MODIFIED FOR ECP 06-0012. "TBC HEAT EXCHANGER IP440000B RETURN". FOR THE HEAT EXCHANGER INSTALLED UNDER ECP 03-0023, THE IP440000A HEAT EXCHANGER TO BE INSTALLED UNDER ECP 03-0023-BI WILL BE RETURNED WITH THE SAME MATERIAL AS THE IP440000B HEAT EXCHANGER. UNTIL THE IP440000A HEAT EXCHANGER HEAT EXCHANGER IS INSTALLED, THE 107°F OPERATING TEMPERATURE SHALL APPLY. AFTER THE INSTALLATION, THE TEMPERATURE OF 93°F WILL APPLY TO BOTH IP440000A/B TBC HEAT EXCHANGERS.
  - INSPECTION POINTS BASKET STRAINERS ON SERVICE WATER SIDE ONLY, PROVIDED AS PART OF HEAT EXCHANGER. BASKET STRAINER HAS LATER REMOVED BY ECP 04-0278-05.
  - VENDOR SUPPLIED EQUIPMENT. VALVES F8071 AND F8074 ARE WATER REGULATING VALVES.
  - PIPE CAPS DOWNSTREAM OF INDICATED VALVES ARE PENETRATED WITH KEEP HOLES.
  - VALVES IP41F857A & IP41F857B DO NOT CONFORM TO PIPE LINE SPECIFICATION L1-4.

(REV. 21 10/2019)

PERRY NUCLEAR POWER PLANT  
 10 CENTER RD., PERRY, OHIO 44081  
 SERVICE WATER SYSTEM  
 UNIT 1  
 FIGURE 9.2-14  
 (DWG. D-302-0212-00000)





OPERATING DATA  
SEE NOTE 5

ID	PSIG	GPM	°F	BY	CHKD	REMARKS	REV
1	18	8588	118	JAB	MCC		
2	66	3298	118	JAB	MCC	1398 GPM @ 113 FT. TDH	
3	66	6588	118	JAB	MCC		
4	66	6588	95	JAB	MCC		
5	67	18	95	JAB	MCC		
6	59	88	95	JAB	MCC		
7	49	98	95	JAB	MCC		
8	28	28	185	JAB	MCC		
9	12	188	185	JAB	MCC		
10	22	88	185	JAB	MCC		

OPERATING DATA (START-UP)  
SEE NOTE 5

ID	PSIG	GPM	°F	BY	CHKD	REMARKS	REV
2	66	3398	95	JAB	MCC	L.PUMP RUNNING	

DESIGN DATA

ID	NORMAL	UPSET	PSIG	°F	TIME	BY	CHKD	REMARKS	REV
1	188	125	N/A	N/A		JAB	MCC		
2	188	125	N/A	N/A		JAB	MCC		

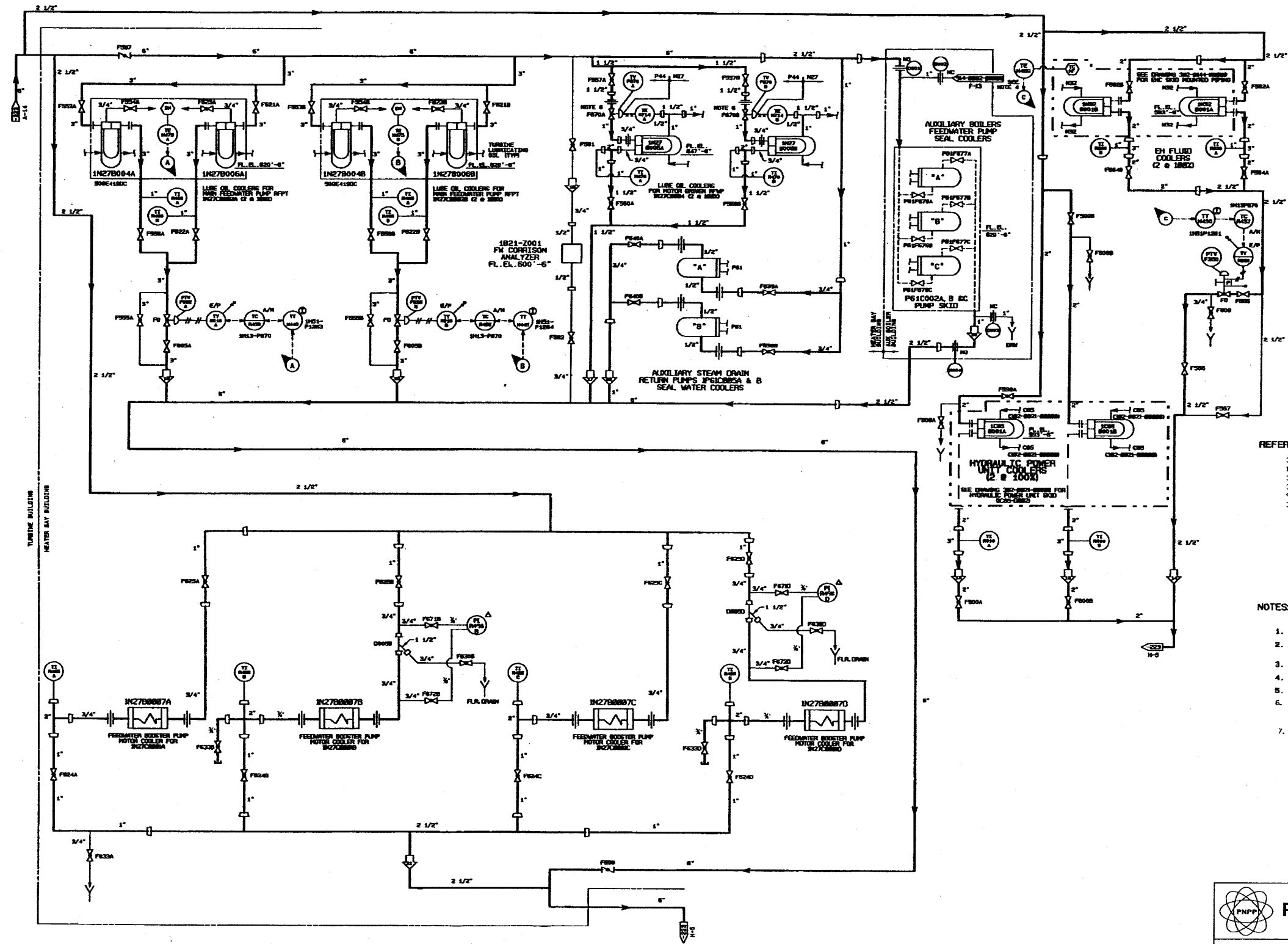
- REFERENCES:
- 382-8181-00000 CONDENSATE SYSTEM M21
  - 382-8212-00000 SERVICE WATER SYSTEM P41
  - 382-8222-00000 TURBINE BUILDING CLOSED COOLING P44
  - 382-8223-00000 CLOSED COOLING SYSTEM P44
  - 382-8711-00000 TWO-RED DENATURIZER & DISTRIBUTION SYSTEM STORAGE & NORTH ZONE DISTRIBUTION P21
  - 382-8753-00000 OFF-GAS SYSTEM
  - 913-8818-00000 OFF-GAS VULT REFRIGERATION SYSTEM
  - 913-8811-00000 OFF-GAS VULT REFRIGERATION SYSTEM
  - 913-8812-00000 OFF-GAS VULT REFRIGERATION SYSTEM

- NOTES:
- ALL PIPING IN THIS SYSTEM IS TO BE LINE SPEC. L1-4.
  - VALVES MARKED WITH ASTERISK (\*) TO BE SUPPLIED BY HEAT EXCHANGER MANUFACTURER.
  - REFER TO 913-8818-00000 THRU 913-8812-00000 FOR FLOW CONTROL ARRANGEMENT.
  - PIPING IS NON-SAFETY CLASS.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

TURBINE BUILDING  
CLOSED COOLING SYSTEM  
FIGURE 9.2-15 (SHEET 1 OF 3)  
(DWG. D-302-0221-00000)



**OPERATING DATA**  
SEE NOTE 7

PSIG	GPM	° F	BY	CKD	REMARKS	REV
13	30	30	300	JAB	MHC	
14	30	30	300	JAB	MHC	
15	30	30	300	JAB	MHC	
16	30	30	300	JAB	MHC	
17	27	32	305	JAB	MHC	SEE NOTE 9
18	25	25	110	JAB	MHC	
21	30	30	130	JAB	MHC	
22	30	32	120	MHC	MHC	

**OPERATING DATA (START-UP)**  
SEE NOTE 7

PSIG	GPM	° F	BY	CKD	REMARKS	REV
17	27	32	305	JAB	MHC	

- REFERENCES:**
- 302-0221-00000 TURBINE BUILDING CLOSED COOLING P44
  - 12501309 GAS CONTROL PIPING DIAGRAM (G.E.)
  - 302-0144-00000 REACTOR/TURBINE GENERATOR TRIP SYSTEM (EHC), NS2
  - 302-0131-00000 CONDENSER AIR REMOVAL NS2
  - 914-0002-00000 FIRE SERVICE WATER
  - 302-0021-00000 STEAM BYPASS AND PRESSURE REGULATION SYSTEM, CBS

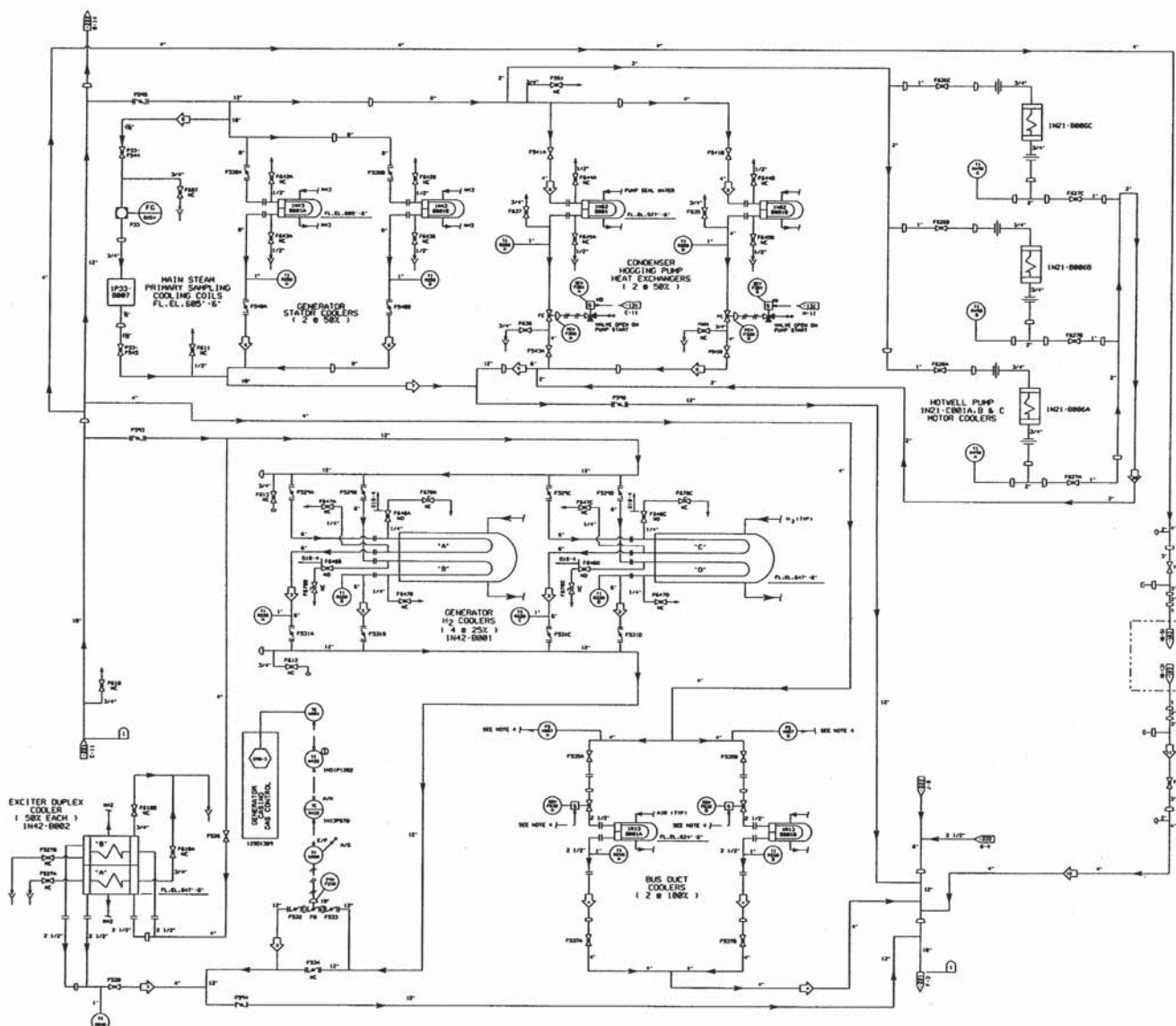
- NOTES:**
1. ALL PIPING IN THIS SYSTEM IS TO BE LINE SPECIFICATION L1-4.
  2. VALVES MARKED WITH ASTERISK (\*) TO BE SUPPLIED BY HEAT EXCHANGER MANUFACTURER.
  3. PIPING IS NON-SAFETY CLASS.
  4. THERMOCOUPLE AND THERMOWELL ARE SUPPLIED BY S.E.T.
  5. ONE COOLER IS USED AT A TIME.
  6. TEMPERATURE SENSOR 1N27-N714A & B IS AN INTEGRAL PART OF VALVE 1P44-F670A & B. SEE DWG. (GAD) 26-0179-00001, 26-0179-00002 & DWG. 26-0109-00000.
  7. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

(Rev. 13 12/03)

**PERRY NUCLEAR POWER PLANT**

Turbine Building Closed  
Cooling System

Figure 9.2-15 (Sheet 2 of 3)  
(Dwg. D-302-222)



OPERATING DATA  
SEE NOTE 5

ID	PSIG	GPM	°F	BY	CHKD	REMARKS	REV
1	4	200	110	JM	HCC		
2	43	2373	110	JM	HCC		
3	43	2373	110	JM	HCC		
4	43	200	110	JM	HCC		
5	47	18	70	JM	HCC		
6	37	2000	110	JM	HCC		
7	11	2100	110	JM	HCC		
8						NOT USED	
9						NOT USED	
10							
11	45	30	100	JM	HCC		
12	45	30	100	JM	HCC		
13	37	12	100	JM	HCC		

OPERATING DATA (START-UP)  
SEE NOTE 5

ID	PSIG	GPM	°F	BY	CHKD	REMARKS	REV
1	15	200	100	JM	HCC		
2	15	200	100	JM	HCC		

DESIGN DATA

ID	NORMAL	UPSET	BY	CHKD	REMARKS	REV
PSIG	°F	PSIG	°F	TIME		
1	100	100	100	100		

- REFERENCES:
- 300-0121-00000 CONDENSER AIR RECOVERY HX
  - 300-0121-00000 TURBINE BUILDING CLOSED COOLING PH
  - 300-0121-00000 TURBINE BUILDING CLOSED COOLING PH
  - 014-0000-00000 FINE SERVICE WATER
  - 10001301 GAS CONTROL SYSTEM DIAGRAM (01)
  - 000-002 MANAGEMENT OF OIL TANK REPLENISHMENT AND CLEANING TOWER (01)

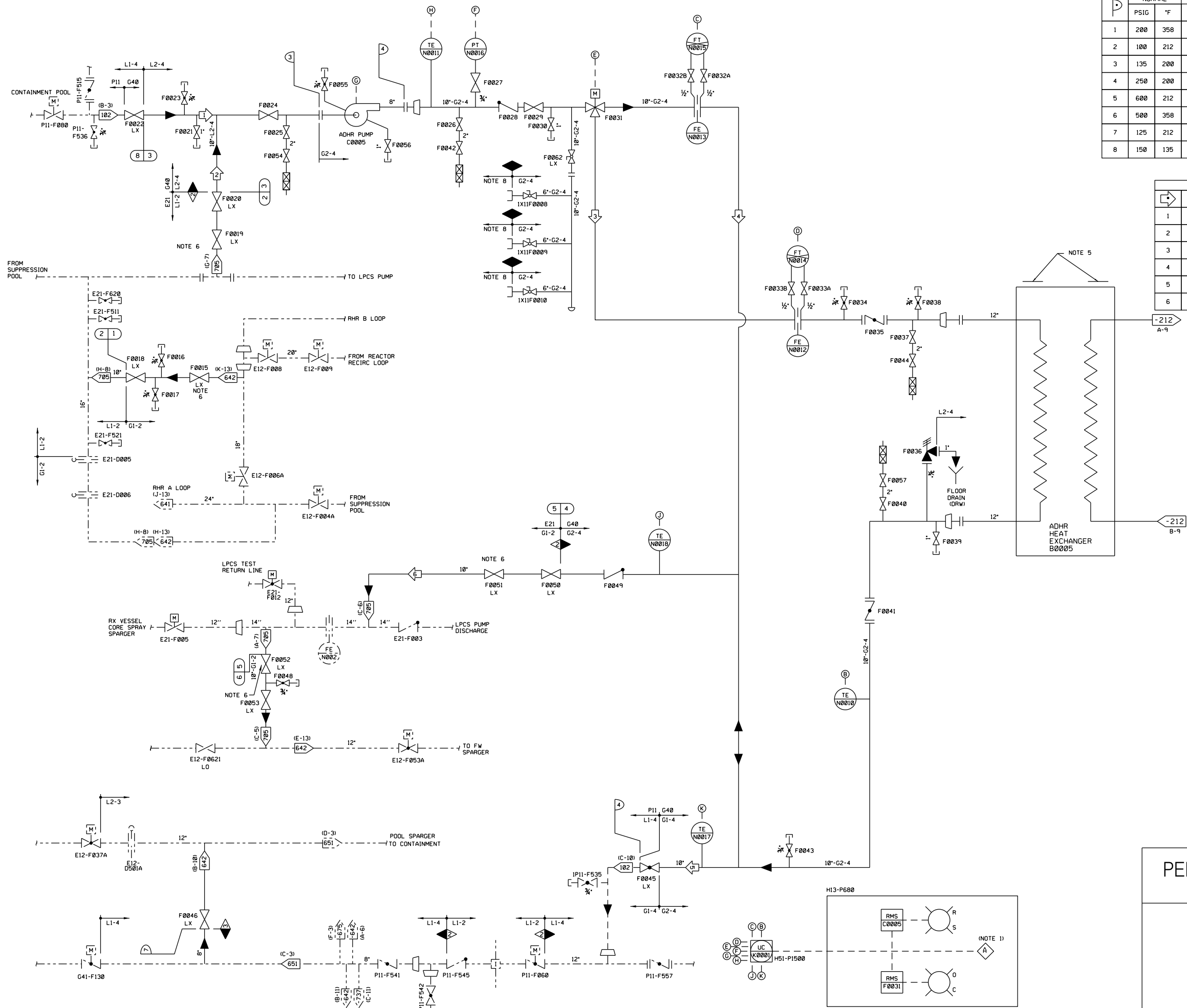
- NOTES:
- ALL PIPING IN THIS SYSTEM IS TO BE LINE SPEC. L1-4, EXCEPT AS NOTED ON DRAWING.
  - RELIEF.
  - PIPING IS NON-SAFETY CLASS.
  - SEE MECHANICAL DIAGRAM 300-0000-00000, SHEETS 1 & 2.
  - PROCESS DATA SHOWN ON THE OPERATING DATA TABLE ON THIS DRAWING SHOULD BE USED IN CONNECTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATOR AND MAINTENANCE PERSONNEL SHOULD OPERATE THE SYSTEM IN ACCORDANCE WITH THE DESIGN BASIS INFORMATION AND THE OPERATING DATA TABLE. THE OPERATOR SHOULD BE AWARE THAT THE DESIGN BASIS INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE AND THAT THE OPERATOR SHOULD BE AWARE THAT THE OPERATING DATA TABLE IS SUBJECT TO CHANGE WITHOUT NOTICE. THE OPERATOR SHOULD BE AWARE THAT THE OPERATING DATA TABLE IS SUBJECT TO CHANGE WITHOUT NOTICE.

(Rev. 15 10/07)

PERRY NUCLEAR POWER PLANT

Turbine Building Closed Cooling System

Figure 9.2-15 (Sheet 3 of 3)  
(Dwg. D-302-223)



DESIGN DATA					
ID	NORMAL		UPSET		REMARKS
	PSIG	°F	PSIG	°F	
1	200	358	N/A	N/A	
2	100	212			
3	135	200			
4	250	200			
5	600	212			
6	500	358			
7	125	212			
8	150	135			

OPERATING DATA				
ID	PSIG	GPM	°F	REMARKS
1	50	3,000	135	MODE 5 ONLY
2	25	3,000	200	
3	150	3,000	200	
4	150	3,000	200	
5	120	2,000	135	MODE 5 ONLY
6	120	3,000	200	

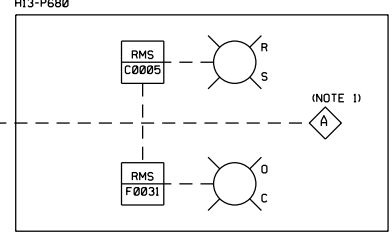
- NOTES:**
- ADHR TROUBLE ALARM.
  - ALL EQUIPMENT AND INSTRUMENTS ARE PREFIXED BY SYSTEM G40, UNLESS OTHERWISE NOTED.
  - ALL REMOTE MANUAL SWITCHES, ALARMS, AND INDICATING LIGHTS ARE LOCATED ON H13-P655, UNLESS OTHERWISE NOTED.
  - CARBON STEEL TO STAINLESS STEEL INTERFACE AT SW PIPING (L2-4) FLANGED CONNECTION TO HEAT EXCHANGER (STAINLESS STEEL) MUST UTILIZE A FLANGE INSULATING KIT.
  - 12" INSPECTION PORTS, BASKET STRAINER ON SERVICE WATER SIDE PROVIDED AS PART OF HEAT EXCHANGER.
  - VALVE DISK MODIFIED TO ADDRESS OVER PRESSURE PROTECTION.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION IN GENERAL. THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP, TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - 5" STORZ CONNECTIONS FOR UNIT 1 SUPPRESSION POOL HEAT REMOVAL FOR FLEX STRATEGY, REFERENCE DWG. 302-1000-00000. STORZ CONNECTIONS MAY BE REPLACED WITH VICTAULIC COUPLINGS FOR HIGH TEMPERATURE SERVICE.

- REFERENCES:**
- 302-0001-00000 P & ID SYMBOLLOGY
  - 302-0002-00000 P & ID SYMBOLLOGY
  - 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM, P11
  - 302-0641-00000 RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 302-0642-00000 RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 302-0651-00000 FUEL POOL COOLING AND CLEANUP SYSTEM, G41
  - 302-0705-00000 LOW PRESSURE CORE SPRAY SYSTEM, E21
  - 302-0212-00000 SERVICE WATER SYSTEM
  - 320-0102-00000 DESIGN SPEC. CONDENSATE TRANSFER & STORAGE SYSTEM, P11
  - 320-0641-00000 DESIGN SPEC. RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 320-0642-00000 DESIGN SPEC. RESIDUAL HEAT REMOVAL SYSTEM, E12
  - 320-0705-00000 DESIGN SPEC. LOW PRESSURE CORE SPRAY SYSTEM, E21

(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

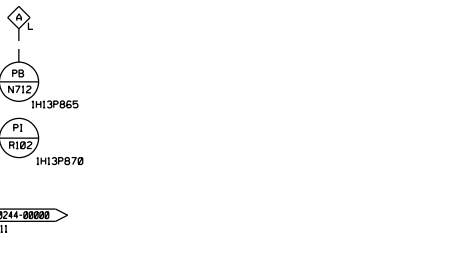
ALTERNATE DECAY  
HEAT REMOVAL SYSTEM  
FIGURE 9.2-16  
(DWG. D-302-0246-00000)



OPERATING DATA						
SEE NOTE 5						
#	PSIG	ACFM	F	BY	REMARKS	REV
1A	0	1528	68		SEE NOTE 3	
1B	125				AS REQUIRED, BASED ON SYSTEM DEMANDS PRESSURE	
2	120				AS REQUIRED, BASED ON SYSTEM DEMANDS	
3A	0	1528	68		SEE NOTE 3	
3B	125				AS REQUIRED, BASED ON SYSTEM DEMANDS PRESSURE	
4	120				AS REQUIRED, BASED ON SYSTEM DEMANDS	

DESIGN DATA								
#	NORMAL PSIG	UPSET PSIG	F	TIME	BY	CHKD	REMARKS	REV
1	150	110	N/A	N/A	N/A			

- NOTES:
- \*FURNISHED WITH EQUIPMENT.
  - SYSTEM TROUBLE ALARMS FOR SERVICE AIR SYSTEM CONTROL PANEL, IP51-P0001, AND INSTRUMENT AIR PANEL, IP52-P0001, ARE ANNUNCIATED ON IH3-P680.
  - RATED COMPRESSOR FLOW (ACFM) IS BASED ON 14.5 PSIA, 68 DEG. F AND RH=0% UPSTREAM OF INLET FILTER.
  - VALVES F809, F810A, F810B, F510, F511A, F511B, F512A, F512B, F517A, F517B, F519A, F519B, F520, F521A, F521B, F525A, F525B, AND F515 ARE BALL AND PLUG VALVES AND DO NOT HAVE TO CONFORM TO LINE SPEC. L2-4.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - REFER TO THE ICS FOR A LIST OF IP51 AND IP52 SERIES COMPUTER POINTS PROVIDED TO THE C91 PROCESS COMPUTER.
  - SEE DRAWING 208-0182-00004 FOR DETAILS OF NETWORK LINK.
  - SEE DRAWING 208-0183-00004 FOR DETAILS OF NETWORK LINK.



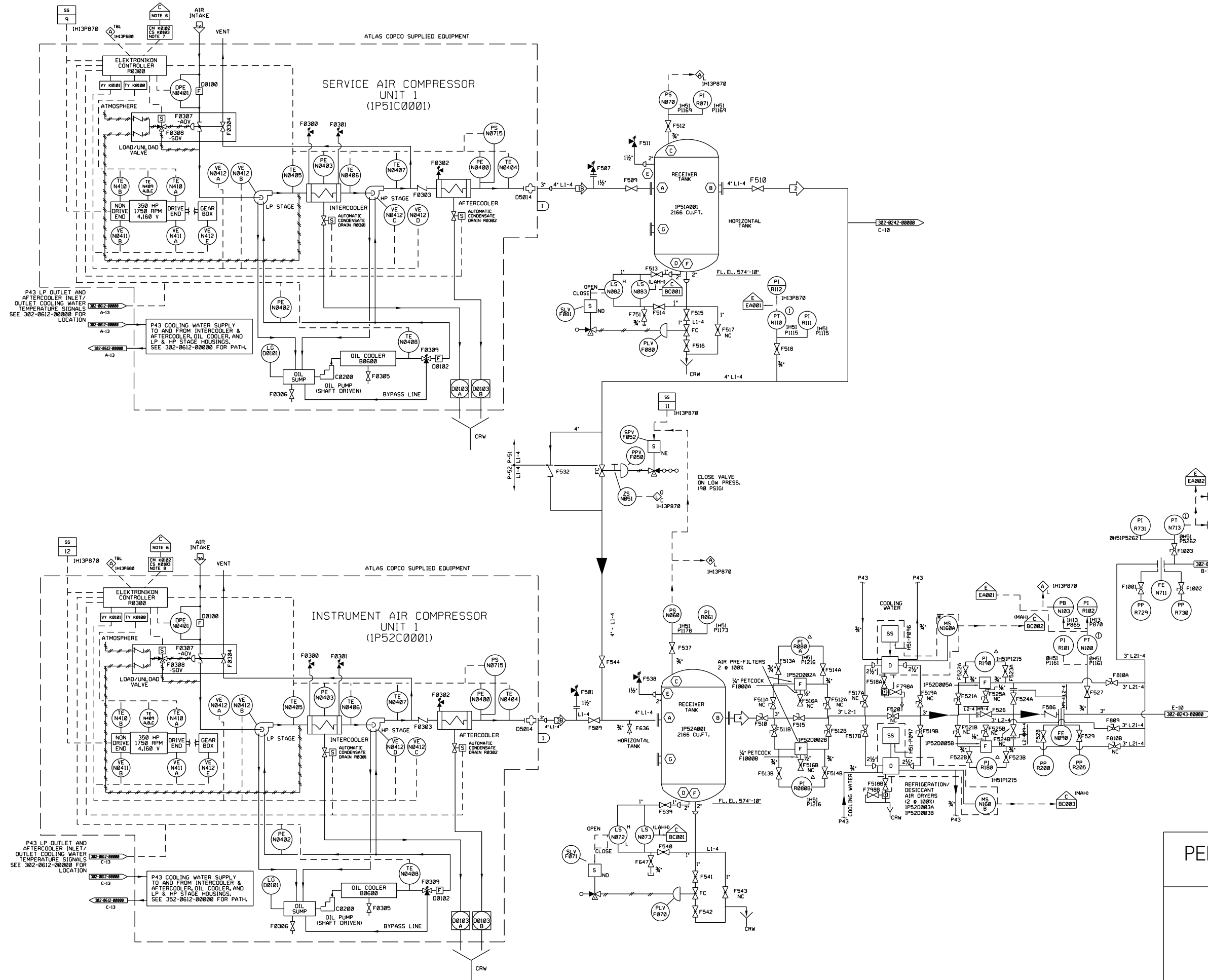
- REFERENCES:
- 302-0242-0000 SERVICE AIR DISTRIBUTION SYSTEM
  - 302-0243-0000 INSTRUMENT AIR
  - 302-0244-0000 PARALLEL INSTRUMENT AIR DISTRIBUTION SYSTEM
  - 302-0612-0000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 808-0210-0000 SERVICE AND INSTRUMENT AIR COMPRESSOR MOTOR TEMPERATURE INSTRUMENTATION

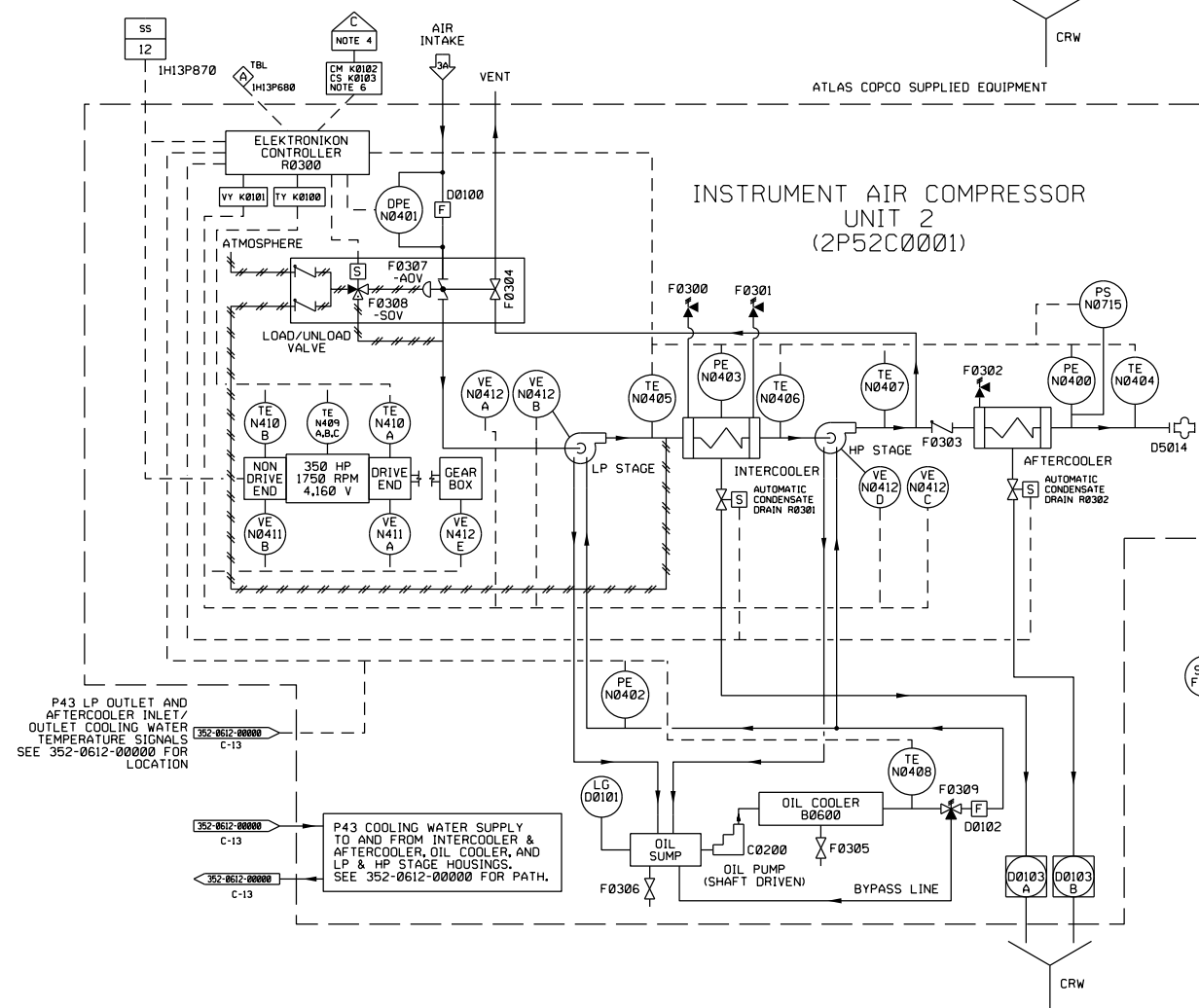
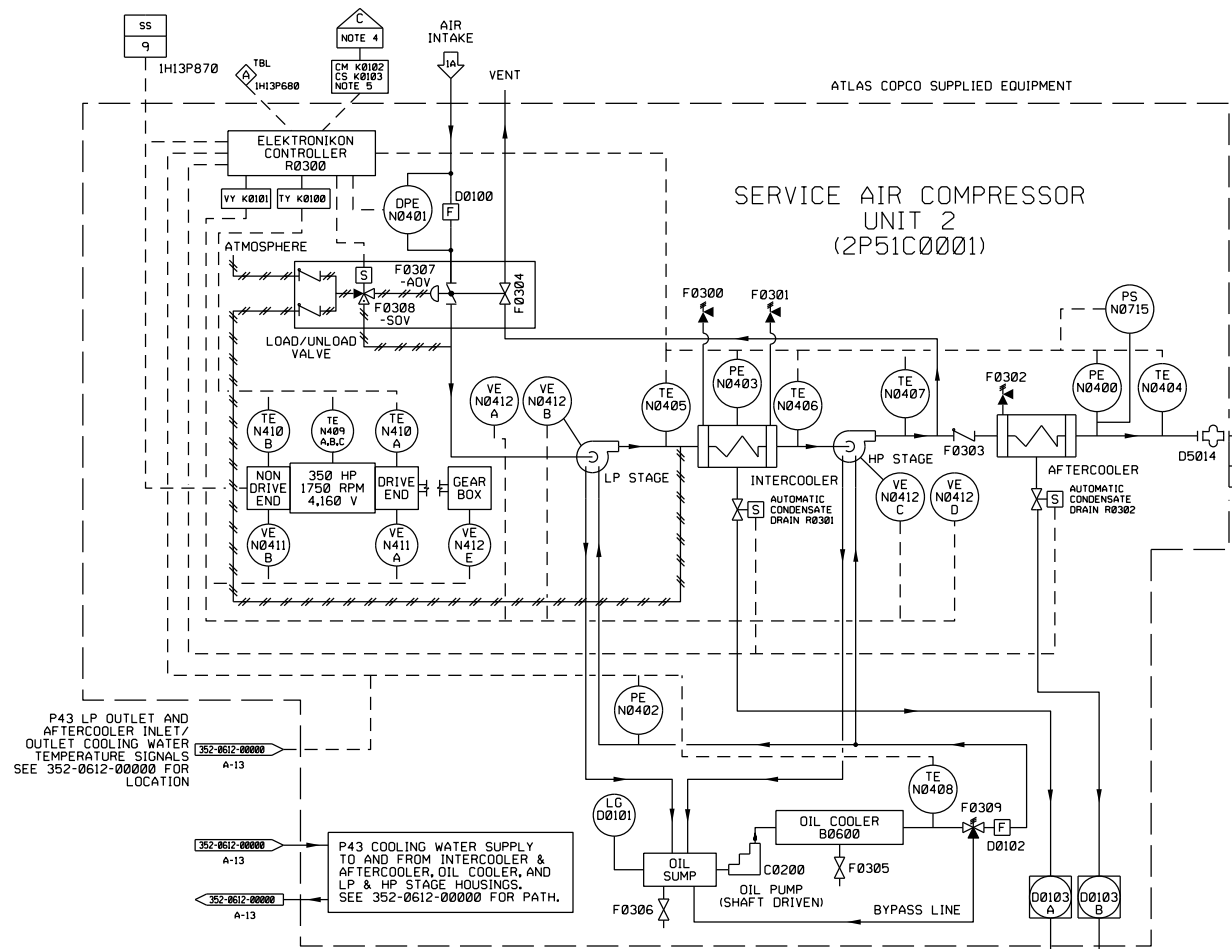
SYSTEM DESIGNATION  
 P51 - SERVICE AIR SUPPLY  
 P52 - INSTRUMENT AIR SUPPLY

(REV. 22 10/2021)

PERRY NUCLEAR POWER PLANT  
 10 CENTER RD., PERRY, OHIO 44081

SERVICE AND INSTRUMENT AIR SUPPLY  
 FIGURE 9.3-1 (SHEET 1 OF 2)  
 (DWG. D-302-0241-00000)





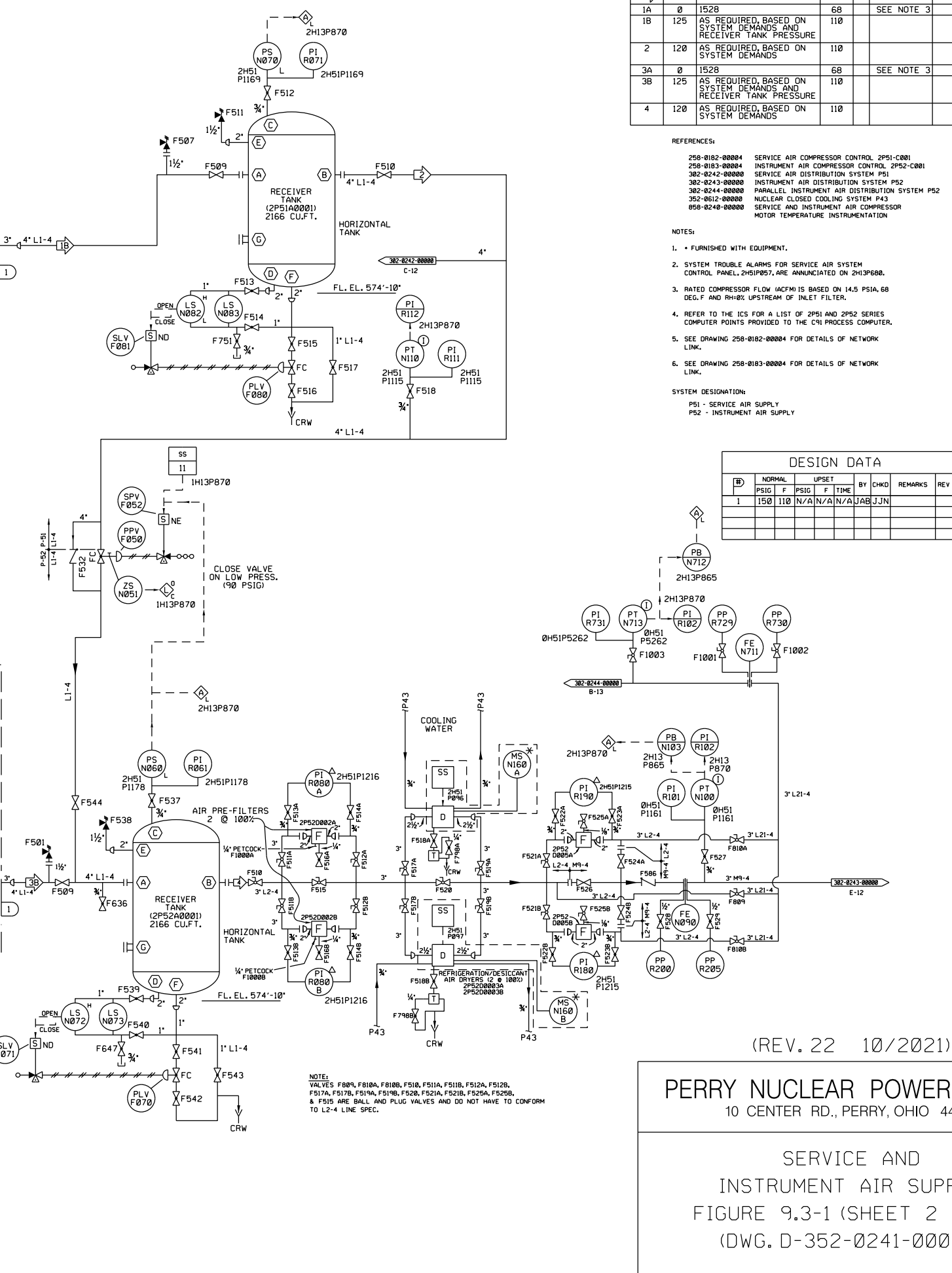
OPERATING DATA						
#	PSIG	ACFM	F	BY	REMARKS	REV
1A	0	1528	68			
1B	125	AS REQUIRED, BASED ON SYSTEM DEMANDS AND RECEIVER TANK PRESSURE	110		SEE NOTE 3	
2	120	AS REQUIRED, BASED ON SYSTEM DEMANDS	110			
3A	0	1528	68		SEE NOTE 3	
3B	125	AS REQUIRED, BASED ON SYSTEM DEMANDS AND RECEIVER TANK PRESSURE	110			
4	120	AS REQUIRED, BASED ON SYSTEM DEMANDS	110			

- REFERENCES:
- 258-0182-00004 SERVICE AIR COMPRESSOR CONTROL, 2P51-C001
  - 258-0183-00004 INSTRUMENT AIR COMPRESSOR CONTROL, 2P52-C001
  - 302-0242-00000 SERVICE AIR DISTRIBUTION SYSTEM P51
  - 302-0243-00000 INSTRUMENT AIR DISTRIBUTION SYSTEM P52
  - 302-0244-00000 PARALLEL INSTRUMENT AIR DISTRIBUTION SYSTEM P52
  - 352-0612-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 058-0240-00000 SERVICE AND INSTRUMENT AIR COMPRESSOR MOTOR TEMPERATURE INSTRUMENTATION

- NOTES:
- FURNISHED WITH EQUIPMENT.
  - SYSTEM TROUBLE ALARMS FOR SERVICE AIR SYSTEM CONTROL PANEL, 2H51P051, ARE ANNUNCIATED ON 2H13P680.
  - RATED COMPRESSOR FLOW (ACFM) IS BASED ON 14.5 PSIA, 68 DEG. F AND RH=0; UPSTREAM OF INLET FILTER.
  - REFER TO THE ICS FOR A LIST OF 2P51 AND 2P52 SERIES COMPUTER POINTS PROVIDED TO THE C91 PROCESS COMPUTER LINK.
  - SEE DRAWING 258-0182-00004 FOR DETAILS OF NETWORK LINK.
  - SEE DRAWING 258-0183-00004 FOR DETAILS OF NETWORK LINK.

SYSTEM DESIGNATION:  
 P51 - SERVICE AIR SUPPLY  
 P52 - INSTRUMENT AIR SUPPLY

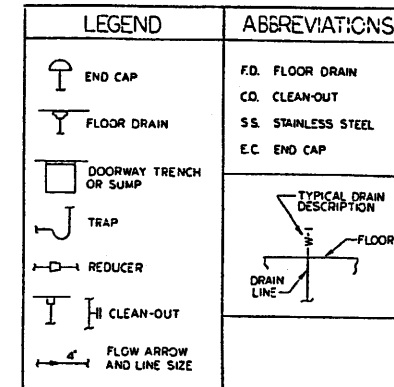
DESIGN DATA						
#	NORMAL	UPSET	BY	CHKD	REMARKS	REV
1	150	110	N/A	N/A	N/A	JAB/JJN



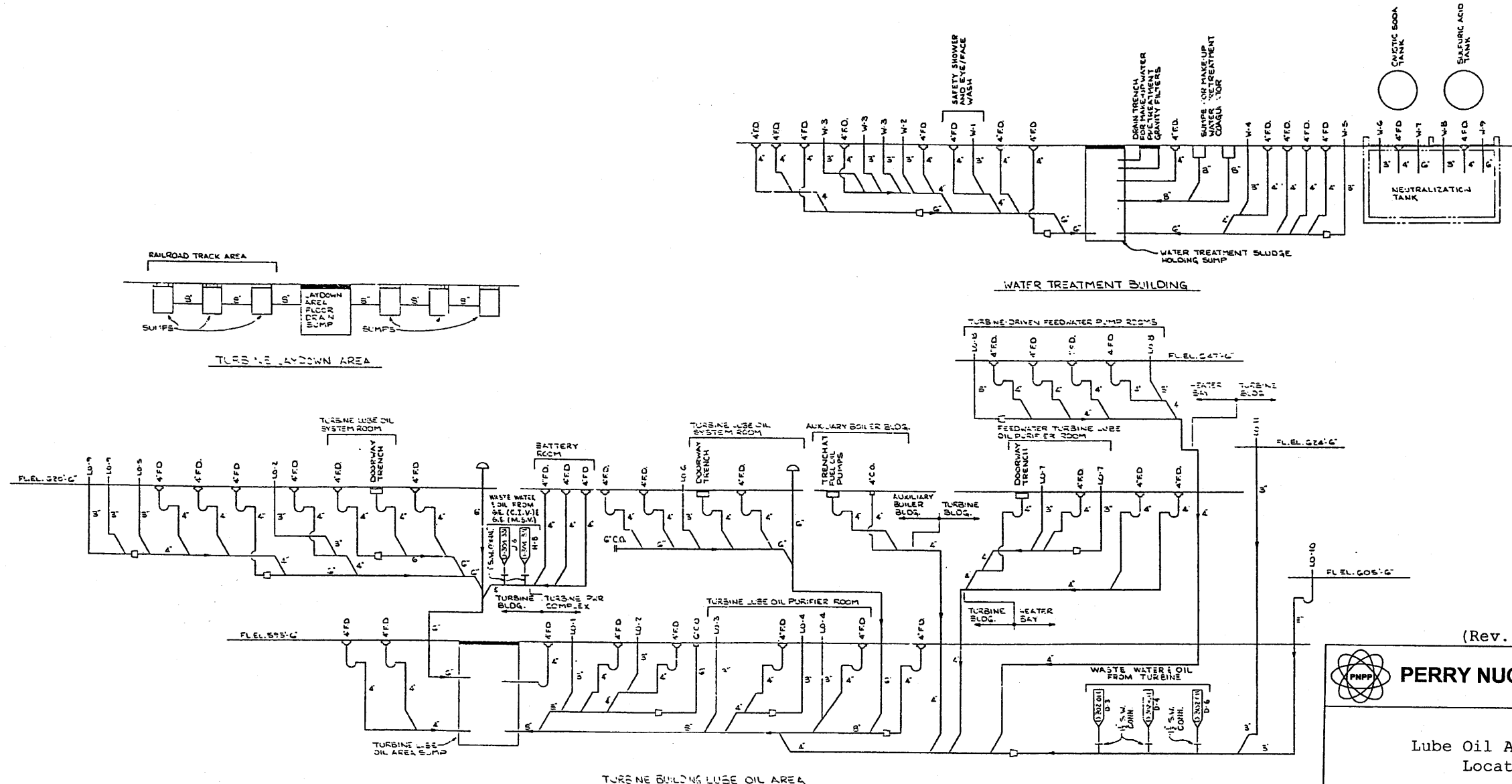
(REV. 22 10/2021)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

SERVICE AND INSTRUMENT AIR SUPPLY  
 FIGURE 9.3-1 (SHEET 2 OF 2)  
 (DWG. D-352-0241-00000)



DRAIN DESCRIPTION	EQPT. NO.	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
LD-1 ELECTRO HYDRAULIC CONTROL UNIT DRAIN	N32-3001	D-921-005 (D-8)	
LD-2 FIRE SERVICE DRAIN		D-921-005(E-7) D-921-005(B-12)	
LD-3 TURBINE LUBE OIL TANK AFTER COOLERS DRAIN	N34-A001	D-921-005 (C-7)	EQPT. ON D-921-008
LD-4 TURBINE LUBE OIL PURIFIER DRAIN	N34-D001	D-921-005 (C-5)(C-6)	
LD-5 SODIUM HYPOCHLORITE FEED PUMP DRAIN	P84-C005	D-921-008 (D-14)	
LD-6 OIL MIST ELIMINATOR DRAIN		D-921-006 (C-6)	
LD-7 FEEDWATER TURBINE LUBE OIL PURIFIER DRAIN	N34-D002A&B	D-921-044 (D-1)(E-13)	
LD-8 MAIN FEEDWATER LUBE OIL VENT DRAIN		D-921-047 (C-1)(G-11)	
LD-9 SODIUM HYPOCHLORITE TRANSFER PUMP DRAIN	P84-C006A&B	D-921-008 (D-1)(E-13)	
LD-10 HYDROGEN SEAL UNIT DRAIN	N42-D701	D-921-007 (F-4)	
LD-11 LUBE OIL PURIFICATION LOOP SEAL DRAIN		D-921-009 (F-3)	
W-1 SAFETY EYE WASH DRAIN		D-921-070 (D-1)	
W-2 DEMINERALIZER WATER TWO BED STORAGE DISTRIBUTION TRANSFER PUMP DRAIN	P21-C001A,B,C	D-921-070 (D-1)	
W-3 MIXED BED DEMINERALIZER TRANSFER PUMP DRAIN	P21-C001A,B,C	D-921-070 (D-1)(E-13)	
W-4 MAKE-UP WATER PRETREATMENT SAMPLE SINK DRAIN	P20-3001	D-921-070 (E-5)	
W-5 WATER TREATMENT LABORATORY SINK DRAIN		D-921-070 (H-1)	
W-6 TWO BED WATER DEMINERALIZER CAUSTIC PUMP DRAIN	P21-C005A,B,C	D-921-070 (E-12)	
W-7 TWO BED WATER DEMINERALIZER CAUSTIC STORAGE TANK DR. OVERFLOW	P21-A007	D-921-070 (D-12)	
W-8 TWO BED WATER DEMINERALIZER SULFURIC ACID PUMP DRAIN	P21-C004A,B,C	D-921-070 (C-12)	
W-9 TWO BED WATER DEMIN. SULFURIC ACID STORAGE TANK DR. OVERFLOW	P21-A006	D-921-070 (C-12)	



(Rev. 12 1/03)

**PERRY NUCLEAR POWER PLANT**

Lube Oil Area and Turbine Location Drains

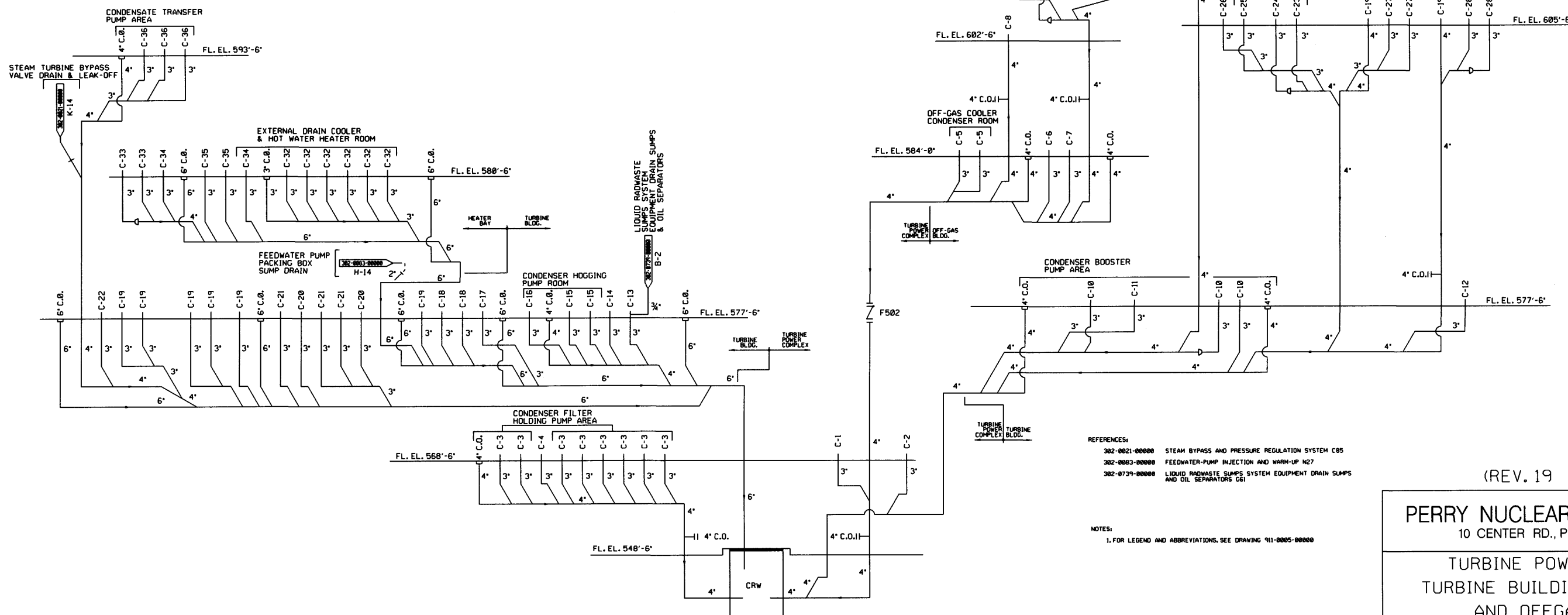
Figure 9.3-5  
(Dwg. D-911-005)



DRAIN DESCRIPTION	EOPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-1 OFF-GAS LOOP SEAL DRAIN	-----				921-0024-00000 (B-11)	
C-2 CONDENSATE DEMINERALIZER EFFLUENT SAMPLE RACK DRAIN	IN24J001				921-0024-00000 (C-18)	
C-3 CONDENSATE FILTER HOLDING PUMP DRAIN	IN23C004A THRU IN23C004H				921-0022-00000 (B-11)(C-11)(D-11) 921-0023-00000 (C-11)(D-11)(E-11) 921-0024-00000 (F-11)(G-11)	
C-4 CONDENSATE DEMINERALIZER HOT WATER TANK DRAIN	IN24B001				921-0022-00000 (C-9)	
C-5 OFF-GAS COOLER CONDENSER DRAIN	IN64B010A & B				921-0061-00000 (J-9)	
C-6 OFF-GAS COOLER INLET PIPING DRAIN	-----				921-0061-00000 (E-10)	
C-7 AIR HANDLING COOLING UNITS DRAIN	-----				921-0061-00000 (C-10)	
C-8 MISCELLANEOUS CRW DRAIN	-----				921-0062-00000 (H-12)	
C-9 OFF-GAS CHARCOAL VAULT REFRIGERATION SYS. BRINE CLG. PACKAGE DR.	IN64B0113A & C				921-0063-00000 (B-8)(B-11)	NOT USED
C-10 CONDENSATE BOOSTER PUMP DRAIN	IN21C002A, B, & C				921-0004-00000 (E-12)(G-12)(H-12)	
C-11 STEAM PACKING EXHAUSTER DRAIN	-----				921-0004-00000 (G-13)	
C-12 CHEMICAL CLEANING DRAIN	-----				921-0004-00000 (F-4)	
C-13 DRAIN FOR ANALYTICAL ELEMENT ON RADWASTE SYS.	-----				921-0004-00000 (J-9)	
C-14 LOOP SEAL DRAIN FOR STEAM JET AIR EJECTOR	IN62C002A & B				921-0004-00000 (C-9)	
C-15 CONDENSER HOGGING PUMP DRAIN	IN62C001A & B				921-0004-00000 (E-8)(F-9)	
C-16 DEEP SEAL TRAP OFF HOLD UP LINE DRAIN	-----				921-0004-00000 (E-7)	
C-17 CONDENSER TROUGH & VACUUM BREAKER DRAIN	-----				921-0003-00000 (B-3)	
C-18 SAMPLE EXTRACTION PUMP DRAIN	IP33C001 THRU IP33C009				921-0003-00000 (C-4)(D-4)	
C-19 MISCELLANEOUS CRW DRAIN	-----				921-0002-00000 (C-13)(E-10) (G-7)(H-10) 921-0003-00000 (H-6) 921-0007-00000 (B-9)(F-3)	

DRAIN DESCRIPTION	EOPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-20 LOW POINT DRAIN FOR CHEMICAL CLEANING PIPING	-----				921-0003-00000 (D-12)(E-12)	
C-21 CONDENSATE HEATERS DRAIN	-----				921-0003-00000 (D-11)(E-11)(H-11)	
C-22 TEMPORARY TEST FLOW NOZZLE DRAIN	-----				921-0002-00000 (J-12)	
C-23 OFF-GAS WATER SEPARATOR DRAIN	-----				921-0007-00000 (F-9)	
C-24 OFF-GAS CONDENSER TUBE DRAIN	-----				921-0007-00000 (F-9)	
C-25 STEAM JET AIR EJECTOR FINAL STAGE DRAIN	-----				921-0007-00000 (F-7)	
C-26 STEAM JET AIR EJECTOR FINAL STAGE DRAIN	-----				921-0006-00000 (C-7)	
C-27 FEEDWATER SEAL INJECTION PUMP DRAIN	IN27C005A & B				921-0007-00000 (C-5)(D-5)	
C-28 GENERATOR STATOR COOLING UNIT DRAIN	IN43D001				921-0006-00000 (C-5)(D-5)	
C-29 TURBINE BUILDING CLOSED COOLING PUMP DRAIN	IP44C001A, B, & C				921-0009-00000 (D-12)(E-12)(F-12)	
C-30 TURBINE BUILDING CLOSED COOLING HEAT EXCHANGER DRAIN	IP44B001A & B				921-0009-00000 (C-11)	
C-31 TURBINE BUILDING CLOSED COOLING SURGE TANK OVERFLOW	IP44A001				921-0009-00000 (H-13)	
C-32 EXTERNAL DRAIN COOLER DRAIN	IN27B003A & B				921-0042-00000 (F-9)(H-10)(F-12)	
C-33 AUX. STEAM HOT WATER HEAT EXCHANGER DRAIN PUMP DRAIN	IP61C005A & B				921-0041-00000 (C-10)(C-11)	
C-34 HOT WATER HEAT EXCHANGER DRAIN	IP55B001A & B				921-0041-00000 (C-11) 921-0042-00000 (C-11)	

DRAIN DESCRIPTION	EOPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-35 HOT WATER PUMP DRAIN	IP55C001A & B				921-0041-00000 (B-12)(C-12)	
C-36 CONDENSATE TRANSFER PUMP DRAIN	IP11C001A & B IP11C002				921-0005-00000 (E-11)(E-12)(E-13)	
C-37 TURBINE BUILDING SUPPLY PLENUM DRAIN	IM35B001A, B, C				921-0064-00000 (E-10)(F-10)(H-10)	



TURBINE POWER COMPLEX CLEAN RADWASTE EQUIPMENT DRAINS

REFERENCES:  
 302-0021-00000 STEAM BYPASS AND PRESSURE REGULATION SYSTEM CBS  
 302-0063-00000 FEEDWATER-PUMP INJECTION AND WARM-UP N27  
 302-0739-00000 LIQUID RADWASTE SUMPS SYSTEM EQUIPMENT DRAIN SUMPS AND OIL SEPARATORS G51

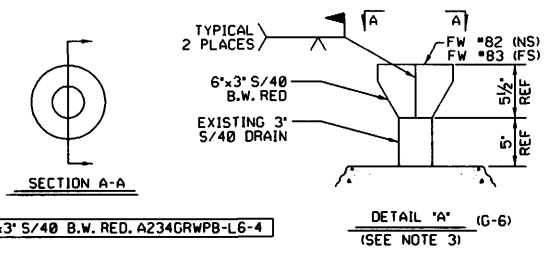
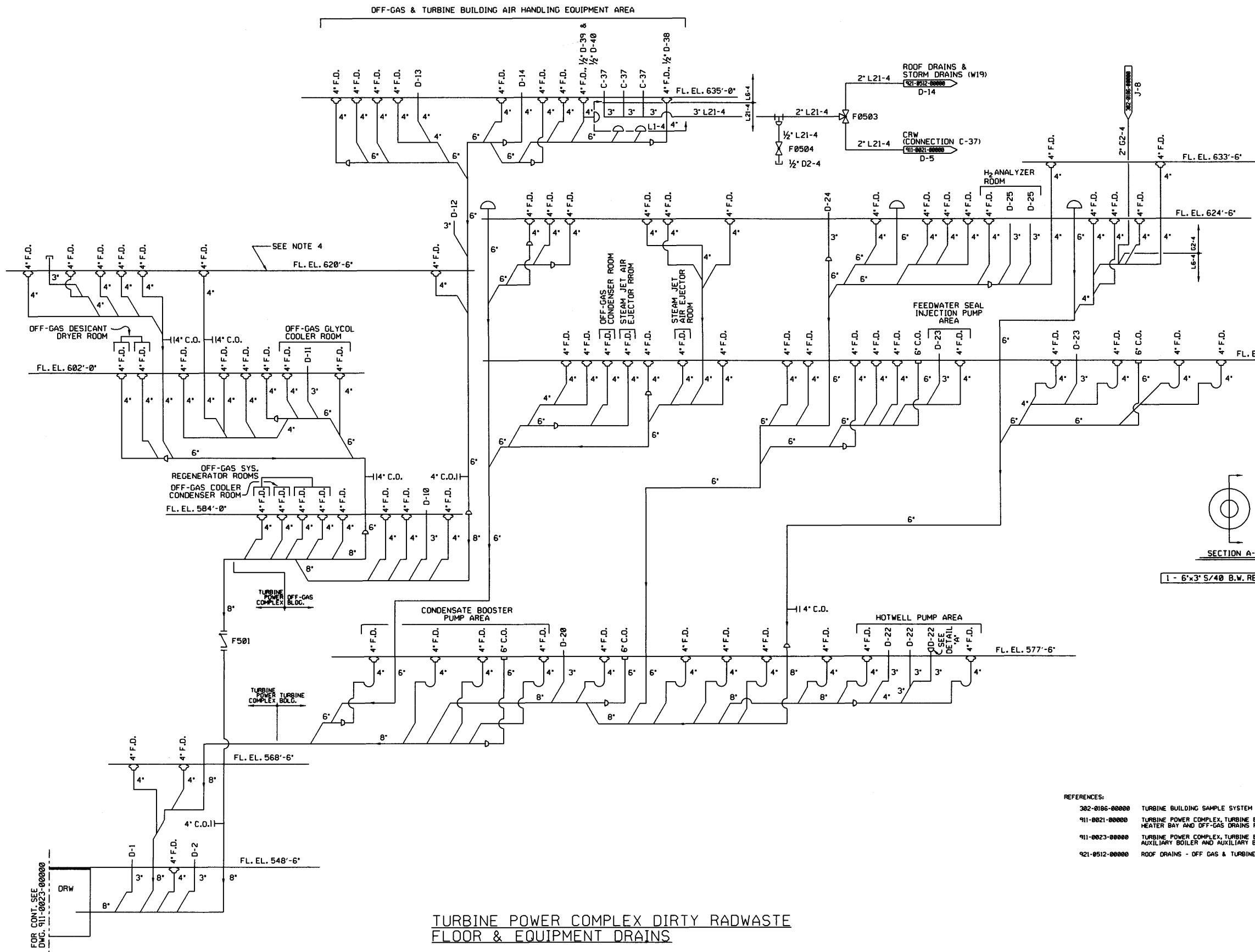
NOTES:  
 1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING 911-0005-00000

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

TURBINE POWER COMPLEX,  
 TURBINE BUILDING, HEATER BAY  
 AND OFFGAS DRAINS  
 FIGURE 9.3-6  
 (DWG. D-911-0021-00000)





- REFERENCES:
- 302-0186-00000 TURBINE BUILDING SAMPLE SYSTEM P33
  - 911-0021-00000 TURBINE POWER COMPLEX, TURBINE BUILDING HEATER BAY AND OFF-GAS DRAINS P69
  - 911-0023-00000 TURBINE POWER COMPLEX, TURBINE BUILDING HEATER BAY, AUXILIARY BOILER AND AUXILIARY BUILDING - DRAINS P68
  - 921-0512-00000 ROOF DRAINS - OFF GAS & TURBINE BLDG - WEST

- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE DWG. 911-0005-00000.
  2. FOR DRAIN DESCRIPTION CHART, SEE DWG. 911-0024-00000.
  3. CUT 6x3 REDUCER IN HALF PER SECTION 'A-A' AND WELD TO FLOOR DRAIN AVOIDING INTERFERENCE WITH EXISTING 3" DIA. LINE.
  4. THREE OF THE SEVEN FLOOR DRAINS AT 620' OFF GAS BLDG. HAVE BEEN PLUGGED PER DCP 93016 REV.0.

TURBINE POWER COMPLEX DIRTY RADWASTE FLOOR & EQUIPMENT DRAINS

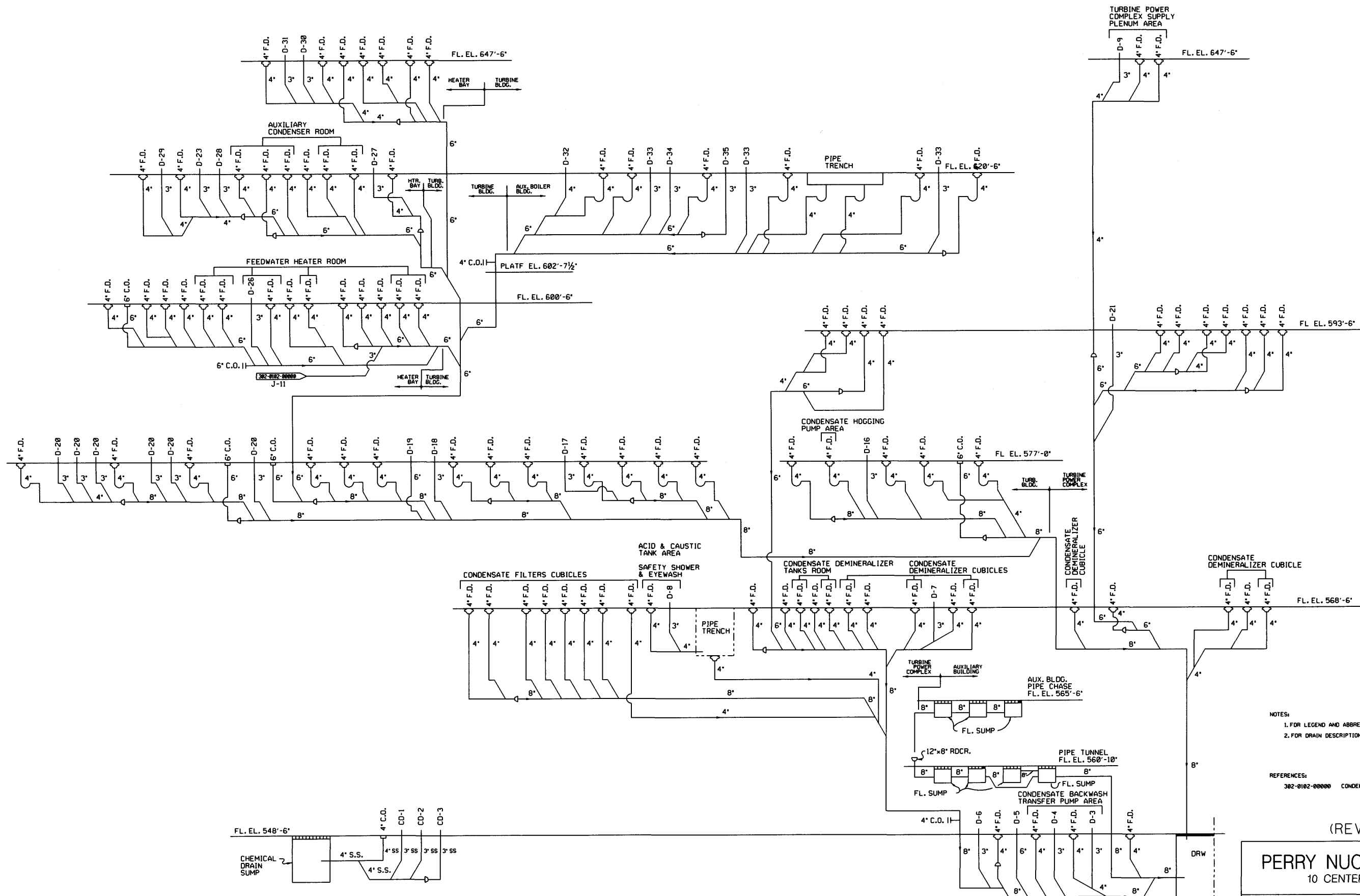
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

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TURBINE POWER  
COMPLEX DRAINS  
FIGURE 9.3-7  
(DWG. D-911-0022-00000)

FOR CONT. SEC.  
DWG. 911-0023-00000



NOTES:  
 1. FOR LEGEND AND ABBREVIATIONS, SEE DWG. 911-0005-00000.  
 2. FOR DRAIN DESCRIPTION CHART, SEE DWG. 911-0024-00000.

REFERENCES:  
 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM P11

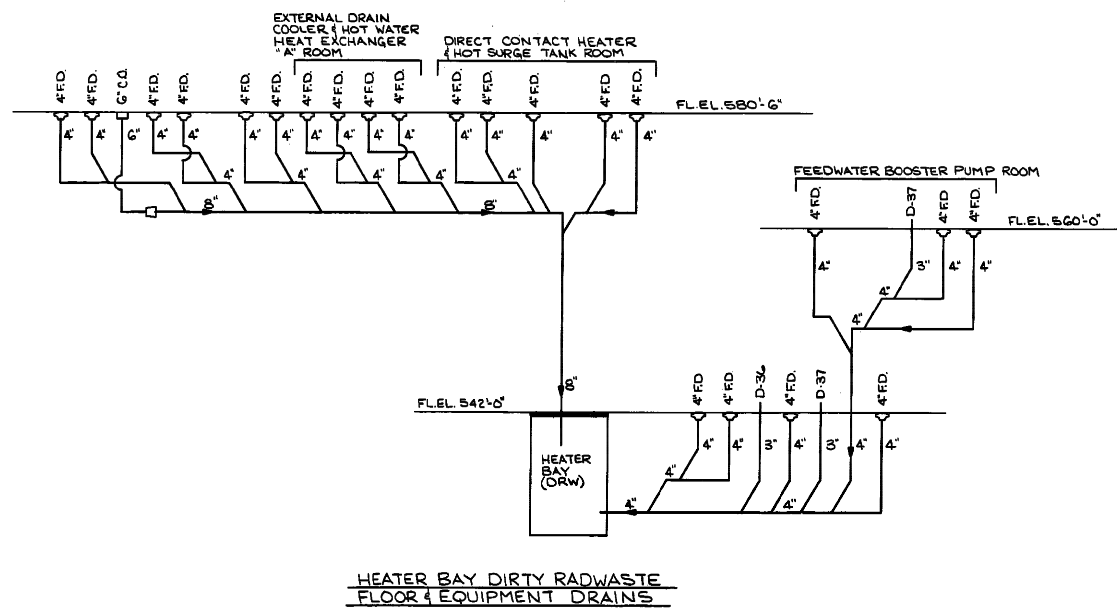
(REV. 19 10/2015)

<p><b>PERRY NUCLEAR POWER PLANT</b>          10 CENTER RD., PERRY, OHIO 44081</p> <p>TURBINE POWER          COMPLEX DRAINS          FIGURE 9.3-8          (DWG. D-911-0023-00000)</p>
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TURBINE POWER COMPLEX  
 CHEMICAL DRAINS

TURBINE POWER COMPLEX DIRTY RADWASTE  
 FLOOR & EQUIPMENT DRAINS

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-1	CONDENSATE DEMINERALIZER BACKWASH RINSE RECEIVING TANK OVERFLOW	N24-A004			D-921-021 (C-10)	
D-2	CONDENSATE DEMINERALIZER BACKWASH RINSE RECEIVING TANK DRAIN	N24-A004			D-921-021 (B-10)	
D-3	CONDENSATE BACKWASH TRANSFER PUMP DRAIN	G50-C009B			D-921-021 (F-10)	
D-4	CONDENSATE BACKWASH TRANSFER PUMP DRAIN	G50-C009A			D-921-021 (F-9)	
D-5	CONDENSATE F/D BACKWASH RECEIVING TANK DRAIN OVERFLOW	G50-A010			D-921-021 (G-10)	
D-6	SPENT RESIN TRANSFER PUMP DRAIN	G50-C002			D-921-021 (J-10)	
D-7	CONDENSATE FILTER PRECOAT TANK DRAIN	N23-A001			D-921-024 (J-12)	
D-8	SAFETY EYE WASH DRAIN				D-921-022 (E-12)	
D-9	TURBINE POWER COMPLEX SUPPLY PLENUM DRAIN	M42-B001			D-921-029 (F-11)	
D-10	OFF GAS POST-TREATMENT SAMPLE PANEL DRAIN	D17-2015			D-921-061 (E-10)	
D-11	OFF GAS GLYCOL COOLER DRAIN	N64-Z001			D-921-062 (F-11)	
D-12	FIRE SERVICE DRAIN				D-921-063 (D-12)	
D-13	OFF GAS EXHAUST PLENUM DRAIN	M36-D001B			D-921-064 (C-11)	
D-14	OFF GAS EXHAUST PLENUM DRAIN	M36-D001A			D-921-064 (B-10)	
D-15	DELETED					
D-16	OFF GAS SAMPLE CHAMBER DRAIN				D-921-004 (G-10)	
D-17	CONDENSER WATER BOX DRAIN PUMP DRAIN	N71-C005			D-921-003 (G-4)	
D-18	LOW POINT DRAIN FOR CHEMICAL CLEANING PIPING				D-921-002 (C-13)	
D-19	MISCELLANEOUS DRW DRAIN				D-921-002 (D-13)	
D-20	MISCELLANEOUS DRW DRAIN				D-921-002 (F-3)(F-7)(F-9)(F-11)(H-6) D-921-004 (D-13)	
D-21	FIRE SERVICE DRAIN				D-921-027 (F-12)	
D-22	HOTWELL PUMP DRAIN & CONDENSATE VENT DISCHARGE	N21-C001A,B,C			D-921-004 (G-4)(G-5)(G-6) D-921-007 (D-3)(G-4) D-921-043 (F-9)	CONDENSATE VENT DISC. (ARBA-G-4 ONLY)
D-23	FIRE SERVICE DRAIN				D-921-010 (C-9)	
D-24	TURBINE PLANT SAMPLING ANALYSIS PANEL DRAIN	H51-P009			D-921-010 (C-9)	
D-25	H <sub>2</sub> ANALYZER DRAIN	N64-N012A,B			D-921-010 (F-9)(F-10)	
D-26	FEEDWATER INJECTION OVERFLOW OF LEAK OFF DRAIN TANK DRAIN				D-921-044 (F-13)	
D-27	HOT WATER HEAT EXPANSION TANK DRAIN	P55-A002			D-921-046 (F-13)	
D-28	CONDENSATE SEAL OVERFLOW DRAIN				D-921-045 (G-9)	
D-29	AMERTAP PUMP DRAIN	N71-C004			D-921-045 (E-9)	
D-30	MAIN FEEDWATER PUMP MAINTENANCE DRAIN	N27-C002B			D-921-047 (G-9)	
D-31	MAIN FEEDWATER PUMP MAINTENANCE DRAIN	N27-C002A			D-921-047 (E-9)	
D-32	AUXILIARY STEAM BLOWDOWN TANK DRAIN	P61-A002			D-921-080 (D-12)	
D-33	RELIEF VALVE DRAIN				D-921-080 (C-7)(C-11)(E-9)	
D-34	DEAERATOR DRAIN	P61-B003			D-921-080 (D-8)	
D-35	PANEL SAMPLE DRAIN	H51-P100			D-921-080 (D-7)	
D-36	FEEDWATER BOOSTER PUMP DRAIN	N27-C001A,B,C,D			D-921-041 (G-13)	
D-37	MISCELLANEOUS DRW DRAIN				D-921-041 (H-6)(H-12)	
D-38	BUILDING HEATING AUTO VENT DISCHARGE	P55-F807			D-921-064 (J-9)	
D-39	BUILDING HEATING AUTO VENT DISCHARGE	P55-F808			D-921-064 (E-10)	
D-40	BUILDING HEATING AUTO VENT DISCHARGE	P55-F809			D-921-064 (E-10)	
CD-1	WASTE TRANSFER PUMP DRAIN	N24-C001A,B,C			D-921-021 (D-11)	
CD-2	CONDENSATE DEMIN. REGENERATION CHEMICAL WASTE TANK OVERFLOW	N24-A005			D-921-021 (C-11)	
CD-3	CONDENSATE DEMIN. REGENERATION CHEMICAL WASTE TANK DRAIN	N24-A005			D-921-021 (B-11)	



NOTES:  
1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING D-011-006.

(Rev. 18 10/13)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

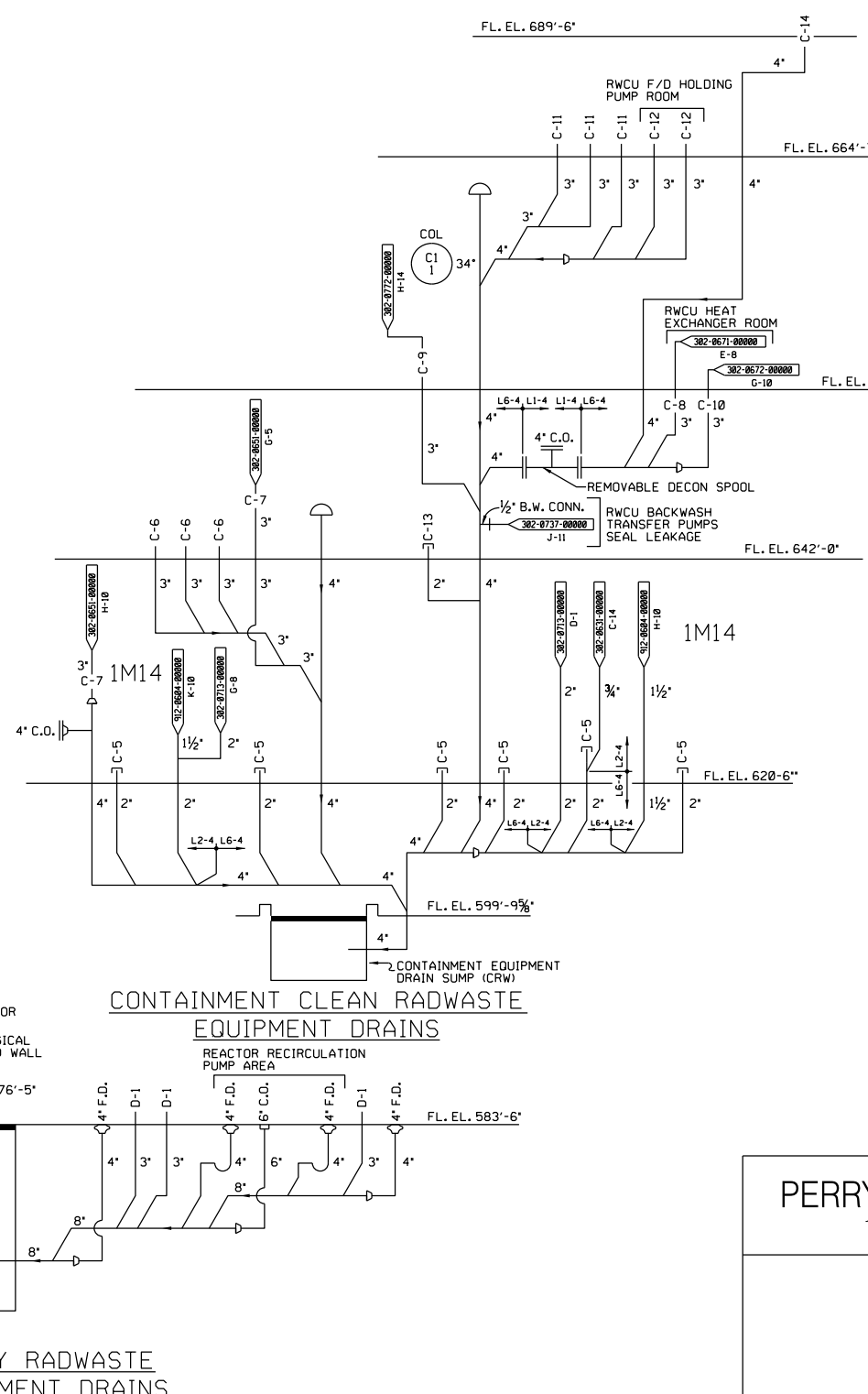
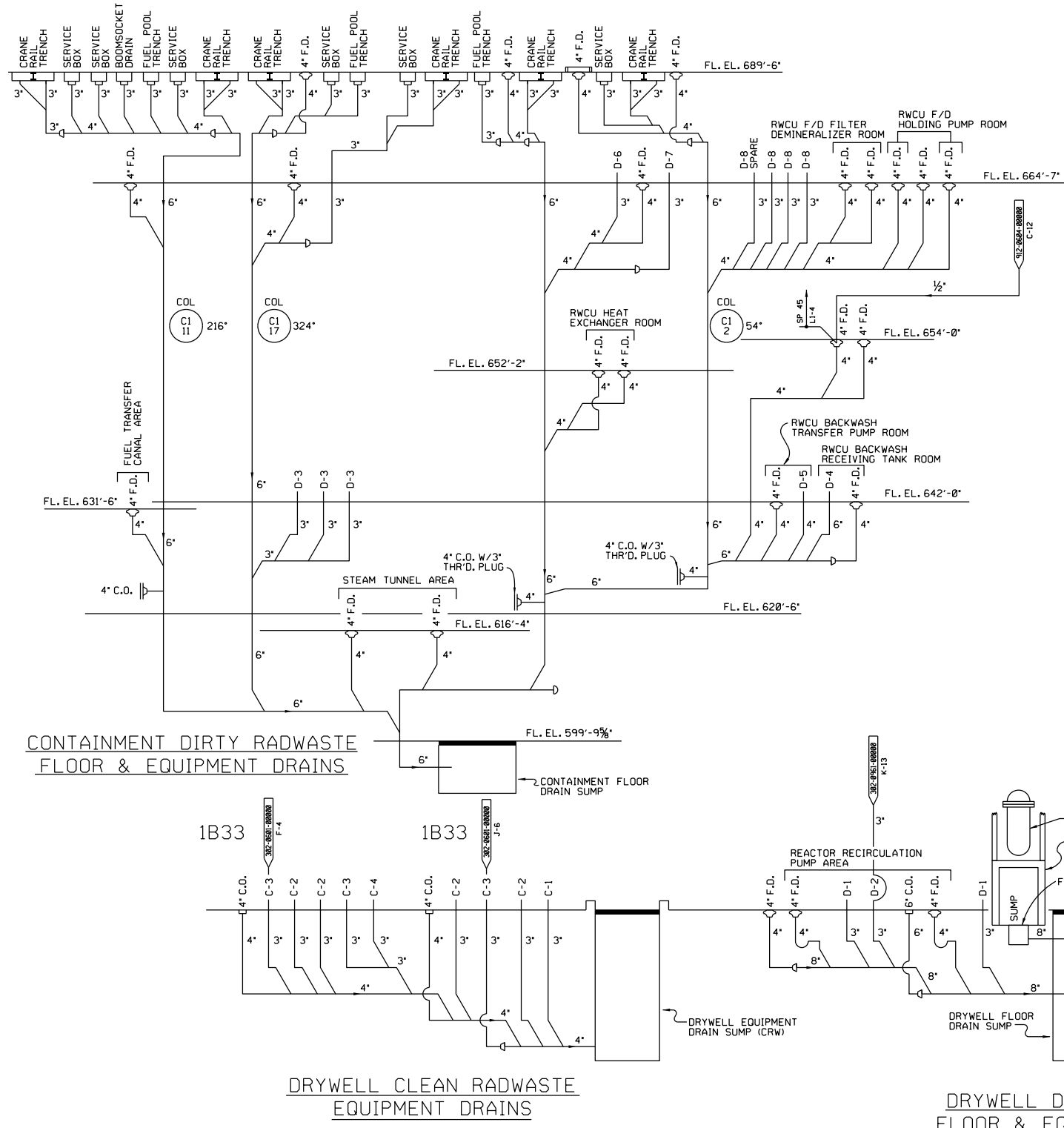
Heater Bay  
Building Drains

Figure 9.3-9  
(DWG. D-911-0024-00000)

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-1 MISCELLANEOUS DRW DRAIN					921-0601-00000 (E-7)(G-5)	
D-2 DRYWELL COOLING SUPPLY PLENUM CONDENSATE DRAIN	IM13B002				921-0602-00000 (C-6)(E-5)(D-10)	
D-3 CONTAINMENT VESSEL AIR HANDLING UNIT DRAIN	IM11B001A, B, & C				921-0607-00000 (C-9)(D-5)	CONDENSATE DRAIN
D-4 RWCU BACKWASH RECEIVING TANK OVERFLOW & DRAIN	IG36A003				921-0608-00000 (F-8)	
D-5 RWCU BACKWASH TRANSFER PUMP DRAIN	IG50C012				921-0609-00000 (G-7)	
D-6 RESIN METERING PUMP DRAIN	IG36C003				921-0612-00000 (E-4)	
D-7 PRECOAT PUMP DRAIN	IG36C002				921-0612-00000 (D-6)	
D-8 CONTAINMENT VESSEL AIR HANDLING UNIT DRAIN	IM11B001D, E, & F				921-0612-00000 (E-6)(F-5)(F-6)	CONDENSATE DRAIN

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-1 REACTOR VESSEL DRAIN					921-0602-00000 (B-7)	
C-2 REACTOR RECIRCULATION SYSTEM MAINTENANCE DRAIN					921-0601-00000 (F-8)(G-7)	
C-3 MISCELLANEOUS CRW DRAIN					921-0602-00000 (B-9)(C-8)	
C-4 DRYWELL COOLING SUPPLY COOLING COIL DRAIN	IM13B001				921-0601-00000 (F-9)	NUCLEAR CLOSED COOLING WATER
C-5 INSTRUMENTATION PANEL VALVE BLOWDOWN DRAIN					921-0605-00000 (D-4)(D-11)	ALL PANELS ARE LOCATED ON EL. 620'-6"
C-6 CONTAINMENT VESSEL AIR HANDLING UNIT DRAIN	IM11B001A, B, & C				921-0607-00000 (D-5)(C-9)(D-5)	CHILLED WATER PIPING DRAIN

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-7 FUEL POOL LEAK DETECTION DRAIN					921-0607-00000 (F-11)	
C-8 RWCU NON-REGENERATIVE HEAT EXCHANGER DRAIN	IG33B002A & B				921-0609-00000 (F-4)	
C-9 RWCU CONTAINMENT SAMPLE DRAIN	IG33Z020				921-0610-00000 (F-6)	
C-10 RWCU REGENERATIVE HEAT EXCHANGER DRAIN	IG33B001A, B, & C				921-0609-00000 (G-4)	
C-11 CONTAINMENT VESSEL AIR HANDLING UNIT DRAIN	IM11B001D, E, & F				921-0612-00000 (E-6)(F-5)(F-6)	CHILLED WATER PIPING DRAIN
C-12 RWCU FILTER/DEMINEALIZER HOLDING PUMP SEAL DRAIN	IG36C001A & B				921-0612-00000 (E-7)(E-9)	
C-13 INSTRUMENTATION PANEL VALVE BLOWDOWN DRAIN	1H22P002				921-0608-00000 (E-4)	
C-14 POOL OVERFLOW DRAIN					921-0614-00000 (D-4)	



NOTES:  
 1. FOR LEGEND AND ABBREVIATIONS SEE DRAWING 911-0005-00000.

REFERENCES:  
 302-0601-00000 REACTOR WATER RECIRCULATION SYSTEM B33  
 302-0631-00000 REACTOR CORE ISOLATION COOLING SYSTEM E51  
 302-0651-00000 FUEL POOL COOLING & CLEAN-UP SYSTEM G41  
 302-0671-00000 REACTOR WATER CLEAN-UP SYSTEM G33  
 302-0672-00000 REACTOR WATER CLEAN-UP SYSTEM G33  
 302-0713-00000 MIXED BED DEMINEALIZER AND DISTRIBUTION SYSTEM P22  
 302-0737-00000 LRW - TANKS & PUMPS FOR HANDLING RWCU G50  
 302-0772-00000 REACTOR PLANT SAMPLING P35  
 302-0961-00000 LEAK DETECTION SYSTEM IE31  
 911-0005-00000 LUBE OIL AREA, TURBINE LAYDOWN AND WATER TREATMENT BUILDING DRAINS P68  
 912-0604-00000 CONTAINMENT VESSEL & DRYWELL PURGE M14

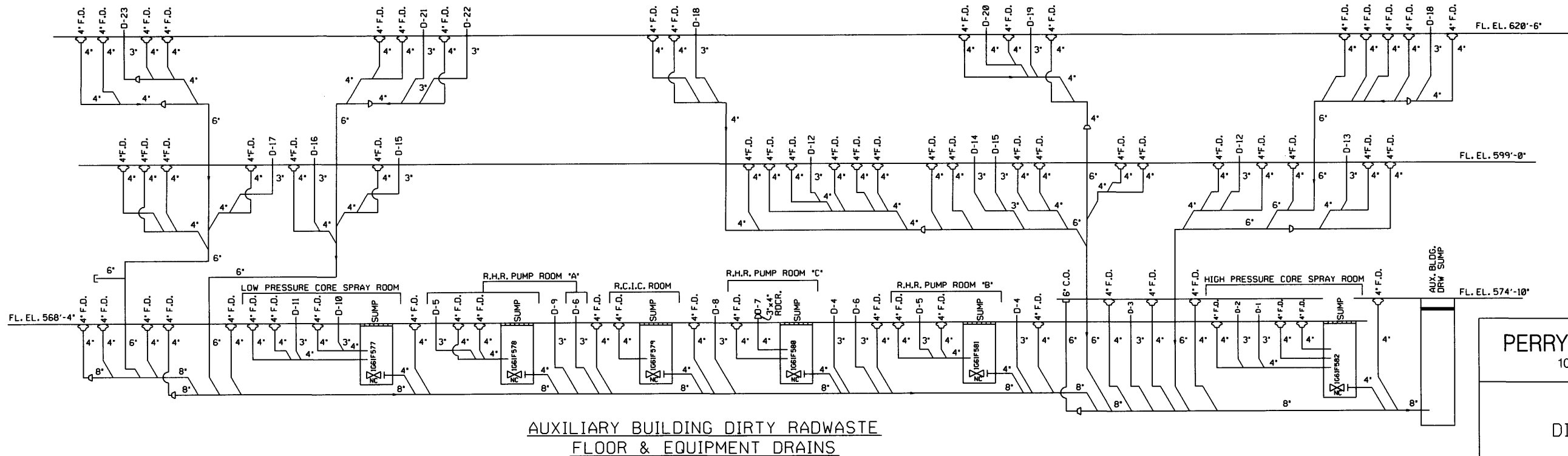
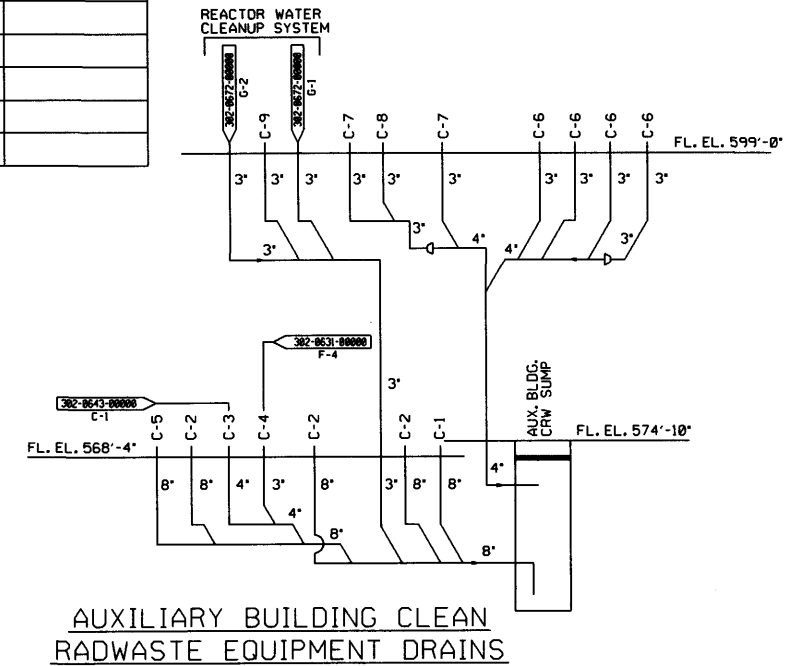
(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

REACTOR  
 BUILDING DRAINS  
 FIGURE 9.3-10  
 (DWG. D-911-0601-00000)

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-1 SUPPRESSION POOL CLEAN-UP PUMP DRAIN	1G42C001				921-0617-00000 (D-8)	
D-2 HIGH PRESSURE CORE SPRAY PUMP SEAL DRAIN	1E22C001				921-0617-00000 (D-7)	
D-3 HIGH PRESSURE CORE SPRAY RELIEF VALVE DISCHARGE DRAIN	-----				921-0617-00000 (D-6)	
D-4 MISCELLANEOUS DRAIN	-----				921-0617-00000 (D-3)(G-3)	
D-5 RESIDUAL HEAT REMOVAL RELIEF VALVE DISCHARGE DRAIN	-----				921-0616-00000 (D-7) 921-0617-00000 (D-8)	
D-6 RESIDUAL HEAT REMOVAL HEAT EXCHANGER DRAIN	1E12B001A,B,C,&D				921-0616-00000 (D-5) 921-0617-00000 (D-6)	
D-7 RESIDUAL HEAT REMOVAL RELIEF VALVE DISCHARGE DRAIN	-----				921-0617-00000 (H-6)	
D-8 EMERGENCY SERVICE WATER LOOP 'B' RADIATION MONITOR DRAIN	1D17J006				921-0617-00000 (G-3)	
D-9 EMERGENCY SERVICE WATER LOOP 'A' RADIATION MONITOR DRAIN	1D17J005				921-0616-00000 (D-4)	
D-10 LOW PRESSURE CORE SPRAY PUMP SEAL DRAIN	1E21C001				921-0616-00000 (G-6)	
D-11 LOW PRESSURE CORE SPRAY RELIEF VALVE DISCHARGE DRAIN	-----				921-0616-00000 (F-7)	
D-12 FIRE SERVICE DRAIN	-----				921-0618-00000 (C-4) 921-0619-00000 (E-9)	
D-13 NUCLEAR CLOSED COOLING WATER SAMPLE DRAIN	-----				921-0619-00000 (C-11)	
D-14 EMERGENCY SERVICE WATER LEAK DETECTION DRAIN	-----				921-0619-00000 (E-5)	
D-15 EMERGENCY SERVICE WATER RELIEF VALVE DISCHARGE DRAIN	-----				921-0618-00000 (E-4) 921-0619-00000 (E-5)	
D-16 EMERGENCY SERVICE WATER LOCAL SAMPLE DRAIN	-----				921-0618-00000 (F-3)	
D-17 RESIDUAL HEAT REMOVAL SAMPLE DRAIN	-----				921-0618-00000 (F-5)	

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-18 SPARE	-----				921-0621-00000 (G-9)(H-8)	
D-19 FIRE SERVICE STRAINER DRAIN	-----				921-0621-00000 (C-5)	CHARCOAL FILTER UNIT
D-20 AUXILIARY BUILDING EXHAUST PLENUM DRAIN	1M3B001				921-0621-00000 (D-6)	
D-21 RADWASTE DISCHARGE RADIATION MONITOR DRAIN	0D17J007				921-0620-00000 (F-4)	
D-22 STEAM TUNNEL SUPPLY PLENUM DRAIN	1M47B001				921-0620-00000 (C-4)	
D-23 LEAK RATE TEST SYSTEM DRAIN	-----				921-0620-00000 (H-11)	
C-1 HIGH PRESSURE CORE SPRAY FLUSH DRAIN	-----				921-0617-00000 (D-8)	
C-2 RESIDUAL HEAT REMOVAL FLUSH DRAIN	-----				921-0616-00000 (D-5) 921-0617-00000 (C-EXH-5)	
C-3 AUXILIARY STEAM/RCIC TURBINE CONDENSATE DRAIN	-----				921-0616-00000 (B-4)	
C-4 REACTOR CORE ISOLATION COOLING SYS. RELIEF VALVE DISCHARGE DR.	-----				921-0616-00000 (B-5)	
C-5 LOW PRESSURE CORE SPRAY FLUSH DRAIN	-----				921-0616-00000 (G-8)	
C-6 TURBINE BUILDING WATER CHILLER DRAIN	1P46B001A & B				921-0619-00000 (C-7)(C-8)(D-7)(D-8)	
C-7 TURBINE BUILDING CHILLED WATER PUMP DRAIN	1P46C001A & B				921-619-00000 (C-18)	
C-8 NUCLEAR CLOSED COOLING WATER RELIEF VALVE DRAIN	-----				921-0619-00000 (C-9)	
C-9 REACTOR WATER CLEAN-UP FLUSHING DRAIN	-----				921-0619-00000 (J-6)	
C-10 REACTOR WATER CLEAN-UP PUMP DRAIN	1G33C001A & B				921-0618-00000 (B-8) 921-0619-00000 (H-8)	



NOTES:  
1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING 911-0005-00000

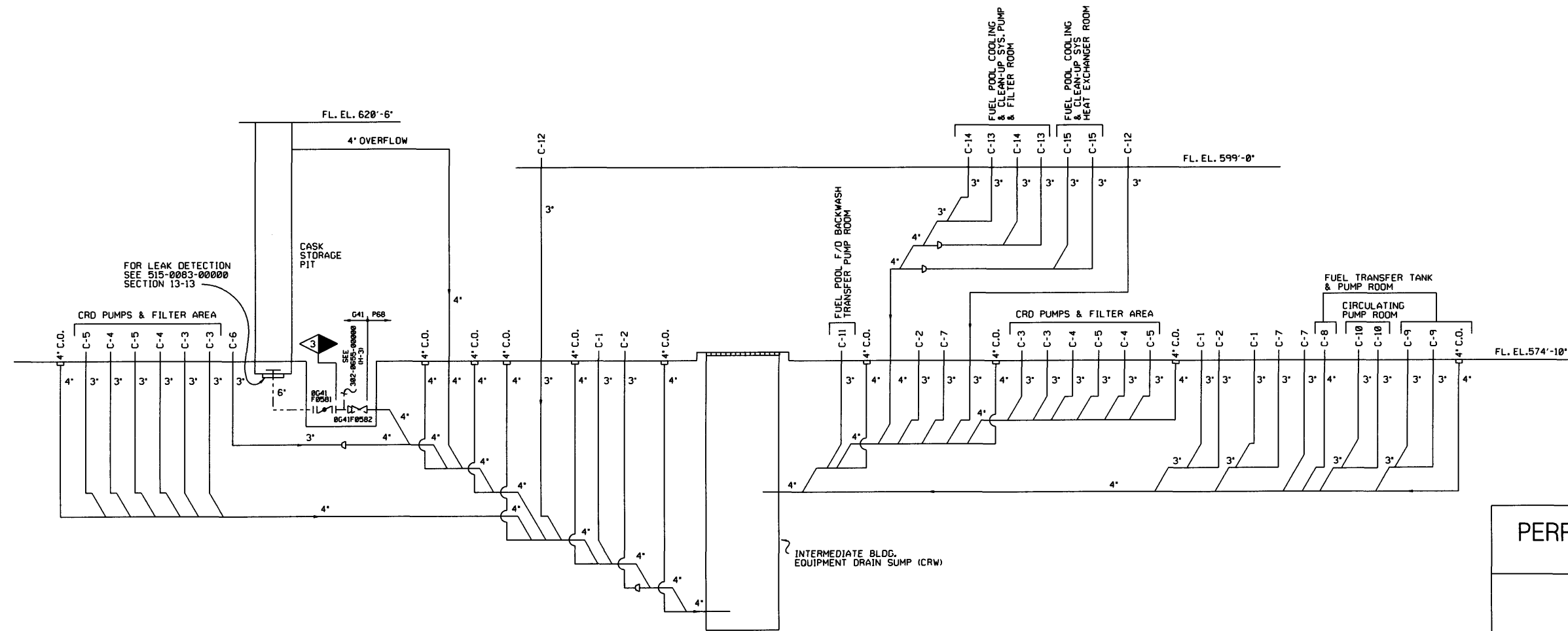
REFERENCES:  
302-0631-00000 REACTOR CORE ISOLATION COOLING SYSTEM E51  
302-0643-00000 RESIDUAL HEAT REMOVAL SYSTEM E12  
302-0672-00000 REACTOR WATER CLEANUP SYSTEM G33

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

AUXILIARY BUILDING  
DIRTY RADWASTE DRAINS  
FIGURE 9.3-11  
(DWG. D-911-0617-00000)

	DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-1	NUCLEAR CLOSED COOLING WATER MAINTENANCE & RELIEF VALVE DRAIN					921-0628-00000 (F-11) 921-0629-00000 (F-3HF-6)	
C-2	CONTAINMENT CHILLER DRAIN	0P508001A,B,&C				921-0628-00000 (F-10HF-13) 921-0629-00000 (F-5)	
C-3	DRIVEWATER FILTER DRAIN	1C11D003A&B 2C11D003A&B				921-0626-00000 (C-4HC-11) 921-0627-00000 (H-3HH-12)	
C-4	DRIVEWATER PUMP DRAIN	1C11C001A&B 2C11C001A&B				921-0626-00000 (D-2HE-2) 921-0627-00000 (D-12HE-12)	
C-5	PUMP SUCTION FILTER DRAIN	1C11D010A&B 2C11D010A&B				921-0626-00000 (D-2HE-2) 921-0627-00000 (D-13HE-13)	
C-6	CASK PIT DRAIN PUMP DRAIN	0G41C004				921-0626-00000 (E-7)	
C-7	CONTAINMENT CHILLER PUMP DRAIN	0P50C001A,B,&C				921-0628-00000 (F-9HG-12) 921-0629-00000 (G-4)	
C-8	FUEL TRANSFER TUBE DRAIN TANK DRAIN	0G41A003				921-0629-00000 (G-4)	
C-9	FUEL TRANSFER TUBE DRAIN PUMP DRAIN	0G41C005A&B				921-0629-00000 (H-4)	
C-10	CIRCULATING PUMP DRAIN	0G41C003A&B				921-0628-00000 (H-12HH-13)	
C-11	SEAL WATER DRAIN					921-0628-00000 (E-11)	
C-12	FUEL POOL COOLING & CLEAN-UP SURGE TANK OVERFLOW	0G41A002A&B				921-0632-00000 (C-6HC-11)	
C-13	FUEL POOL COOLING & CLEAN-UP SYSTEM HOLDING PUMP DRAIN	0G41C001A&B				921-0633-00000 (E-11HE-12)	
C-14	FUEL POOL COOLING & CLEAN-UP SYSTEM POST FILTER DRAIN	0G41D002A&B				921-0633-00000 (F-11HF-12)	
C-15	FUEL POOL COOLING & CLEAN-UP HEAT EXCHANGER DRAIN	0G41B001A&B				921-0633-00000 (H-12) 921-0634-00000 (H-4)	



NOTES:  
1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING 911-0005-00000

REFERENCES:  
382-0655-00000 FUEL POOL COOLING & CLEANUP SYSTEM G41  
515-0003-00000 FUEL HANDLING BUILDING LINER PLATE DETAILS FOR FUEL CASK STORAGE PIT  
911-0005-00000 LUBE OIL AREA, TURBINE LAYDOWN AND WATER TREATMENT BUILDING DRAINS P68

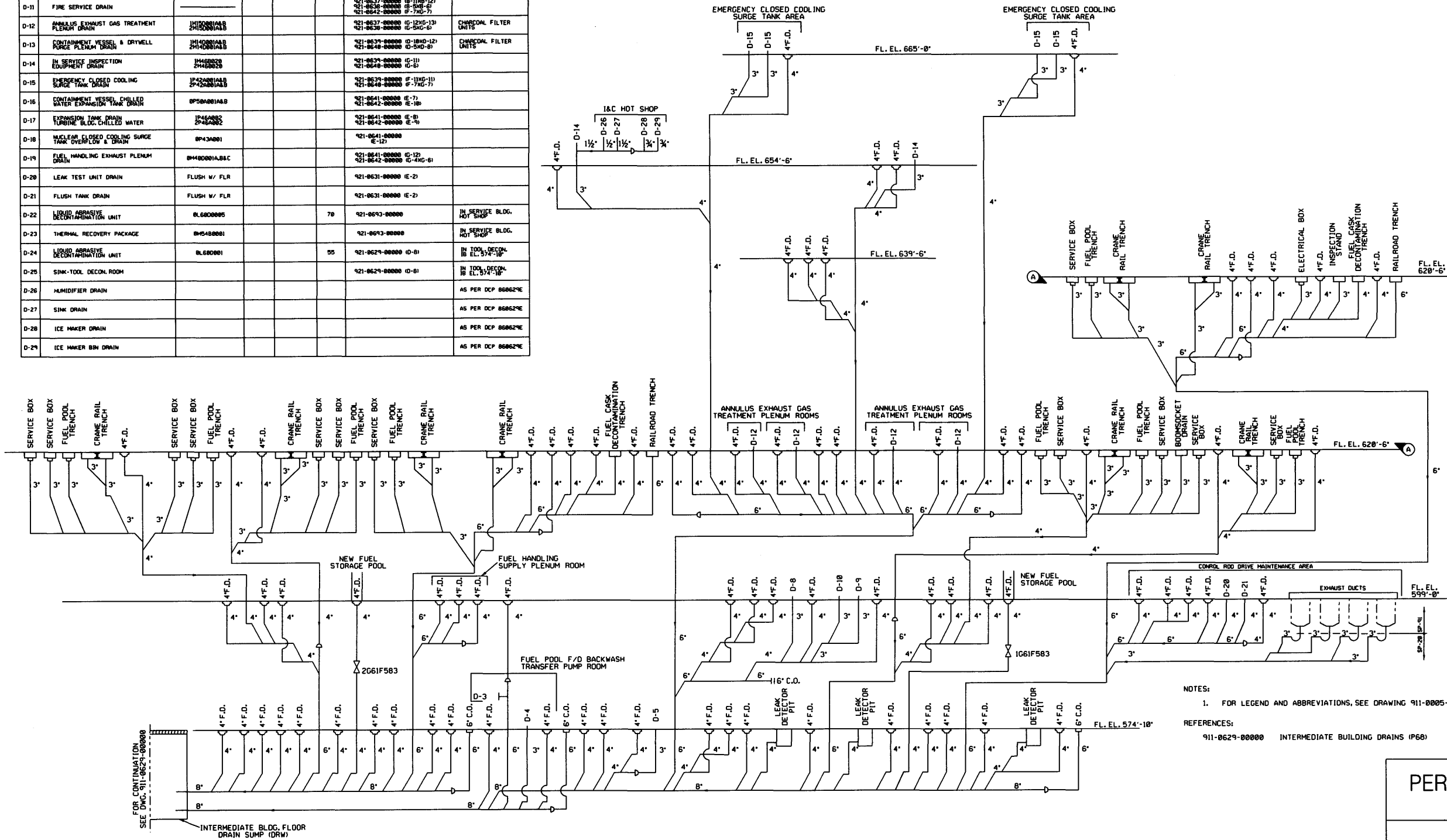
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

INTERMEDIATE BUILDING  
CLEAN RADWASTE DRAINS  
FIGURE 9.3-12  
(DWG. D-911-0627-00000)

INTERMEDIATE BLDG. CLEAN RADWASTE  
EQUIPMENT DRAINS

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-1 MISCELLANEOUS DRW DRAIN					921-0628-00000 (B-3NB-6NB-12) 921-0629-00000 (B-6)	
D-2 FUEL POOL F/D BACKWASH RECEIVING TANK OVERFLOW & DRAIN	8050A022				921-0628-00000 (D-12)	
D-3 FUEL POOL F/D BACKWASH RECEIVING TANK DRAIN	8050A022				921-0628-00000 (E-11)	
D-4 FUEL POOL F/D BACKWASH TRANSFER PUMP DRAIN	8050C027				921-0628-00000 (E-11)	
D-5 CHEMICAL FEED LINE DRAIN					921-0628-00000 (G-13)	
D-6 NUCLEAR CLOSED COOLING WATER SAMPLE DRAIN					921-0633-00000 (D-3ND-11) 921-0634-00000 (D-5ND-7ND-13)	
D-7 SCULLERY SINK DRAIN					921-0633-00000 (D-4)	LOCATED IN HOT I&C REPAIR SHOP
D-8 FUEL POOL COOLING & CLEAN-UP SYS. FEED TANK DRAIN	80410004				921-0633-00000 (G-12)	
D-9 FUEL POOL COOLING & CLEAN-UP SYS. RECYCLE TANK DRAIN	8041C002				921-0633-00000 (F-12)	
D-10 FUEL POOL COOLING & CLEAN-UP SYS. FLOOD TANK DRAIN	8041A001				921-0633-00000 (F-13)	
D-11 FIRE SERVICE DRAIN					921-0637-00000 (B-11NB-12) 921-0638-00000 (B-5NB-6) 921-0642-00000 (F-7ND-7)	
D-12 ANNULUS EXHAUST GAS TREATMENT PLENUM DRAIN	1M40001AAB 2M40001AAB				921-0637-00000 (G-12ND-13) 921-0648-00000 (G-5ND-6)	CHARCOAL FILTER UNITS
D-13 CONTAINMENT VESSEL & DRYWELL SURGE PLENUM DRAIN	1M40001AAB 2M40001AAB				921-0637-00000 (D-18ND-12) 921-0648-00000 (D-5ND-6)	CHARCOAL FILTER UNITS
D-14 IN SERVICE INSPECTION EQUIPMENT DRAIN	1M40002 2M40002				921-0637-00000 (G-11) 921-0648-00000 (D-6)	
D-15 EMERGENCY CLOSED COOLING SURGE TANK DRAIN	1P42001AAB 2P42001AAB				921-0637-00000 (F-11ND-11) 921-0648-00000 (F-7ND-7)	
D-16 CONTAINMENT VESSEL CHILLED WATER EXPANSION TANK DRAIN	8P50001AAB				921-0641-00000 (E-7) 921-0642-00000 (E-10)	
D-17 EXPANSION TANK DRAIN TURBINE BLDG. CHILLED WATER	1P46002 2P46002				921-0641-00000 (E-8) 921-0642-00000 (E-9)	
D-18 NUCLEAR CLOSED COOLING SURGE TANK OVERFLOW & DRAIN	8P43001				921-0641-00000 (E-12)	
D-19 FUEL HANDLING EXHAUST PLENUM DRAIN	8M40001A.B&C				921-0641-00000 (G-12) 921-0642-00000 (G-4ND-6)	
D-20 LEAK TEST UNIT DRAIN	FLUSH W/ FLR				921-0631-00000 (E-2)	
D-21 FLUSH TANK DRAIN	FLUSH W/ FLR				921-0631-00000 (E-2)	
D-22 LIQUID ABRAISIVE DECONTAMINATION UNIT	8L600005		70		921-0693-00000	IN SERVICE BLDG. ROY SHOP
D-23 THERMAL RECOVERY PACKAGE	8M540001				921-0693-00000	IN SERVICE BLDG. ROY SHOP
D-24 LIQUID ABRAISIVE DECONTAMINATION UNIT	8L600001		55		921-0629-00000 (D-8) 921-0629-00000 (D-8)	IN TOOL DECON. BLDG. EL. 574'-10"
D-25 SINK-TOOL DECON. ROOM					921-0629-00000 (D-8)	IN TOOL DECON. BLDG. EL. 574'-10"
D-26 HUMIDIFIER DRAIN						AS PER DCP 868627E
D-27 SINK DRAIN						AS PER DCP 868627E
D-28 ICE MAKER DRAIN						AS PER DCP 868627E
D-29 ICE MAKER BIN DRAIN						AS PER DCP 868627E



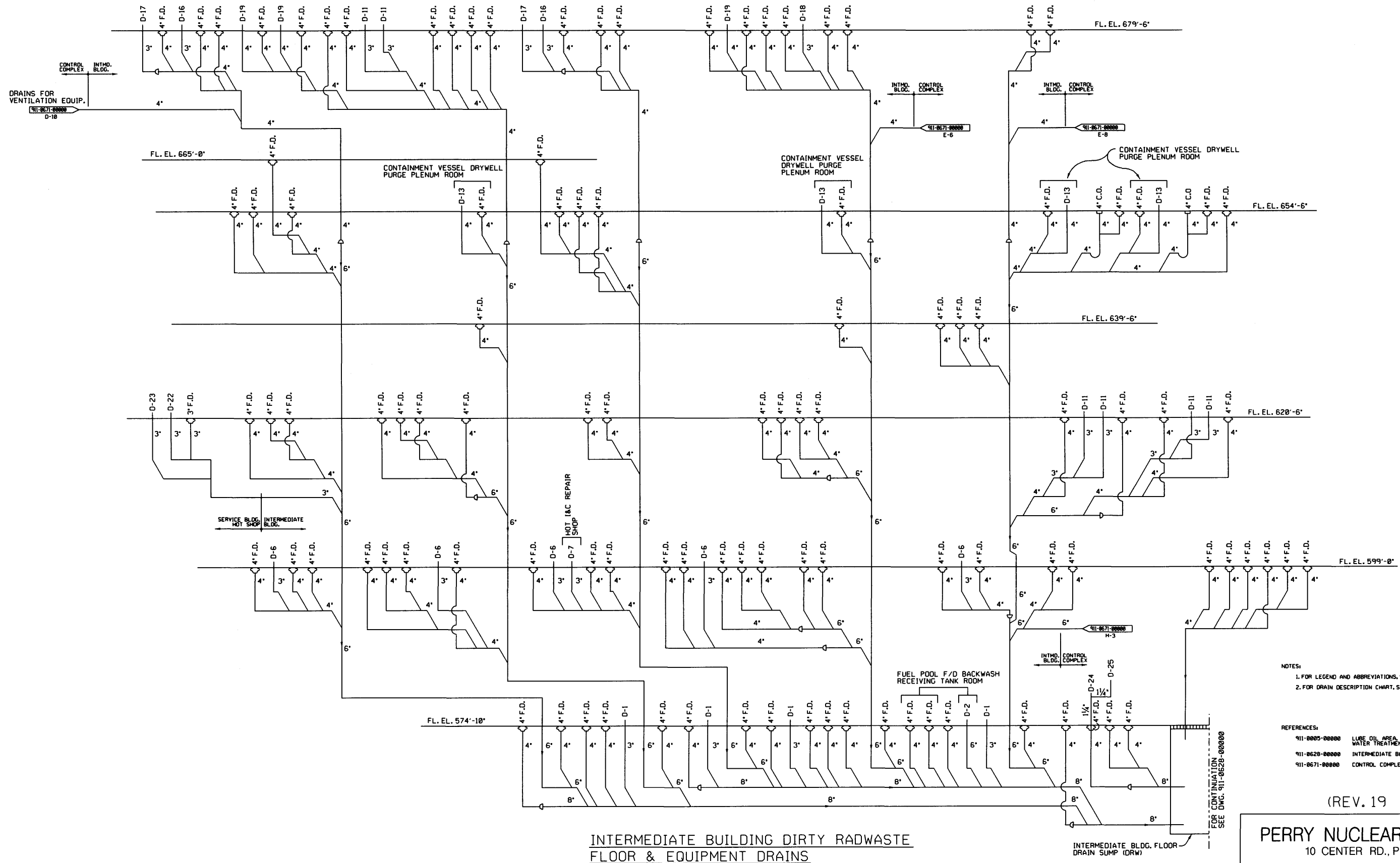
NOTES:  
 1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING 911-0005-00000.  
 REFERENCES:  
 911-0629-00000 INTERMEDIATE BUILDING DRAINS (P68)

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

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INTERMEDIATE BUILDING  
 DIRTY RADWASTE FLOOR AND  
 EQUIPMENT DRAINS, UNITS 1 & 2  
 FIGURE 9.3-13  
 (DWG. D-911-628-00000)



INTERMEDIATE BUILDING DIRTY RADWASTE FLOOR & EQUIPMENT DRAINS

- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE DWG. 911-0005-00000.
  2. FOR DRAIN DESCRIPTION CHART, SEE DWG. 911-0628-00000.

- REFERENCES:
- 911-0005-00000 LUBE OIL AREA TURBINE LAYDOWN AND WATER TREATMENT BUILDING P&B
  - 911-0628-00000 INTERMEDIATE BUILDING DRAINS P&B
  - 911-0671-00000 CONTROL COMPLEX DRAINS P&B

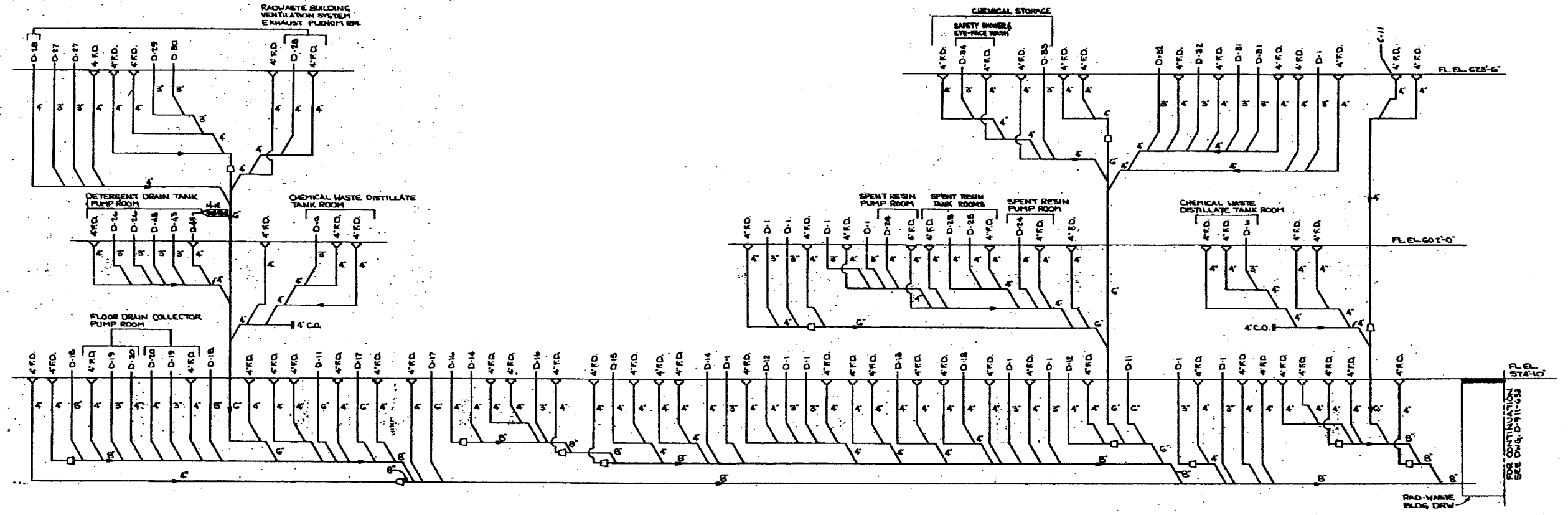
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

INTERMEDIATE BUILDING DIRTY RADWASTE FLOOR AND EQUIPMENT DRAINS, UNITS 1 AND 2  
FIGURE 9.3-14  
(DWG. D-911-0629-00000)



DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM Dwg. NO. (COORD. LOCATION)	REMARKS	DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM Dwg. NO. (COORD. LOCATION)	REMARKS	DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM Dwg. NO. (COORD. LOCATION)	REMARKS
D-1 SAMPLE DRAIN					D-921-651 (E-10)		D-20 FLOOR DRAIN COLLECTOR TANK 'A' (B) FLUSH DRAIN	Q50A003A(B)				D-921-651 (E-10)		D-29 FLOOR DRAIN FILTERATE TANK DRAIN	Q50-A025				D-921-650 (E-10)	
D-2 CONDENSATE FILTER BACKWASH SETTLING TANK OVERFLOW (DE (CST))	Q50A011(B)				D-921-652 (E-7)		D-21 CONDENSATE RETURN PUMP DRAIN	Q50A004A(B)				D-921-652 (E-7)		D-40 FLOOR DRAIN FILTER DRAIN	Q50-D002				D-921-650 (E-10)	
D-3 CONDENSATE FILTER BACKWASH SETTLING TANK OVERFLOW (DE (CST))	Q50A010(B)				D-921-652 (E-7)		D-22 CONDENSATE RETURN TANK DRAIN					D-921-654 (E-7)		D-41 WASTE/CEMENT MIXING PUMP DRAIN	Q51-C005A(B)				D-921-650 (E-10)	
D-4 CONDENSATE FILTER BACKWASH SETTLING TANK OVERFLOW (DE (CST))	Q50A011A				D-921-652 (E-7)		D-23 CONCENTRATED WASTE TRANSFER PUMP DRAIN	Q50-C024A(B)				D-921-655 (E-7)		D-42 WASTE MIXING DEWATERING TANK DRAIN	Q51-A004A(B)				D-921-650 (E-10)	
D-5 CONDENSATE FILTER BACKWASH SETTLING TANK OVERFLOW (DE (CST))	Q50A010A				D-921-652 (E-7)		D-24 SPENT RESIN PUMP DRAIN	Q50-C008A(B)				D-921-655 (E-7)		D-43 WASTE MIXING DEWATERING TANK DRAIN	Q51-A004A(B)				D-921-650 (E-10)	
D-6 CHEMICAL WASTE DISTILLATE PUMP DRAIN	Q50C006A(B)				D-921-654 (E-7)(E-9)		D-25 SPENT RESIN TANK OVERFLOW DRAIN	Q50-A009A(B)				D-921-655 (E-7)(E-9)		D-44 DETERGENT DRAIN PUMP DRAIN	Q50-C007A(B)				D-921-654 (E-7)(E-9)	
D-7 CHEMICAL WASTE TANK 'A' OVERFLOW DRAIN (CWT)	Q50A005A(B)				D-921-653 (E-7)(E-9)		D-26 DETERGENT DRAIN FILTERS DRAIN	Q50-D005A(B)				D-921-654 (E-7)(E-9)		D-45 WASTE COLLECTOR FILTER DRAIN	Q50-D001				D-921-650 (E-10)	
D-8 CHEMICAL WASTE PUMP SEAL DRAIN	Q50C005A(B)				D-921-653 (E-7)(E-9)		D-27 FIRE SERVICE DRAINS					D-921-654 (E-7)(E-9)		D-46 WASTE COLLECTOR FILTER DRAIN	Q50-A008A(B)				D-921-650 (E-10)	
D-9 CHEMICAL WASTE TANK 'A' OVERFLOW DRAIN (CWT)	Q50A005A(B)				D-921-653 (E-7)(E-9)		D-28 RADWASTE BUILDING VENTILATION SYSTEM EXHAUST FLENUM DR.	M21-0001A(B)				D-921-657 (E-10)		C-1 RWCU SLUDGE DECANT PUMP DRAIN	Q50-C014A(B)				D-921-652 (E-7)(E-9)	
D-10 CHEMICAL WASTE TANK 'B' OVERFLOW DRAIN (CWT)	Q50A006(B)				D-921-653 (E-7)(E-9)		D-29 SUPPRESSION POOL DEMINERALIZER OVERFLOW (VENT DR)	Q42-D002				D-921-657 (E-10)		C-2 CONDENSATE SLUDGE DECANT PUMP DRAIN	Q50-C011A(B)				D-921-652 (E-7)(E-9)	
D-11 FUEL POOL FID BACKWASH SETTLING TANK OVERFLOW (DE (FPT))	Q50A014A(B)				D-921-651 (E-10)		D-30 SUPPRESSION POOL DEMINERALIZER TANK DRAIN	Q42-D002				D-921-657 (E-10)		C-3 WASTE SAMPLE PUMP DRAIN	Q50-C002A(B)				D-921-652 (E-7)(E-9)	
D-12 RWCU FID BACKWASH SETTLING TANK OVERFLOW (DRAIN (FPT))	Q50A014A(B)				D-921-652 (E-7)(E-9)		D-31 WASTE DEMINERALIZER TANK OVERFLOW (DRAIN)	Q50-D003				D-921-657 (E-10)		C-4 WASTE SAMPLE TANK 'B' OVERFLOW (DRAIN (WST))	Q50-A002B				D-921-652 (E-7)(E-9)	
D-13 RWCU FID BACKWASH SETTLING PUMP DRAIN (FLUSH (FPT))	Q50C013A(B)				D-921-652 (E-7)(E-9)		D-32 FLOOR DRAIN DEMINERALIZER TANK OVERFLOW (DRAIN)	Q50-D004				D-921-657 (E-10)		C-5 WASTE SAMPLE TANK 'A' DRAIN (WST)	Q50-A002A				D-921-652 (E-7)(E-9)	
D-14 FLOOR DRAIN SAMPLE TANK OVERFLOW DRAIN (FPT)	Q50A014A(B)				D-921-653 (E-7)(E-9)		D-33 RESIN FEED TANK DRAIN	Q50-A016				D-921-658 (E-10)		C-6 WASTE SAMPLE TANK 'A' OVERFLOW DRAIN	Q50-C008A				D-921-652 (E-7)(E-9)	
D-15 FLOOR DRAIN SAMPLE TANK 'B' DRAIN (FPT)	Q50A014B				D-921-653 (E-7)(E-9)		D-34 SAFETY EYE WASH DRAIN					D-921-658 (E-10)		C-7 FUEL POOL SLUDGE DECANT PUMP DRAIN	Q50-C004A(B)				D-921-651 (E-10)	
D-16 FLOOR DRAIN SAMPLE PUMP DRAIN (FPT)	Q50C004A(B)				D-921-653 (E-7)(E-9)		D-35 RELIEF VALVE DRAIN					D-921-658 (E-10)		C-8 WASTE COLLECTOR TANK OVERFLOW (DRAIN (WET))	Q50-A001A(B)				D-921-651 (E-10)	
D-17 FUEL POOL SLUDGE DISCHARGE MIXING PUMP DRAIN (FLUSH CORR)	Q50C016A(B)				D-921-651 (E-10)		D-36 SODIUM SILICATE FEED PUMP DRAIN	Q51-C004				D-921-658 (E-10)		C-9 WASTE COLLECTOR TRANSFER PUMP DRAIN	Q50-C001A(B)				D-921-651 (E-10)	
D-18 FLOOR DRAIN COLLECTOR TANK OVERFLOW (DRAIN (FPT))	Q50A003A(B)				D-921-652 (E-7)(E-9)		D-37 FILTER AID TANK DRAIN	Q50-A017				D-921-659 (E-10)		C-10 WASTE COLLECTOR TANK 'A' (B) FLUSH DRAIN	Q50-A001A(B)				D-921-651 (E-10)	
D-19 FLOOR DRAIN COLLECTOR PUMP DRAIN	Q50C003A(B)				D-921-654 (E-7)(E-9)		D-38 FILTER PREDDAT TANK DRAIN	Q50-A015				D-921-659 (E-10)		C-11 PROGRAMMABLE CONTROL AREA HYAL CONDENSATE DRAIN	M48-B5002				S-11E-834 (E-10)	



**RADWASTE BUILDING DIRTY RADWASTE FLOOR & EQUIPMENT DRAINS**

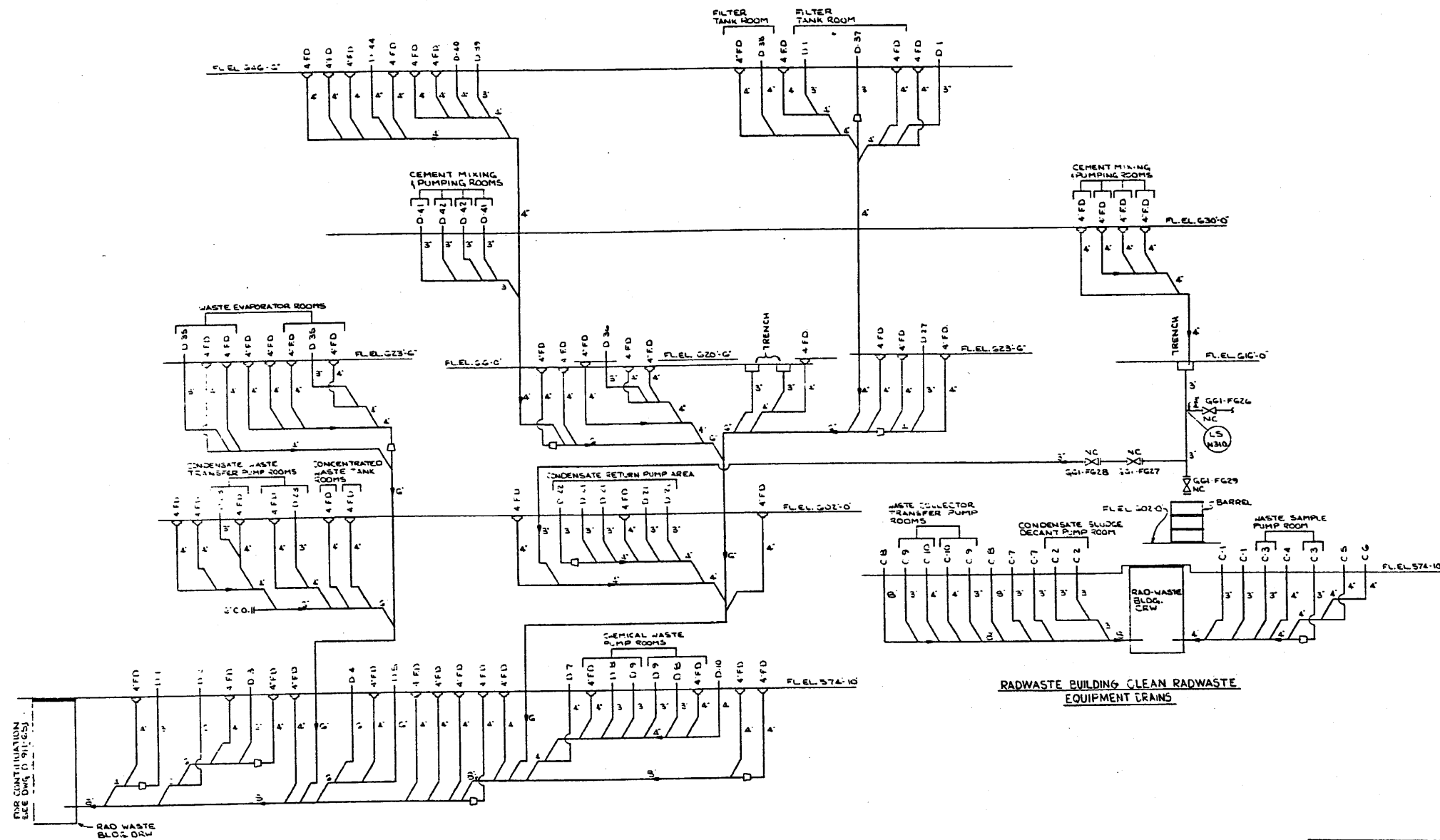
NOTES:  
1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING D-911-651.

(Rev. 13 12/03)

**PERRY NUCLEAR POWER PLANT**

Radwaste Building Dirty Radwaste Floor and Equipment Drains

Figure 9.3-15  
(Dwg. D-911-651)




NOTES:  
 1. FOR LEGEND AND ABBREVIATIONS, SEE DWG. D-911-000.  
 2. FOR DRAIN DESCRIPTION CHART, SEE DWG. D-911-001.

FOR CONTINUATION  
 SEE DWG. D-911-651

**RADWASTE BUILDING DIRTY RADWASTE  
 FLOOR & EQUIPMENT DRAINS**

(Rev. 12 1/03)



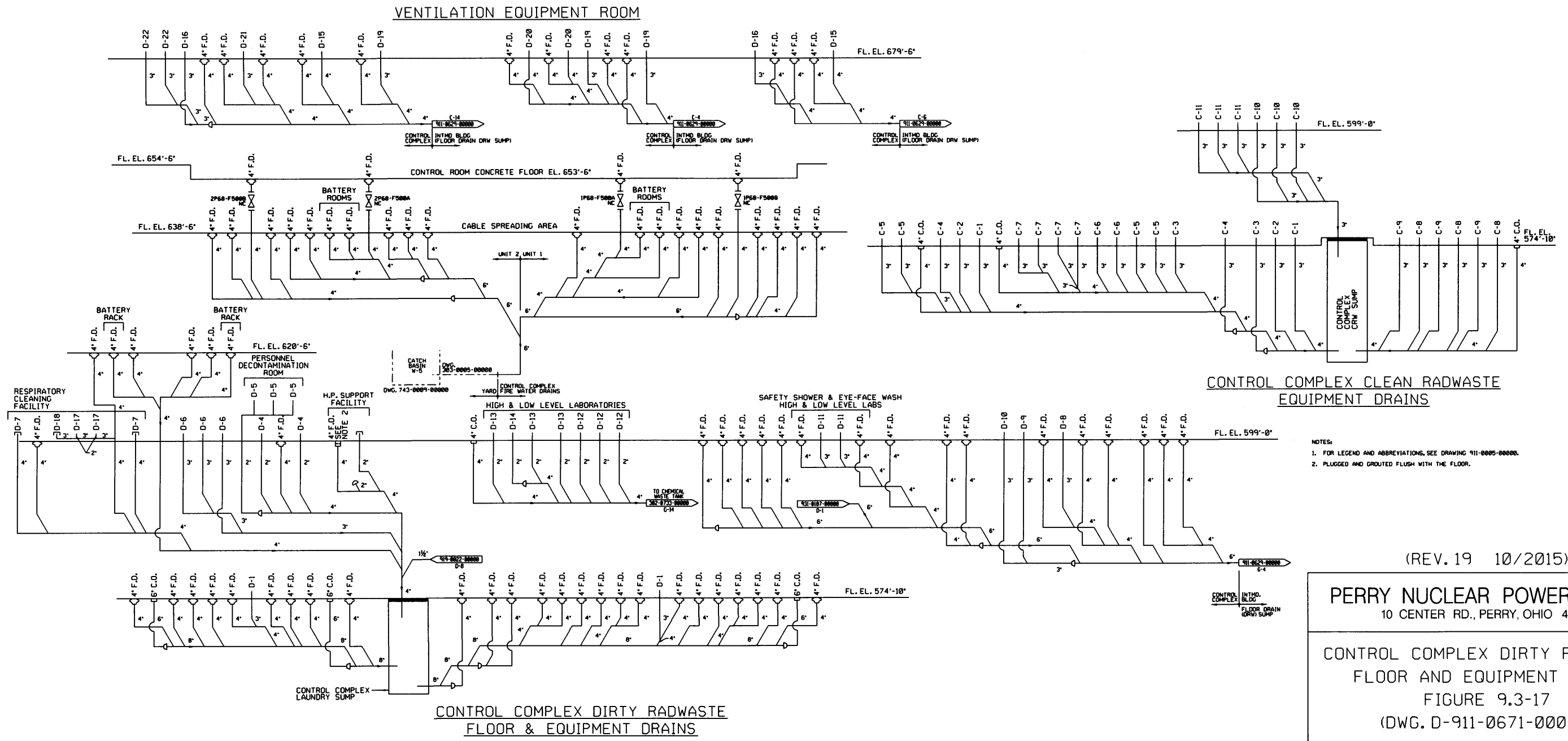
**PERRY NUCLEAR POWER PLANT**

Radwaste Building Clean and Dirty  
 Equipment Drains

Figure 9.3-16  
 (Dwg. D-911-652)

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-1	EMERGENCY CLOSED COOLING HEAT EXCHANGER TUBE DRAIN				921-0671-00000 (E-3) (F-3)	
D-2	DELETED				921-0673-00000 (E-3)	IN H.P. SUPPORT FACILITY
D-3	DELETED				921-0673-00000 (E-7)	IN H.P. SUPPORT FACILITY
D-4	SHOWER DRAIN				921-0673-00000 (E-7)	IN PERSONNEL DECONTAMINATION ROOM
D-5	LAVATORY DRAIN				921-0673-00000 (E-7) (E-8)	IN PERSONNEL DECONTAMINATION ROOM
D-6	NUCLEAR CLOSED COOLING SYSTEM HEAT EXCHANGER TUBE DRAIN	P43-0001A,B,C			921-0673-00000 (E-7) (E-7) (H-7)	
D-7	WASHER DRAIN (CAPPED)				921-0673-00000 (E-13) (E-14)	IN RESPIRATORY CLEANING FACILITY
D-8	ULTRASONIC CLEANER DRAIN				921-0673-00000 (E-4)	IN SHOP FACILITY
D-9	NUCLEAR CLOSED COOLING SYSTEM RADIATION MONITOR DRAIN	D17-J000			921-0673-00000 (E-7)	
D-10	SPARE					
D-11	SAFETY EYE WASH DRAIN				921-0673-00000 (E-11) (E-11)	HIGH & LOW LEVEL LABORATORIES
D-12	LAB SINK DRAIN				921-0673-00000 (E-13) (E-13) (H-13)	IN LOW LEVEL LAB.
D-13	LAB SINK DRAIN				921-0673-00000 (E-13) (E-13) (E-13)	IN HIGH LEVEL LAB.
D-14	LAB SINK DRAIN				921-0673-00000 (E-11)	IN HL, TH, PHYS. & RAD. PROTECTION SERVICE ROOM
D-15	CONTROL ACCESS AREA EXHAUST FLEWM	M21-0001A,B			921-0673-00000 (E-3) (E-13)	CHARCOAL FILTER FIRE WATER DRAIN
D-16	CHILLED WATER EXPANSION TANK DRAIN	P47-0002A,B			921-0678-00000 (E-5) (E-11)	
D-17	SCULLERY SINK DRAIN				919-0025-00000	IN RESPIRATORY CLEANING FACILITY
D-18	DISHWASHER DRAIN (CAPPED)				919-0025-00000	IN RESPIRATORY CLEANING FACILITY
D-19	CONDENSATE DRAIN FROM HUMIDIFIER				921-0677-00000 (E-0) (E-5) (E-11)	
D-20	CONTROL ROOM RECIRCULATION PLENUM	M26-0001A,B			921-0678-00000 (E-7) (E-7)	CHARCOAL FILTER FIRE WATER DRAIN
D-21	ELECTRIC STEAM BOILER DRAIN	M29-0001			921-0677-00000 (E-11)	
D-22	FIRE SERVICE DRAIN				921-0678-00000 (E-10) (E-11)	

DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
C-1	SERVICE AIR COMPRESSOR DRAIN				921-0671-00000 (E-3) (E-3)	
C-2	INSTRUMENT AIR COMPRESSOR DRAIN				921-0671-00000 (E-3) (E-3)	
C-3	SERVICE AIR COMPRESSOR RECEIVER TANK DRAIN				921-0671-00000 (E-5) (E-5)	
C-4	INSTRUMENT AIR COMPRESSOR RECEIVER TANK DRAIN				921-0671-00000 (E-5) (E-5)	
C-5	INSTRUMENT AIR DRYER DRAIN				921-0671-00000 (E-5) (E-5) (H-5)	
C-6	EMERGENCY CLOSED COOLING HEAT EXCHANGER SHELL DRAIN				921-0671-00000 (E-3) (E-3)	
C-7	EMERGENCY CLOSED COOLING PUMP DRAIN				921-0671-00000 (E-12) (E-12) (F-12)	
C-8	CONTROL COMPLEX WATER CHILLER DRAIN				921-0672-00000 (E-6) (E-6) (E-12)	
C-9	CONTROL COMPLEX CHILLED WATER PUMP DRAIN				921-0672-00000 (E-6) (E-6) (E-12)	
C-10	NUCLEAR CLOSED COOLING SYSTEM HEAT EXCHANGER SHELL DRAIN				921-0673-00000 (E-3) (E-3) (H-3)	
C-11	NUCLEAR CLOSED COOLING PUMP DRAIN				921-0673-00000 (E-11) (E-12) (F-12)	



- NOTES:  
1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING 911-0005-00000.  
2. PLUGGED AND GROUTED FLUSH WITH THE FLOOR.

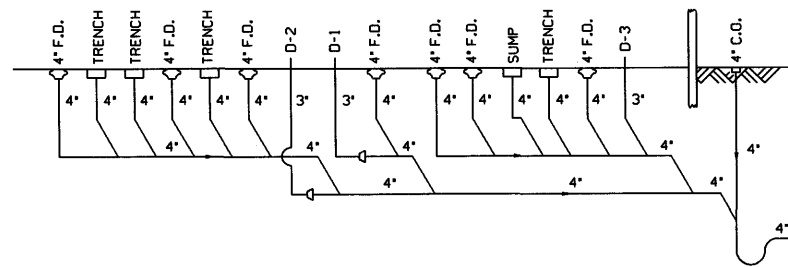
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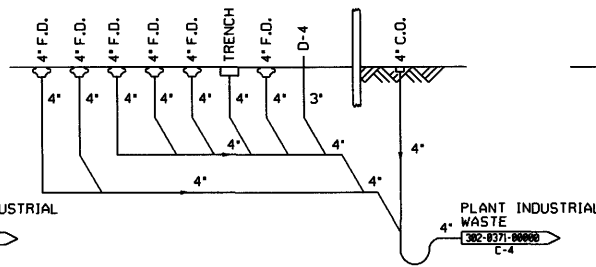
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CONTROL COMPLEX DIRTY RADWASTE  
FLOOR AND EQUIPMENT DRAIN  
FIGURE 9.3-17  
(DWG. D-911-0671-00000)

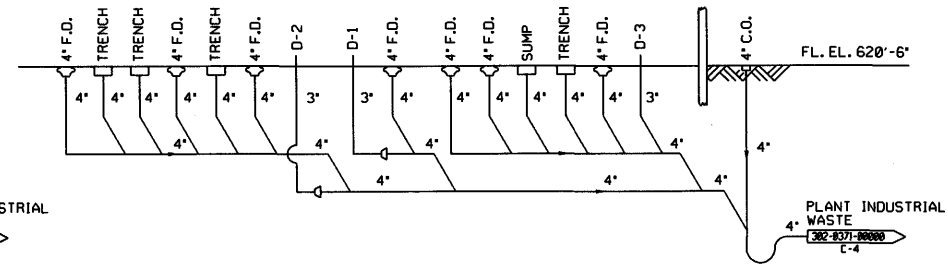
	DRAIN DESCRIPTION	EQPT. NO.	DAILY (GPD)	MAX. FLOW RATE (GPM)	BATCH (GAL)	SYSTEM DWG. NO. & COOR. LOCATION	REMARKS
D-1	STARTING AIR COMPRESSOR DRAIN	1R44C001A&B				921-0691-00000 (B-7)(B-12)	
		2R44C002A&B				921-0692-00000 (B-8)(B-12)	
D-2	AIR DRYER DRAIN	1R44D001A&B				921-0691-00000 (C-8)(C-13)	
		2R44D002A&B				921-0692-00000 (B-9)(B-13)	
D-3	STANDBY DIESEL GENERATOR DRAIN	1R43S001A&B				921-0691-00000 (C-6)(C-11)	
D-4	HPCS DIESEL FUEL OIL TRANSFER PUMP DRAIN	1R45C001C				921-0691-00000 (C-8)	
		2R45C002C				921-0692-00000 (C-9)	



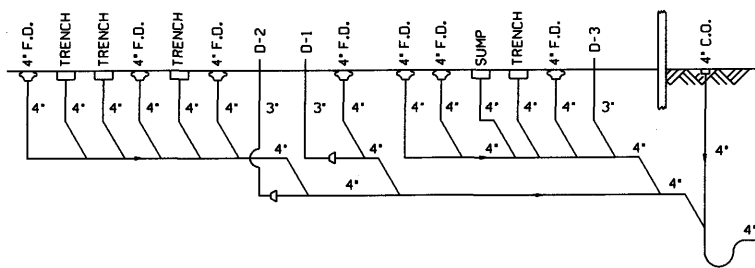
STANDBY DIESEL GENERATOR  
(2R43-S001A)



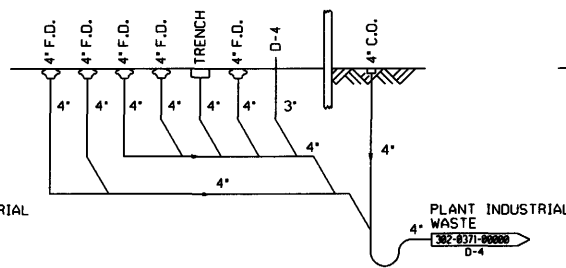
HPCS DIESEL GENERATOR  
(2E22-S001)



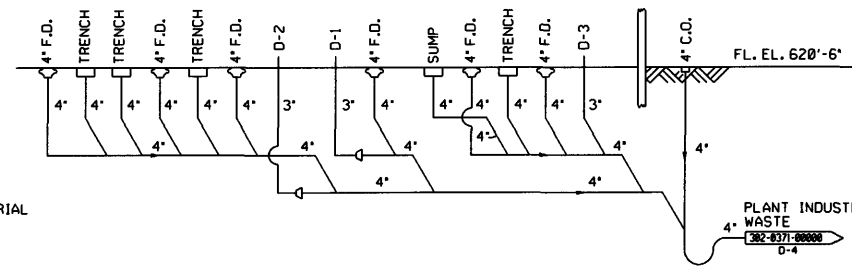
STANDBY DIESEL GENERATOR  
(2R43-S001B)



STANDBY DIESEL GENERATOR  
(1R43-S001A)



HPCS DIESEL GENERATOR  
(1E22-S001)



STANDBY DIESEL GENERATOR  
(1R43-S001B)

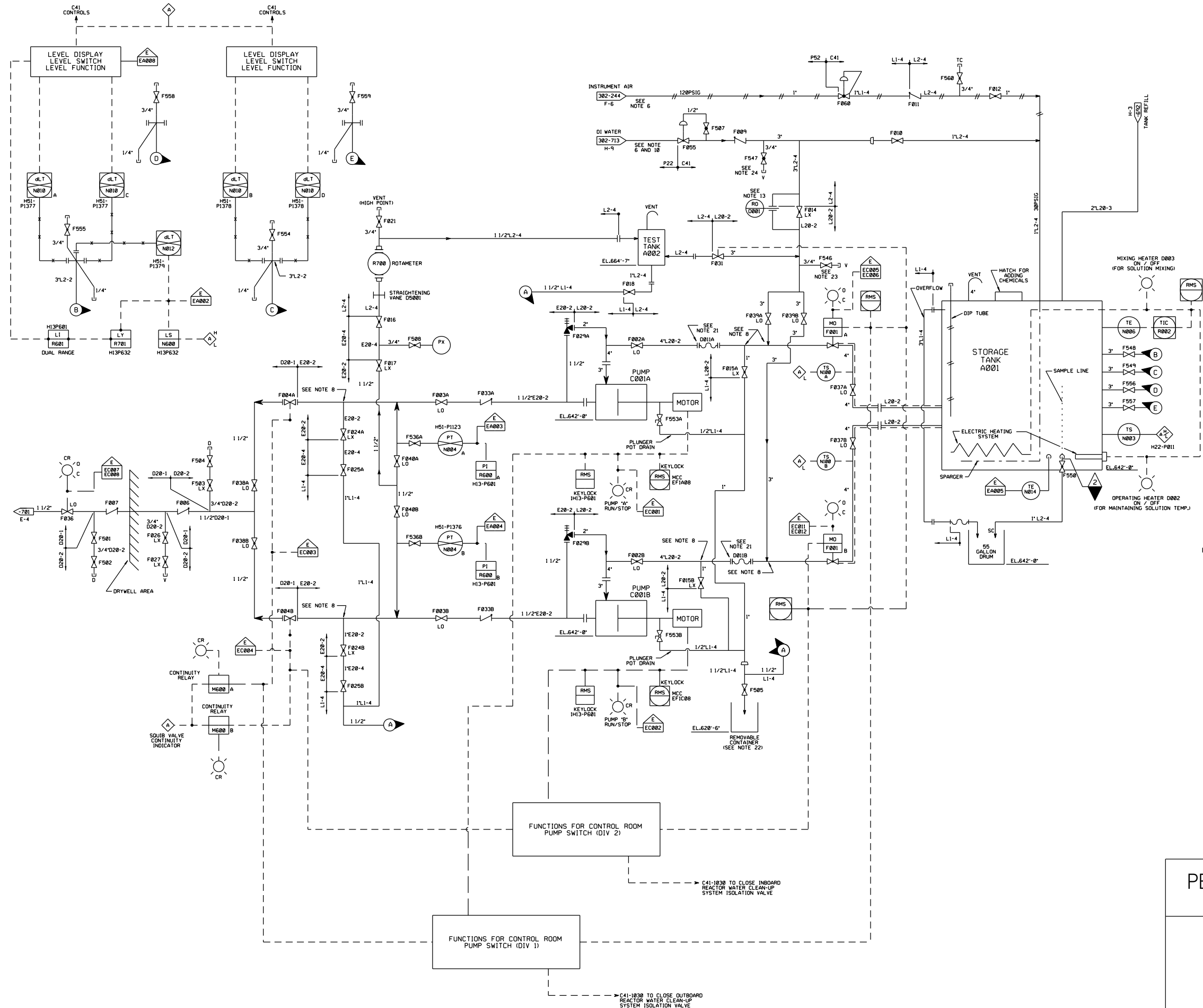
NOTES:  
1. FOR LEGEND AND ABBREVIATIONS, SEE DRAWING 911-0005-00000.

REFERENCES:  
302-0371-00000 PLANT INDUSTRIAL WASTE P64  
911-0005-00000 LUBE OIL AREA, TURBINE LAYDOWN AND WATER TREATMENT BUILDING P68

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

DIESEL GENERATOR  
BUILDING DRAIN  
FIGURE 9.3-18  
(DWG. D-911-0691-00000)



- NOTES:
- EXCEPT AT POINTS OF CONNECTION WITH GEARED SUPPLIED EQUIPMENT OR PIPING, THE PIPING DESIGNER SHALL SIZE PIPES IN CONFORMANCE WITH THE SYSTEM DESIGN SPECIFICATION.
  - INSTRUMENT PIPING AND VALVING SHALL BE INSTALLED IN ACCORDANCE WITH A62-487B.
  - PIPING HIGH POINT VENTS AND LOW POINT DRAINS ARE TO BE ADDED AT ALL SUCH HIGH OR LOW POINTS NOT SERVED BY EQUIPMENT VENTS AND DRAINS.
  - ALL EQUIPMENT AND INSTRUMENTS ARE PREFIXED BY C41, UNLESS OTHERWISE NOTED.
  - DRAINS SHOULD BE ROUTED TO A COMMON COLLECTION AREA. MANIFOLDING OF DRAIN LINES, WHERE PRACTICAL, IS PERMISSIBLE. SPACE SHALL BE PROVIDED IN COLLECTION AREA FOR REMOVABLE TYPE CONTAINERS, SUCH AS 55 GALLON DRUMS.
  - THE ELEVATION OF THE DEMINERALIZER WATER AND PLANT AIR SUPPLY LINES SHALL BE ABOVE THE TOP OF THE STORAGE TANK.
  - FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS, SEE INSTRUMENT DATA SHEET LISTED IN MPL FOR EACH INSTRUMENT.
  - FLUSHING CONNECTIONS (SUPPLY & DRAIN) SHALL BE LOCATED TO ALLOW FOR MAXIMUM SYSTEM FLUSH & DRAIN & SHALL BE PROVIDED IN ACCORDANCE WITH A62-414B. TEMPORARY STRAINER SCREENS SHALL BE PROVIDED ON THE SUCTION SIDE OF ALL PUMPS IN ACCORDANCE WITH A62-414B.
  - DELETED.
  - THE DEMINERALIZER WATER SUPPLY SHALL HAVE PRESSURE HIGHER THAN THE STATIC PRESSURE OF THE STORAGE TANK SOLUTION, BUT NOT TOO HIGH TO CAUSE LEAKAGE OR BACK FLOW THROUGH VALVES F800A & B INTO THE STORAGE TANK WHILE THESE VALVES ARE NORMALLY CLOSED.
  - THE LINE BETWEEN THE TANK & THE VALVES F800A & B SHALL BE MINIMUM TO PREVENT PRECIPITATION OF SOLUTION OR A HEAT TRACING DEVICE BEING SUPPLIED BY PIPING DESIGNER AS REQUIRED.
  - THE SUCTION PIPING SHALL BE SIZED SUCH THAT THE AVAILABLE NPSH AT PUMP INLET NOZZLE IS AS SPECIFIED IN THE DATA SHEET (REFER TO 22A6893).
  - THE RESTRICTING DRIFTE D081 SHALL BE SIZED DURING PREOPERATIONAL TEST. IT SHALL BE LARGE ENOUGH TO PASS SUFFICIENT FLOW TO MAKEUP ALL LEAKAGE OF EQUIPMENT, BUT NOT BE SO LARGE THAT IT WILL CAUSE VARIATION IN THE BORON INJECTION RATE. REFER TO CALCULATION C41-014 FOR EVALUATION DETAILS.
  - PIPING DESIGNER HAS DETERMINED THAT INSTALLATION OF ACCUMULATORS IN PUMP DISCHARGE PIPING IS NOT REQUIRED TO ASSURE THE DISCHARGE PIPING INTEGRITY.
  - CONNECTION TO HPCS SYSTEM SHALL BE DOWNSTREAM OF THE INBOARD TESTABLE CHECK VALVE AND SHALL HAVE DRAINAGE CAPABILITY, SEE NOTES 3 AND 5.
  - THE SLES MAKEUP SUBSYSTEM SHALL CONSIST OF A MIXING TANK, PUMP, CHECK VALVE, & A LOCKED CLOSED MANUAL VALVE FOR CONTAINMENT ISOLATION.
  - THE VALVES F837 SHALL BE LOCATED AS CLOSE AS POSSIBLE TO MOTOR OPERATED VALVES F800.
  - DELETED.
  - THIS SYSTEM DIAGRAM IS A PHOTOGRAPHIC REPRODUCTION OF G.E. Dwg. 75E-4330A SPECIFIC REVISION IS SHOWN BENEATH TITLE BLOCK.
  - THE INSTRUMENT LINE BETWEEN THE INSTRUMENT SENSORS AND THE STORAGE TANK SHALL BE AS SHORT AS POSSIBLE TO PREVENT PRECIPITATION OF BORON SOLUTION IN THE LINE OR HEAT TRACING SHALL BE SUPPLIED AS REQUIRED.
  - AFTER FLUSHING/TESTING SYSTEM AND BEFORE PLANT OPERATION, REMOVE TEMPORARY STRAINERS D084, D084B, AND FLANGED SPOOL SECTIONS, REPLACE WITH METAL BELLOW D011A AND D011B.
  - CONTAINER AT 620' 6" ELEVATION IS USED FOR DRAINING PURPOSES ONLY AND SHALL NOT BE PERMANENTLY INSTALLED DURING OPERATING MODES 1, 2, AND 3.
  - MATE PRESSURE GAUGE MAY BE UTILIZED AT VENT VALVE F854B. OBTAIN PRESSURE READING THROUGH MOMENTARY OPENING OF VENT VALVE ONLY, REFERENCE DCN 4987.
  - HOSE MAY BE UTILIZED AT VENT VALVE F8547 TO DIRECT LEAK-OFF FROM VENT VALVE TO FLOOR DRAINS, REFERENCE DCN 4987.

- REFERENCES:
- D-382-241 SERVICE & INSTRUMENT AIR SYSTEM P51, P52.
  - D-382-701 HIGH PRESSURE CORE SPRAY SYSTEM, E22.
  - D-382-713 MIXED BED DEMINERALIZER WATER SYSTEM, P22.
  - A62-1010 PIPING & INSTRUMENT SYMBOLS DRAWING.
  - A62-4070 PROCESS INSTRUMENTATION.
  - A62-4140 CLEANING OF PIPING AND EQUIPMENT.
  - C41-1030 SLC SYSTEM FCD (REF. DWG. 4549-11-033).
  - C41-4010 SLC SYS. DESIGN SPEC. (REF. GEOSP 22A6893).

(REV. 22 10/2021)

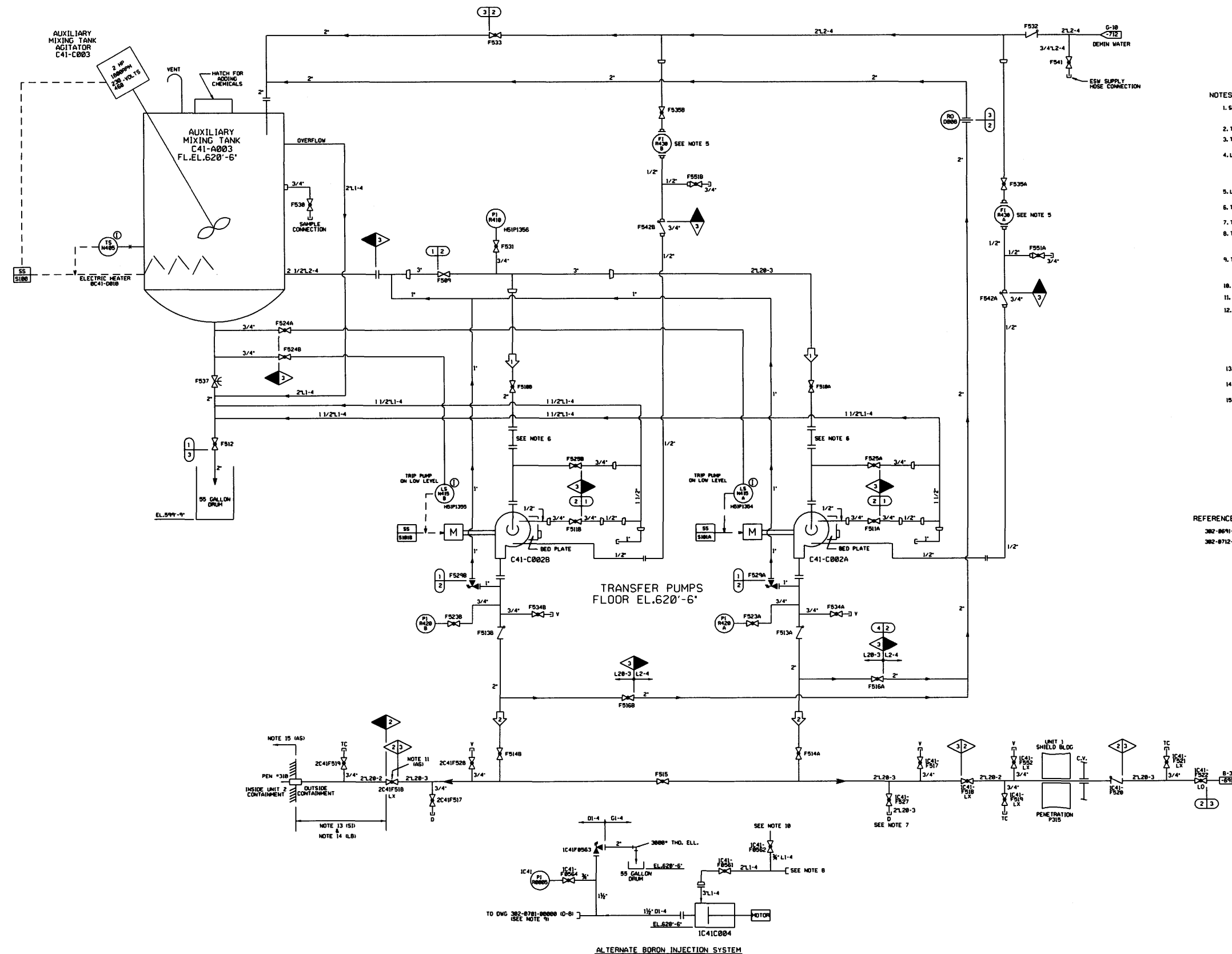
**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081  
  
**STANDBY LIQUID CONTROL SYSTEM**  
 FIGURE 9.3-19 (SHEET 1 OF 2)  
 (DWG. D-302-0691-00000)

C41-1030 TO CLOSE INBOARD REACTOR WATER CLEAN-UP SYSTEM ISOLATION VALVE

C41-1030 TO CLOSE OUTBOARD REACTOR WATER CLEAN-UP SYSTEM ISOLATION VALVE

OPERATING DATA						
SEE NOTE 12						
ID	PSIG	DPH	* F	BY	REMARKS	REV
1	4	20	150	DRL		
2	32	20	150	DRL		

DESIGN DATA							
ID	NORMAL PSIG	UPSET PSIG	TIME	BY	CHKD	REMARKS	REV
1	40	150		DRL		STATIC HEAD	A
2	150			DRL			A
3	ATM	150		DRL			A



- NOTES:
- SAFETY SUPPLY OF WATER WILL BE FROM THE EMERGENCY SERVICE WATER SYSTEM (#45). HOSE WILL BE USED TO SUPPLY THIS WATER TO THE MIXING TANK.
  - THE MIXING TANK IS NON-SAFETY CLASS, SEISMIC CATEGORY 1.
  - THE STRAINERS SHOWN ARE TEMPORARY AND ARE USED ONLY FOR START-UP.
  - LINE CLASS L20-2 AND L20-3 ARE THE SAME AS L2-2 AND L2-3 RESPECTIVELY, EXCEPT PIPE MATERIAL TO BE SA-312 GRADE TP 316L FITTING MATERIAL 2" AND UNDER TO BE SA-182 GRADE F 316L FITTING MATERIAL 2-1/2" AND OVER TO BE SA-483 GRADE TP 316L AND FLANGE MATERIAL TO BE SA-182 GRADE F 316L. L20-2 AND L20-3 GASKETS TO BE FLEXATALLIC STYLE CO.
  - LOCATE VALVE SO THAT CORRESPONDING F1 CAN BE OBSERVED WHILE ADJUSTING VALVE.
  - TEMPORARY STRAINERS DR08 A & B USED FOR START-UP ONLY. ARE REMOVED FOR PLANT OPERATION.
  - TIE-IN LOCATION FOR ALTERNATE BORON INJECTION SYSTEM.
  - TIE-IN TO STANDBY LIQUID CONTROL TRANSFER SYSTEM (VALVE IC41-F527) VIA LOW PRESSURE HOSE IC41-05082 (STORED IN THE VICINITY OF PUMP C004. FOR DESIGN DATA UPSTREAM OF PUMP C004, REFER TO C41 DESIGN FLAG #2).
  - TIE-IN TO HIGH PRESSURE CORE SPRAY SYSTEM (VALVE IC22-F801) VIA HIGH PRESSURE HOSE IC41-05083 (STORED IN THE VICINITY OF PUMP C004). FOR DESIGN DATA DOWNSTREAM OF PUMP C004, REFER TO E22 DESIGN FLAG #2.
  - ROUTE TO 55 GALLON DRUM VIA HOSE.
  - 05 UNIT 1/2 BOUNDARY SEPARATION. FOR DETAILS SEE TAF 81653.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - (S) STRUCTURAL INTEGRITY BOUNDARY FOR ABANDONED. RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-8396.
  - (L) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED. RETIRED IN PLACE SSC'S. FOR DETAILS SEE ECP 14-8396.
  - (AS) ABANDONED SSC'S OUTSIDE THE SCOPE OF LICENSE RENEWAL. CONFIGURATION CONTROL NOT MAINTAINED FOR ABANDONED SSC'S IF INSTALLED OUTSIDE THE SCOPE OF LICENSE RENEWAL.

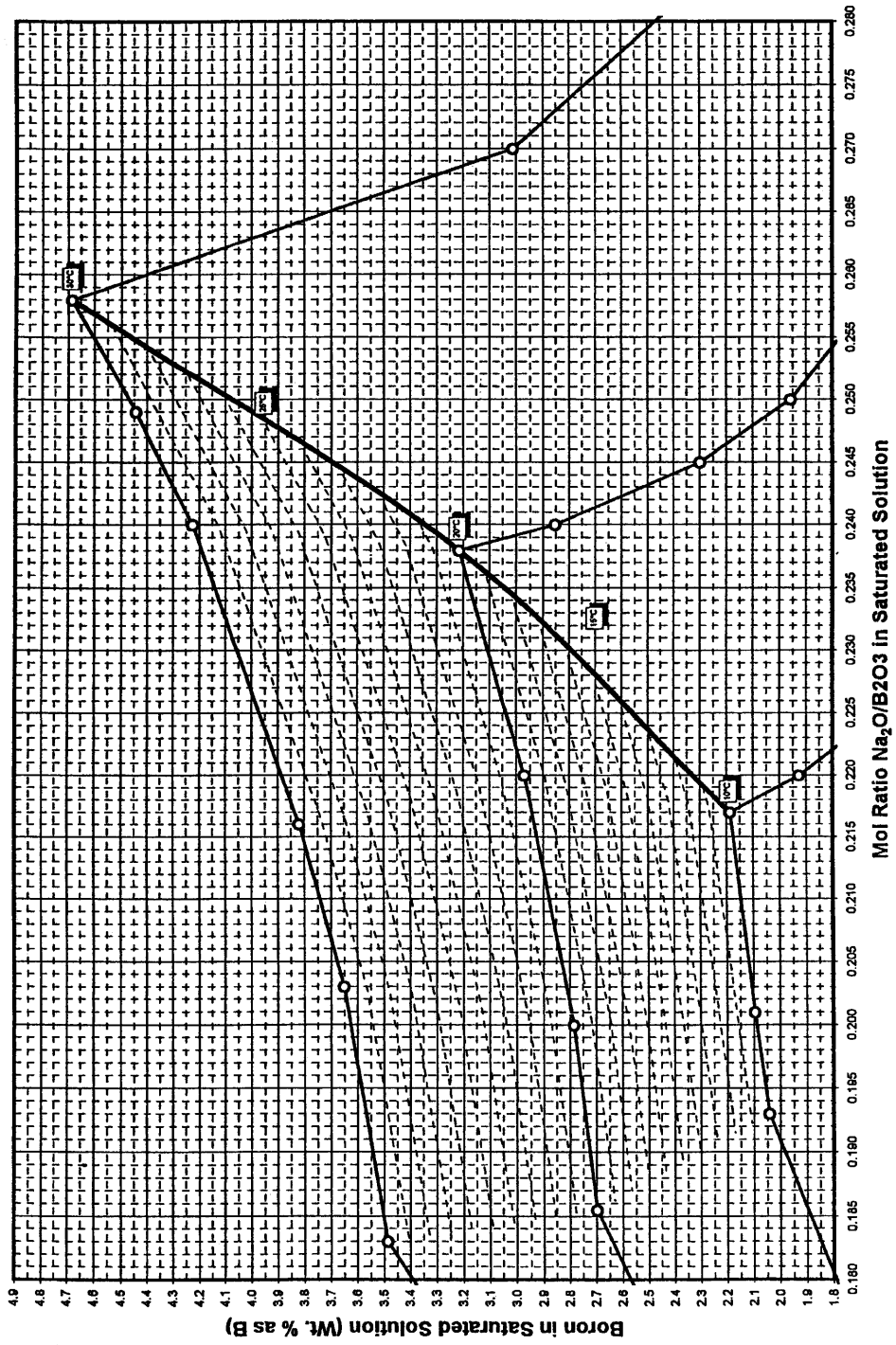
- REFERENCES:
- 302-0691-00000 STANDBY LIQUID CONTROL SYSTEM C41 UNIT 1
  - 302-0712-00000 TWO-BED WATER DEMINERALIZER & DISTRIBUTION SYSTEM#21

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

STANDBY LIQUID  
 CONTROL SYSTEM  
 FIGURE 9.3-19 (SHEET 2 OF 2)  
 (DWG. D-302-0692-00000)

Solubility Isotherms in the System Borax-Boric Acid-Water



(Rev. 12 1/03)



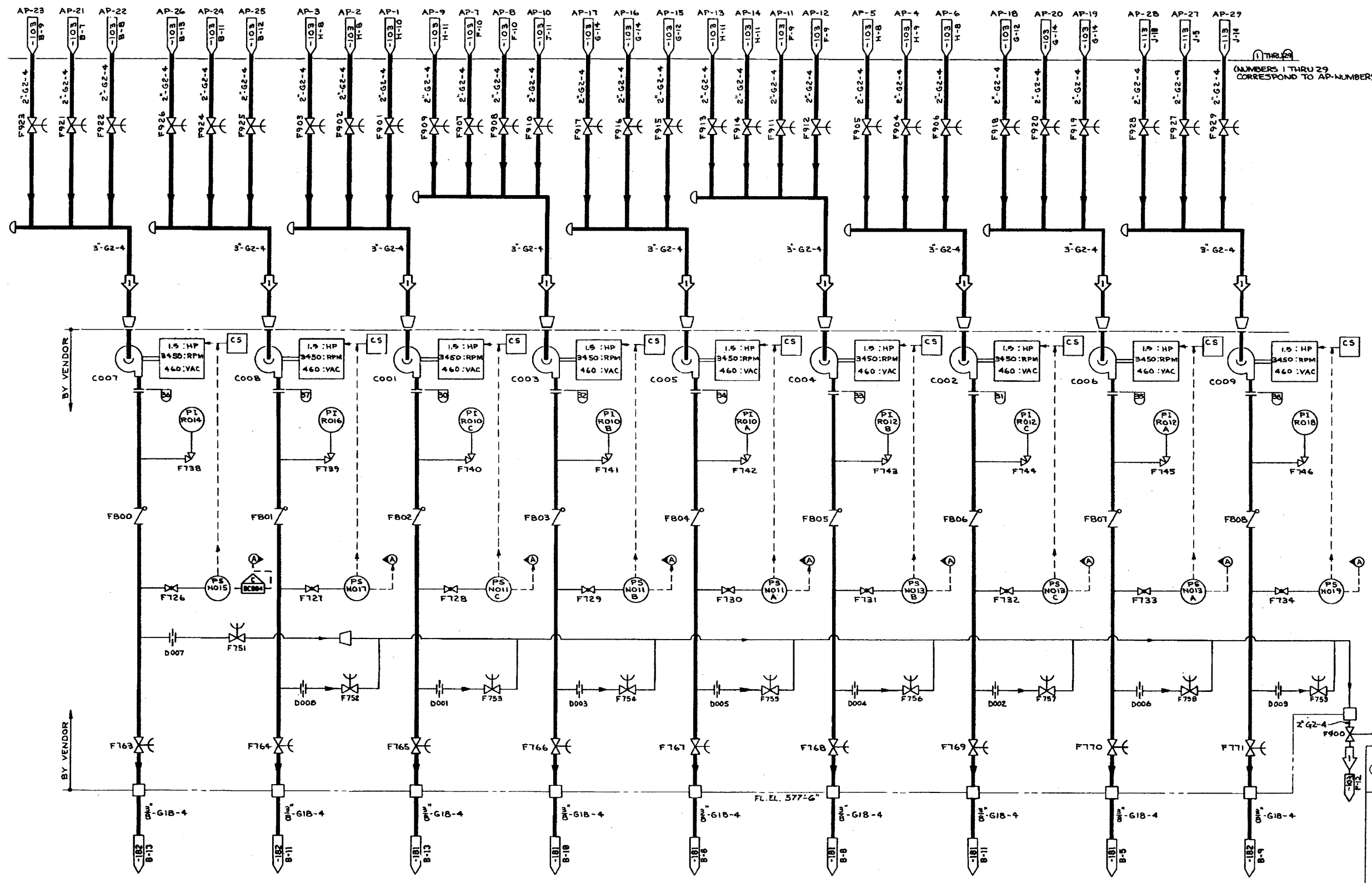
**PERRY NUCLEAR POWER PLANT**

Solubility Isotherms in  
the Standby Liquid Control  
System

Figure 9.3-20

OPERATING DATA  
SEE NOTE 3

PSIG	GPM	F	BY	REMARKS	REV
1	VAC	8		AP-1	
				THRU	
				AP-29	
2	10	67.5	100		



(NUMBERS 1 THRU 29  
CORRESPOND TO AP-NUMBERS)

DESIGN DATA

D	NORMAL	UPSET	BY	REMARKS	REV
1	VAC	135		AP-1	
				THRU	
				AP-29	
30	85	135			
36					

- REFERENCES:
- 382-0103-00000 CONDENSING SYSTEM
  - 382-0103-00000 LOW PRESSURE HEATER DRAINS AND VENTS
  - 382-0101-00000 TURBINE PLANT SAMPLING SYSTEM
  - 382-0102-00000 TURBINE PLANT SAMPLING SYSTEM
- NOTES:
- ALL ITEM NUMBERS PREFIXED BY IP33, UNLESS OTHERWISE NOTED.
  - ALL PUMP CONTROLS LOCATED ON PANEL HSI-P326.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA PRESSURES, TEMPERATURES, AND FLOWS PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

(Rev. 15 10/07)

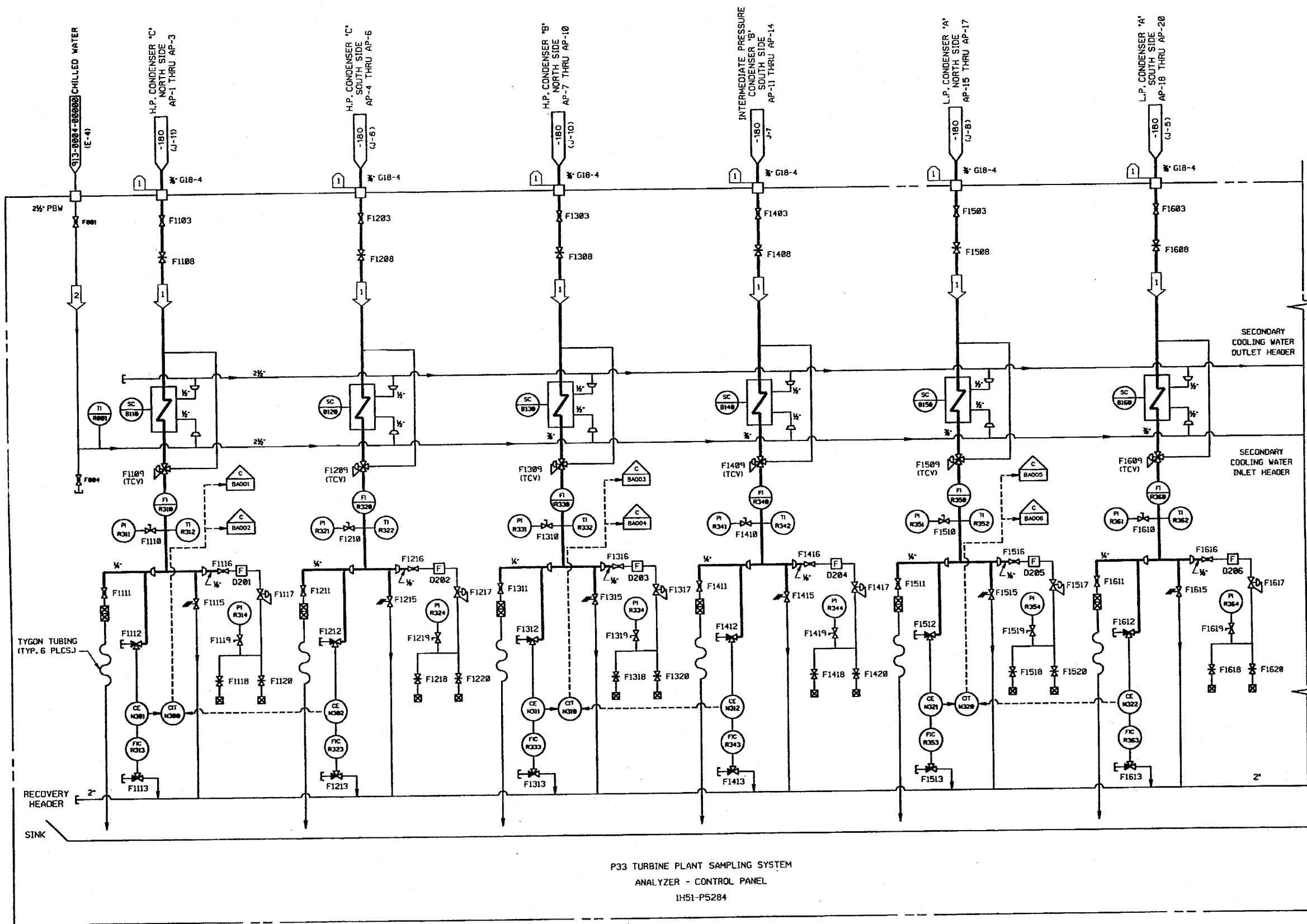
**PERRY NUCLEAR POWER PLANT**

Turbine Plant Sampling System

Figure 9.3-21

(Dwg. D-302-180)





OPERATING DATA						
SEE NOTE 3						
NO.	PSIG	GPM	CC/MIN	°F	BY	REMARKS
1	25	—	1000	100		AP-1 - AP-20
2	150	40	—	55		P46 CHILLED WATER

DESIGN DATA								
NO.	NORMAL		UPSET		BY	CKD	REMARKS	REV
	PSIG	°F	PSIG	°F				
1	85	135					SEE DWG. D-302-180 FOR AP-1 THRU AP-20	

- NOTES:**
1. ALL ITEM NUMBERS PREFIXED BY IP33- UNLESS OTHERWISE NOTED.
  2. REFER TO 302-0183-00000 FOR OTHER PERTINENT NOTES.
  3. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:**
- 302-0180-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0182-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 913-0004-00000 TURBINE BUILDING CHILLED WATER SYSTEM P46

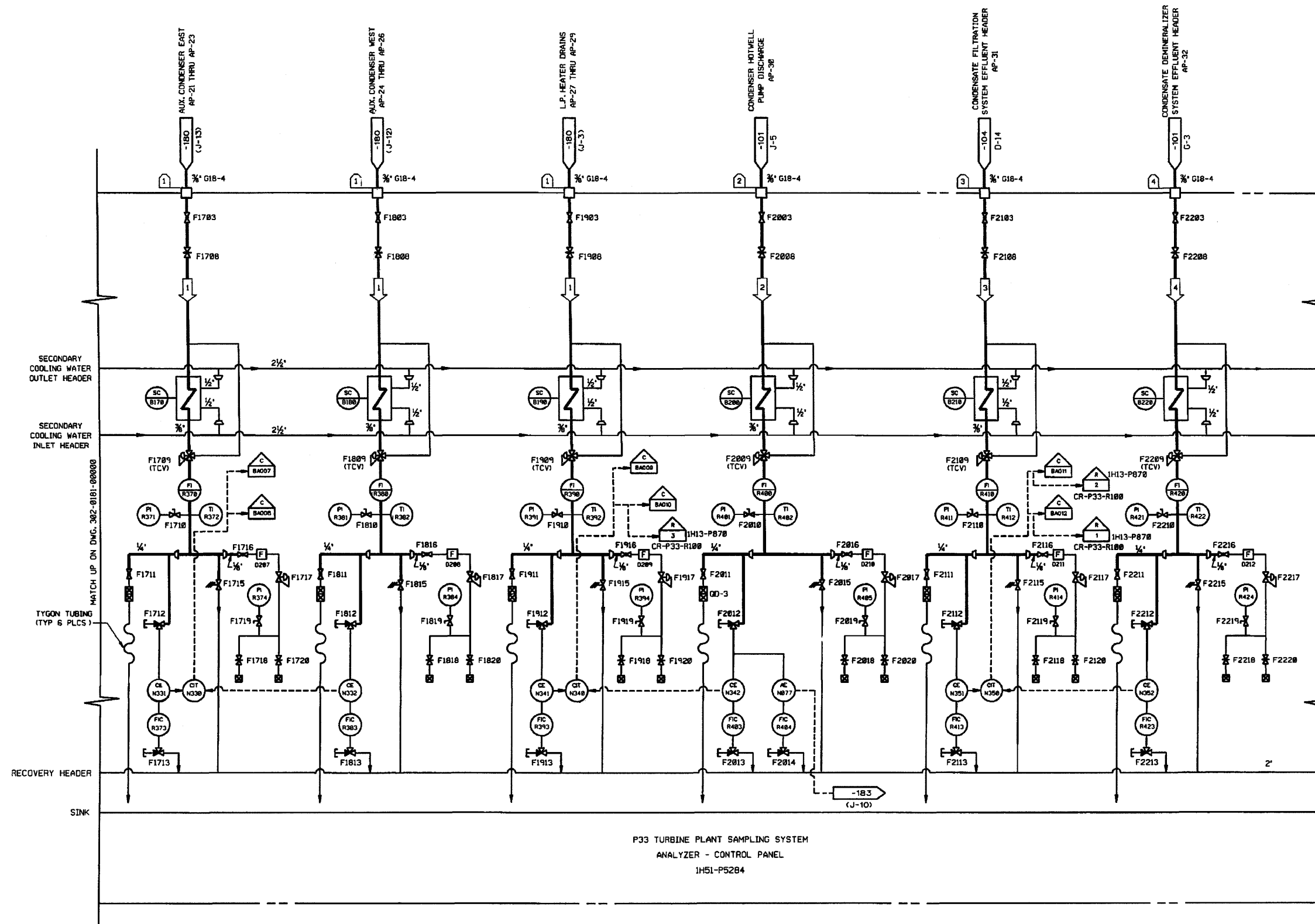
(Rev. 15 10/07)

**PERRY NUCLEAR POWER PLANT**

Turbine Plant Sampling System

Figure 9.3-22

(Dwg. D-302-181)



OPERATING DATA						
SEE NOTE 3						
NO.	PSIG	GPM	CC/MIN	°F	BY	REMARKS
1	25		1800	180		AP-21 - AP-29
2	130		1500	181		AP-30
3	90		1500	185		AP-31
4	55		1500	181		AP-32

DESIGN DATA									
ID	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	TIME	BY	CKD	REMARKS	REV
1	85	135						SEE DWG. D-302-180 FOR AP-21 THRU AP-29	
2	250	135						SEE DWG. D-302-180 FOR AP-30 THRU AP-32	
3	250	135						SEE DWG. D-302-180 FOR AP-31	
4	250	135							

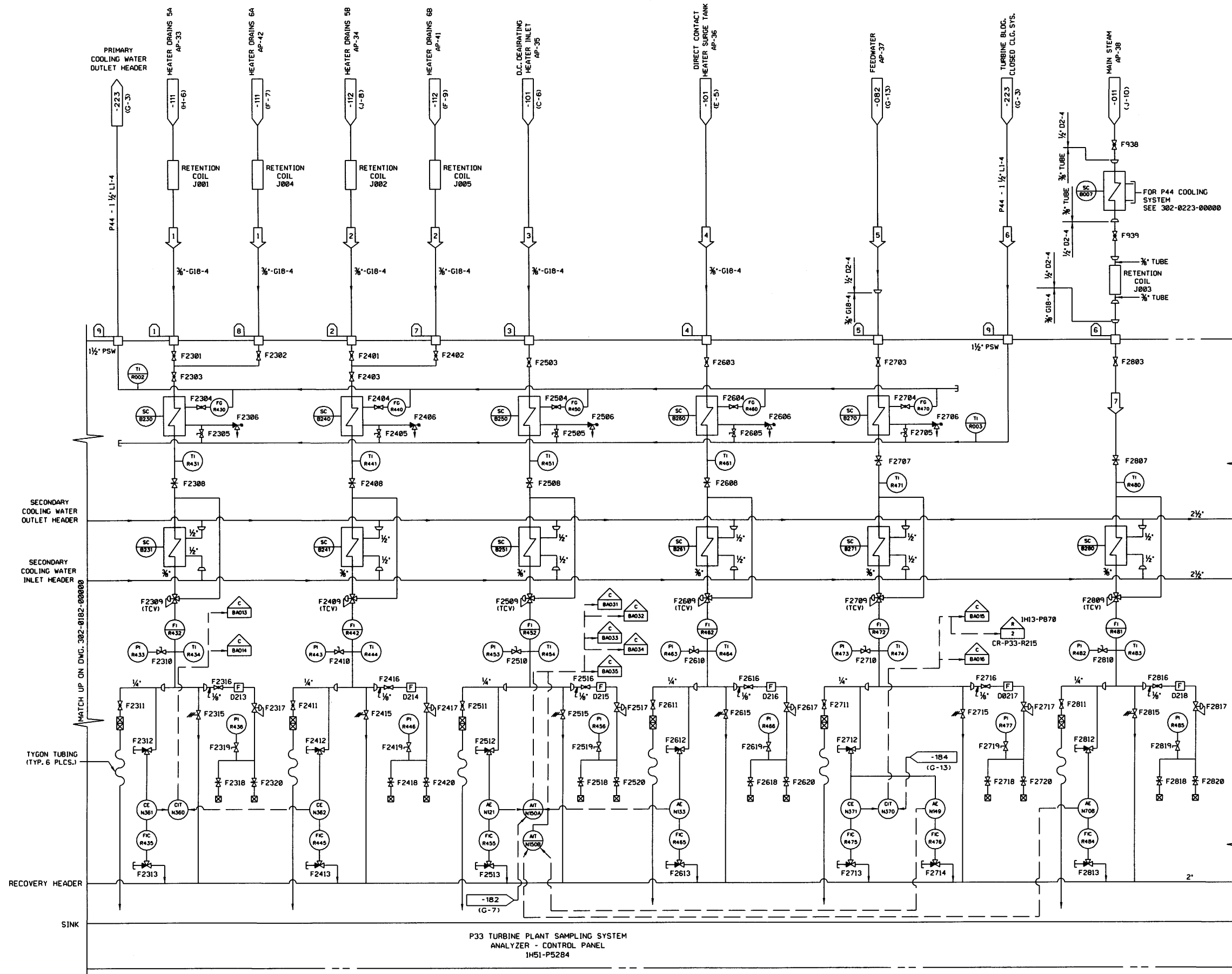
- NOTES:
- ALL ITEM NUMBERS PREFIXED BY IP33- UNLESS OTHERWISE NOTED.
  - REFER TO 302-0183-00000 FOR OTHER PERTINENT NOTES.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:
- 302-0101-00000 CONDENSATE SYSTEM N21
  - 302-0104-00000 CONDENSATE FILTRATION SYSTEM N23
  - 302-0180-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0181-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0183-00000 TURBINE PLANT SAMPLING SYSTEM P33

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

TURBINE PLANT  
SAMPLING SYSTEM  
FIGURE 9.3-23  
(DWG. D-302-0182-00000)



OPERATING DATA  
SEE NOTE 3

ID	PSIG	GPM	CC/MIN	°F	BY	REMARKS	REV
1	90		1500	381		AP-33/42	
2	90		1500	381		AP-34/41	
3	25		1000	288		AP-35	
4	25		1000	328		AP-36	
5	1050		1500	424		AP-37	
6	62	40		95		P44 TURB. BLDG. CLOSED COOLING WTR.	
7	925		1800	105		AP-38	

DESIGN DATA

ID	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	TIME	BY	CKD	REMARKS	REV
1	200	385						AP-33	
2	200	385						AP-34	
3	125	288						AP-35	
4	125	350						AP-36	
5	1500	420						AP-37	
6	1250	525						AP-38	
7	200	385						AP-41	
8	200	385						AP-42	
9	100	125						P44 TURB. BLDG. CLOSED COOLING WTR.	

NOTES:

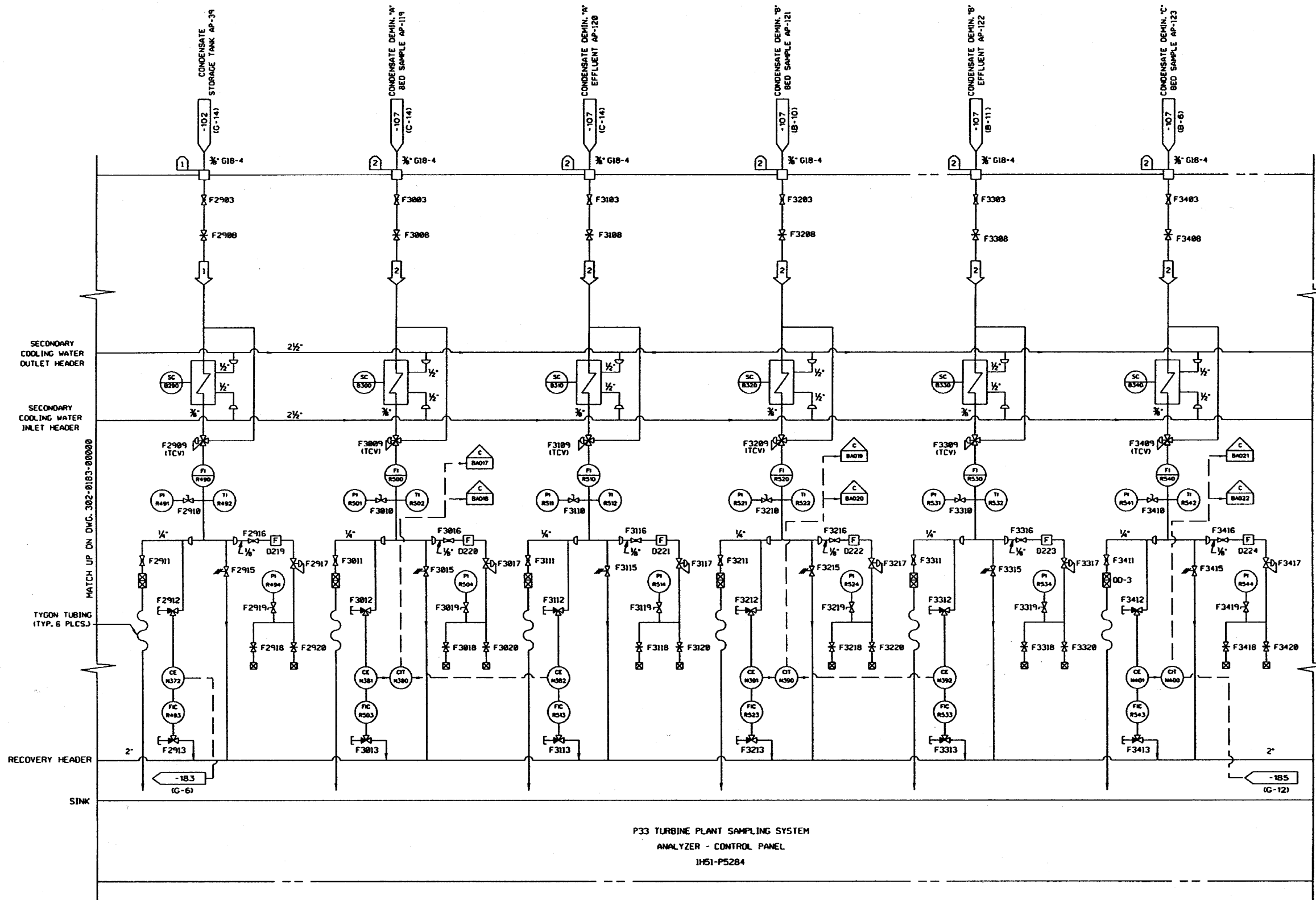
- ALL ITEM NUMBERS PREFIXED BY IP33- UNLESS OTHERWISE NOTED.
- RETENTION TIME DEVICES ARE REQUIRED FOR THE HIGH PRESSURE HEATER DRAIN SAMPLES AND FOR THE MAIN STEAM SAMPLE. FOR THE HIGH PRESSURE HEATER DRAINS THE RETENTION TIME DEVICES SHALL BE LOCATED AS CLOSE TO THE SAMPLE SOURCE AS POSSIBLE AND THE PRIMARY COOLING COILS SHALL BE LOCATED AT THE SAMPLE ANALYZER CONTROL PANEL. BOTH THE RETENTION TIME DEVICE AND THE PRIMARY COOLING COIL SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE SAMPLE SOURCE.
- PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:
- 302-0011-00000 MAIN STEAM SYSTEM N11
  - 302-0002-00000 FEEDWATER N27
  - 302-0101-00000 CONDENSATE SYSTEM N21
  - 302-0111-00000 HIGH PRESSURE HEATER DRAINS AND VENTS 'A' N29
  - 302-0112-00000 HIGH PRESSURE HEATER DRAINS AND VENTS 'B' N25
  - 302-0223-00000 TURBINE BUILDING CLOSED COOLING SYSTEM P44
  - 302-0182-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0184-00000 TURBINE PLANT SAMPLING SYSTEM P33

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

**TURBINE PLANT SAMPLING SYSTEM**  
FIGURE 9.3-24  
(DWG. D-302-0183-00000)



OPERATING DATA						
SEE NOTE 3						
REV	PSIG	GPH	CC/MIN	°F	BY	REMARKS
1	20		1500	135		AP-39
2	35		1500	105		AP-119 THRU 123

DESIGN DATA									
ID	NORMAL PSIG	NORMAL °F	UPSET PSIG	UPSET °F	TIME	BY	CKD	REMARKS	REV
1	125	135						AP-39	
2	250	105	250	140				AP-119 THRU AP-123	

- NOTES:**
- ALL ITEM NUMBERS PREFIXED BY IP33- UNLESS OTHERWISE NOTED.
  - REFER TO 302-0183-00000 FOR OTHER PERTINENT NOTES.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:**
- 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM P11
  - 913-0107-00000 CONDENSATE DEMINERALIZER SYSTEM N24
  - 302-0183-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0185-00000 TURBINE PLANT SAMPLING SYSTEM P33

(Rev. 15 10/07)



Turbine Plant Sampling System

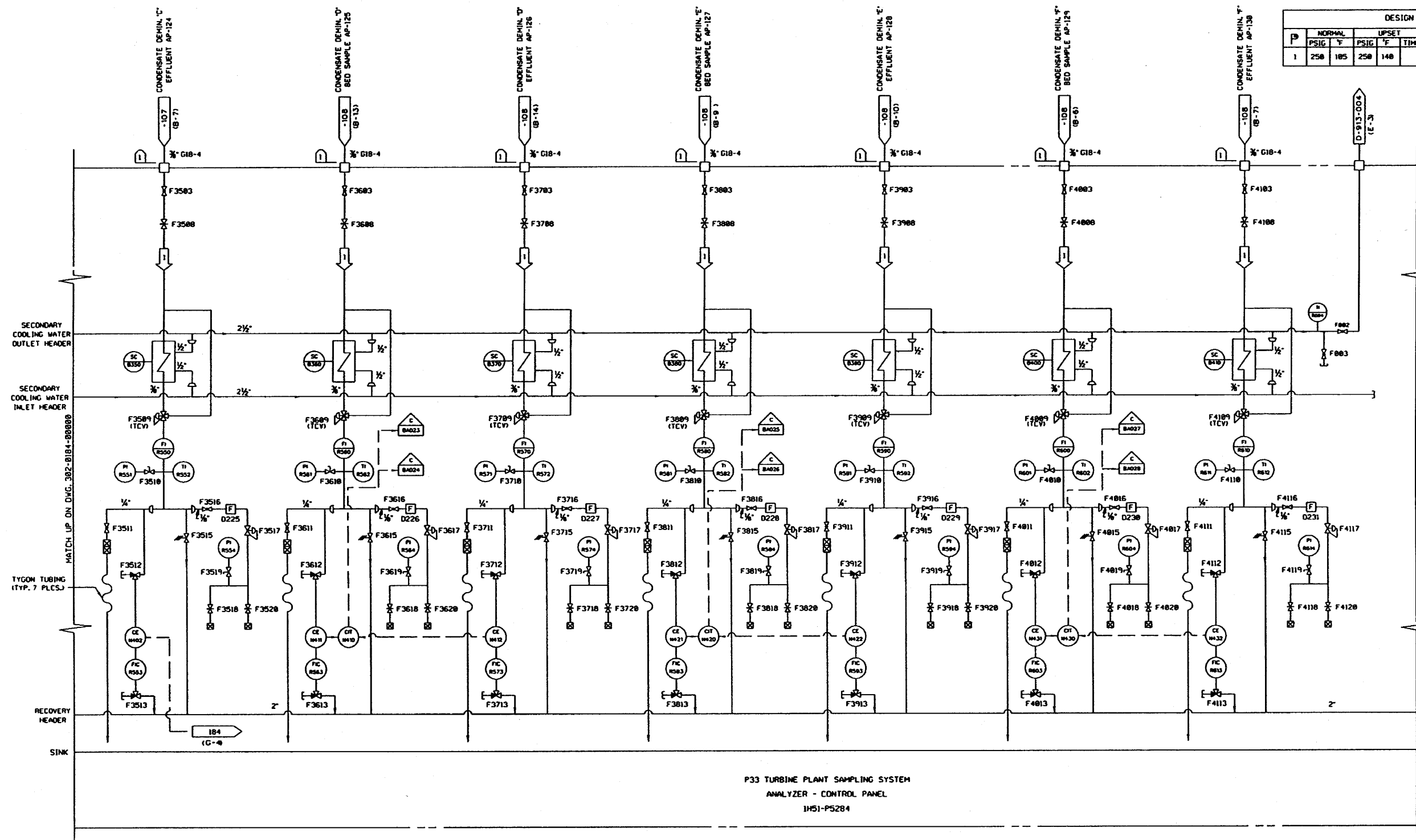
Figure 9.3-25

(Dwg. D-302-184)

P33 TURBINE PLANT SAMPLING SYSTEM  
ANALYZER - CONTROL PANEL  
1H51-P5284

OPERATING DATA						
SEE NOTE 3						
REV	PSIG	GPM	CC/MIN	F	BY	REMARKS
1	35	--	1500	105		AP-124 THRU 130

DESIGN DATA							
P	NORMAL		UPSET		BY	CKD	REMARKS
	PSIG	F	PSIG	F			
1	250	105	250	140			AP-124 THRU AP-130



P33 TURBINE PLANT SAMPLING SYSTEM  
ANALYZER - CONTROL PANEL  
1H51-P5284

- NOTES:**
1. ALL ITEM NUMBERS PREFIXED BY IP33- UNLESS OTHERWISE NOTED.
  2. REFER TO 302-0183-00000 FOR OTHER PERTINENT NOTES.
  3. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION, AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:**
- 302-0107-00000 CONDENSATE DEMINERALIZER SYSTEM N24
  - 302-0108-00000 CONDENSATE DEMINERALIZER SYSTEM N24
  - 302-0104-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0106-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 913-0004-00000 TURBINE BUILDING CHILLED WATER P46

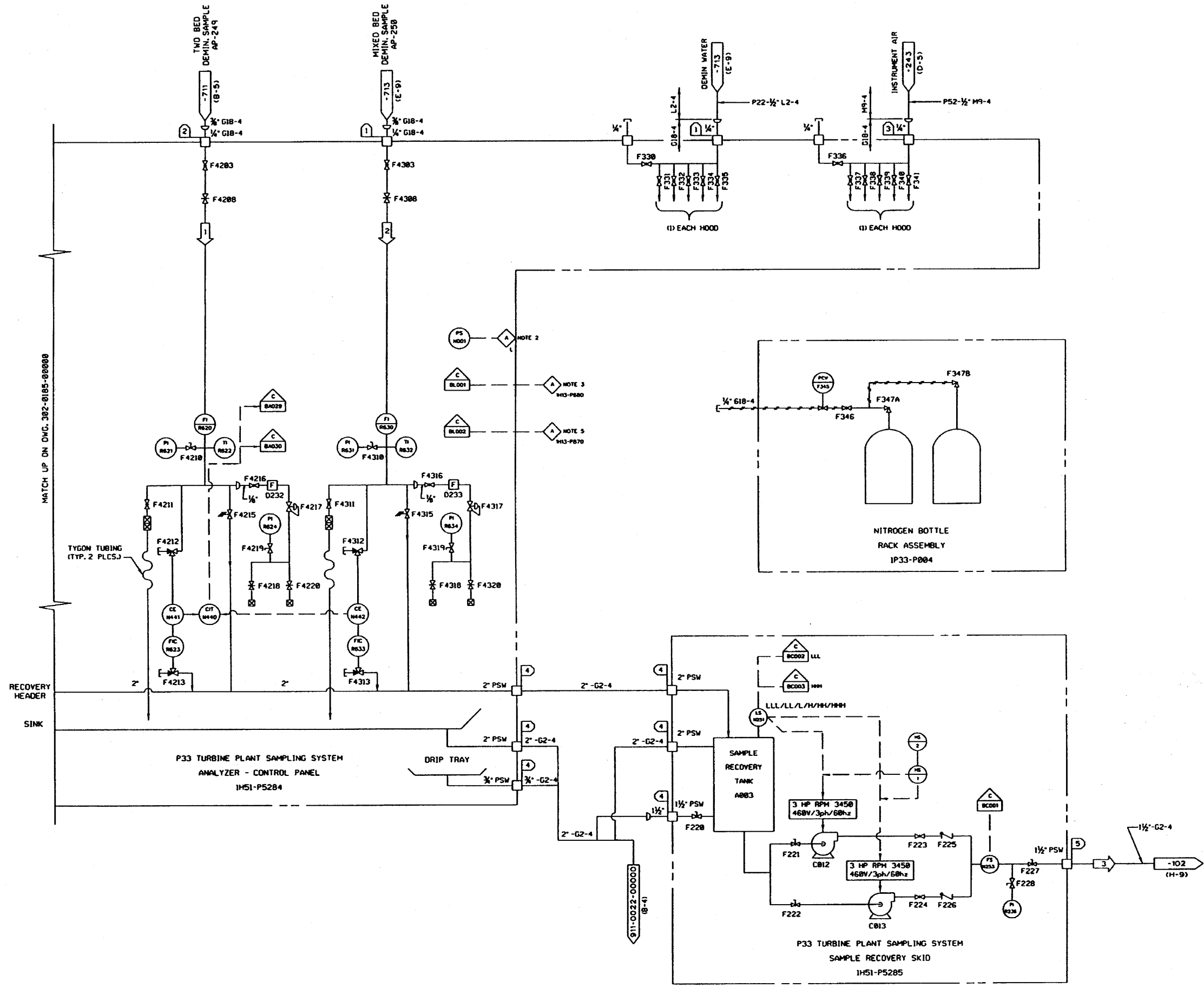
(Rev. 15 10/07)

**PERRY NUCLEAR POWER PLANT**

Turbine Plant Sampling System

Figure 9.3-26

(Dwg. D-302-185)



OPERATING DATA						
SEE NOTE 6						
ID	PSIG	GPM	CC/MIN	°F	BY	REMARKS
1	100		1500	85		AP-249
2	80		1500	85		AP-250
3	125	20		AMB.		INTERMITTENT SAMPLE RETURN

DESIGN DATA								
ID	NORMAL		UPSET		BY	CKD	REMARKS	REV
	PSIG	°F	PSIG	°F				
1	150	85					SEE DWG. 302-0713-00000	
2	150	85					SEE DWG. 302-0711-00000	
3	150	110					SEE DWG. 302-0241-00000	
4	ATH.	AMB.						
5	175	AMB.						

- NOTES:**
- ALL ITEM NUMBERS PREFIXED BY IP33- UNLESS OTHERWISE NOTED.
  - FUME HOOD LOW AIR FLOW ALARM, LOW PRESSURE SENSING LINE ROUTED TO PANEL DAMPER, HIGH PRESSURE SENSING LINE ROUTED TO OUTSIDE PANEL.
  - IP33 COMMON TROUBLE ALARM IH13-P688 ACTIVATED FROM PROCESS COMPUTER.
  - IP33 -P003 LOCAL C91 COMPUTER PANEL.
  - CONDENSATE OR FEEDWATER CONDUCTIVITY HIGH ALARM IH13-P870 ACTIVATED FROM PROCESS COMPUTER.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.

- REFERENCES:**
- 302-0102-00000 CONDENSATE TRANSFER AND STORAGE SYSTEM P11
  - 302-0105-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0243-00000 INSTRUMENT AIR SYSTEM P52
  - 302-0711-00000 TWO-BED DEMIN. AND DISTR. SYSTEM P21
  - 302-0713-00000 MIXED-BED DEMIN. AND DISTR. SYSTEM IP22
  - 911-0022-00000 TURBINE POWER COMPLEX TURBINE BLDG. AND OFFGAS BLDG. DRAINS

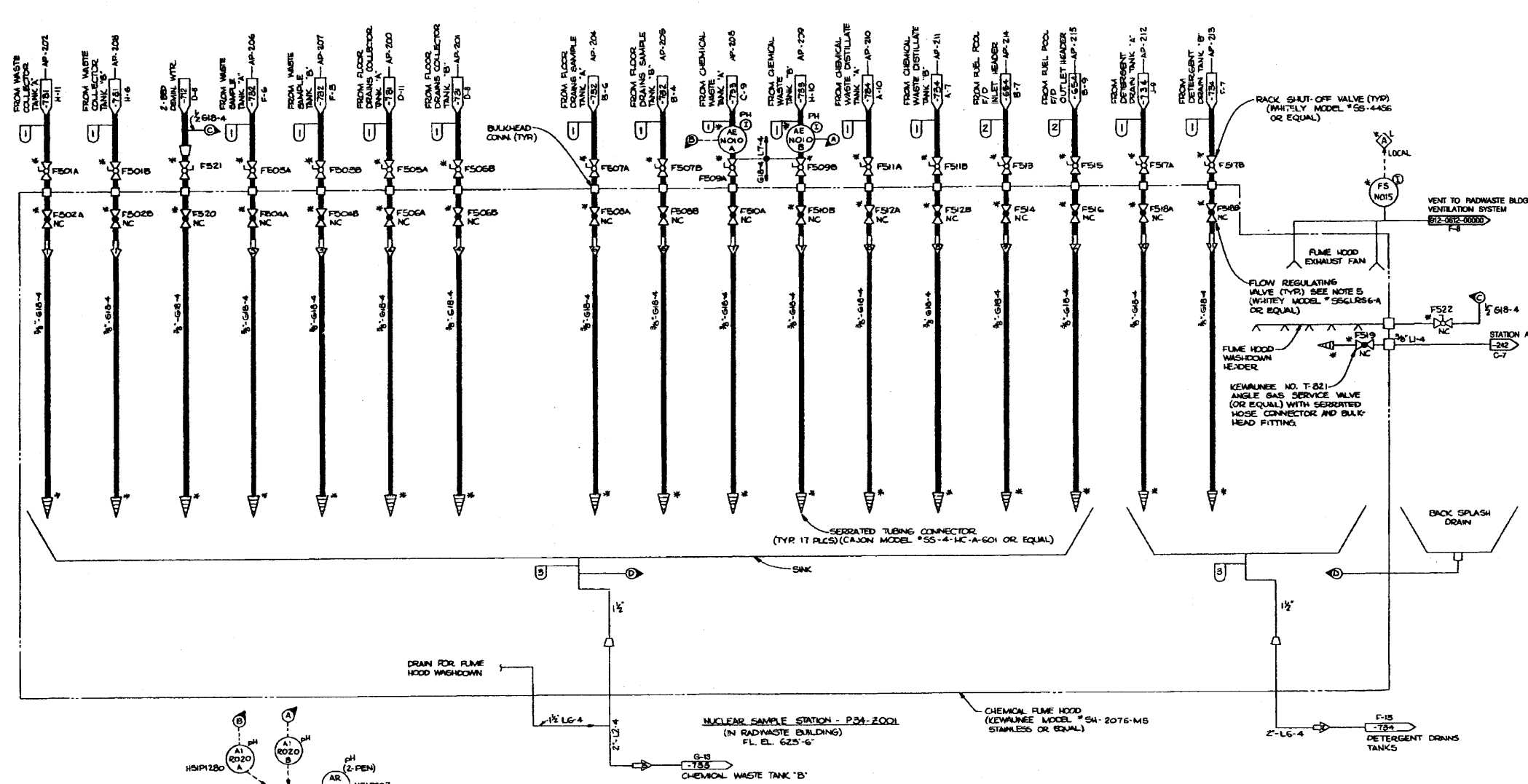
(Rev. 15 10/07)

## PERRY NUCLEAR POWER PLANT

Turbine Plant Sampling System

Figure 9.3-26a

(Dwg. D-302-186)



OPERATING DATA  
SEE NOTE 7

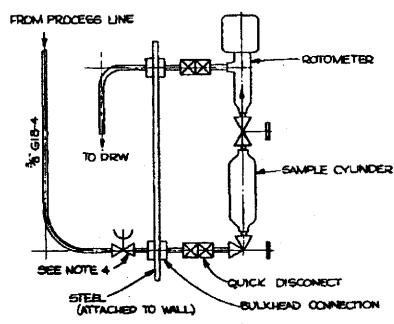
LINE NO.	PSIG	GPM	F	BY	REMARKS
1	50	0.2	70	DNE	
2	50	0.2	107	DNE	
3	50	0.2	70	DNE	
4	50	0.2	70	DNE	
5	0	0.2	70	DNE	
6	50	0.2	70	DNE	
7	20	0.2	70	DNE	
8	40	0.2	70	DNE	
9	118	0.2	107	DNE	
10	50	0.2	70	DNE	
11	50	0.2	70	DNE	
12	0	0.2	70	DNE	

DESIGN DATA

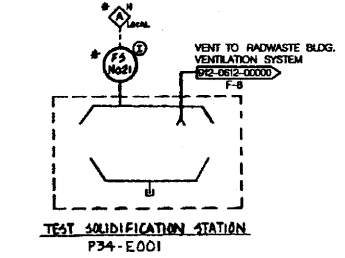
LINE NO.	NOMINAL PRESSURE (PSIG)	FLOW (GPM)	TEMP (F)	TIME	BY	CD	REMARKS
1	125	150	NA	NA	NA	DNE	
2	250	180	250	180	NA	DNE	
3	5	150	NA	NA	NA	DNE	

- NOTES:
1. THE LENGTH OF SAMPLE TUBING INSIDE FLUME HOOD TO BE AS SHORT AS POSSIBLE.
  2. FOR LIST OF ALL SAMPLES & SAMPLE PROBE DETAILS, SEE CONCERNING 30-000-0000.
  3. THIS SYSTEM IS NON-SAFETY CLASS, NON-UNCLASSIFIED.
  4. IN CASES WHERE PROCESS LINE TO BE SAMPLED IS AN ACCESSIBLE, LOW RADIATION ZONE, LOCAL SAMPLE STATION SHALL BE LOCATED CLOSE TO ROOT VALVE SO THAT ROOT VALVE CAN BE USED AS SAMPLE CONTROL VALVE. WHERE PROCESS LINE IS NOT ACCESSIBLE, LOCAL SAMPLE STATION SHALL BE LOCATED IN CONVENIENT, ACCESSIBLE AREA AND A SECOND VALVE SHALL BE PROVIDED AT THE SAMPLE STATION FOR USE AS SAMPLE CONTROL VALVE. THE NEED FOR A SECOND VALVE SHALL BE INDICATED IN THE INDIVIDUAL SYSTEM DIAGRAM. EACH SYSTEM DIAGRAM SHALL ALSO INDICATE IF SHIELDED EXTENDING STEMS AND/OR FLUSHING CONNECTIONS ARE NECESSARY FOR THE LOCAL SAMPLES IN THAT SYSTEM.
  5. ALL REGULATING VALVES HAVE STEERED FOR OPERATION FROM FRONT OF FLUME HOOD.
  6. EQUIPMENT WITH ASTERISKS ARE SUPPLIED WITH FLUME HOOD.
  7. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION UNDER SYSTEM MODES OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REFERRED.

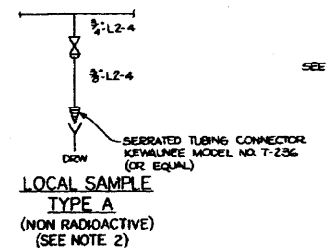
- REFERENCES:
- 302-004-0000 FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
  - 302-021-0000 LHM - FLOW RATE COLLECTOR TANKS AND WASTE COLLECTING TANKS SYSTEM G59
  - 302-072-0000 LHM - FLOW RATE DECONTAMINATOR AND SAMPLE TANKS AND WASTE DECONTAMINATOR AND SAMPLE TANKS SYSTEM G59
  - 302-073-0000 LHM - CHEMICAL WASTE TANKS AND WASTE EVAPORATOR/CONDENSER SYSTEM G59
  - 302-075-0000 LHM - CHEMICAL WASTE DISTILLATE TANKS AND PUMPS AND DECONTAMINATOR TANKS, PUMPS, AND FILTERS SYSTEM G59
  - 302-082-0000 RADWASTE DILUTION VENTILATION SYSTEM G51
  - 302-070-0000 TYP-NEE DECONTAMINATOR AND DISTRIBUTION SYSTEM DOUBLE ZONE DISTRIBUTION SYSTEM P21



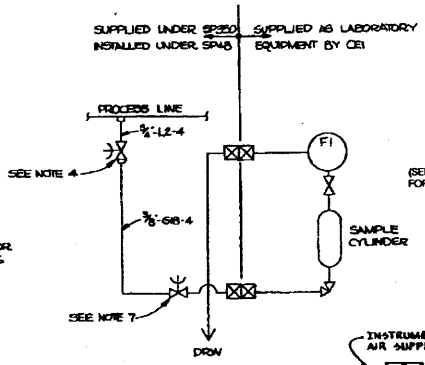
TYPICAL TYPE 'B' LOCAL SAMPLE STATION DESIGN



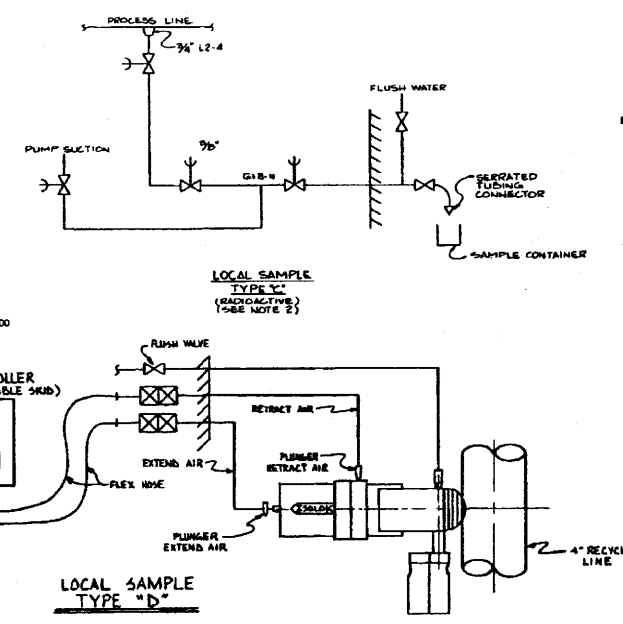
TEST SOLIDIFICATION STATION P34-E001



LOCAL SAMPLE TYPE 'A' (NON-RADIOACTIVE) (SEE NOTE 2)




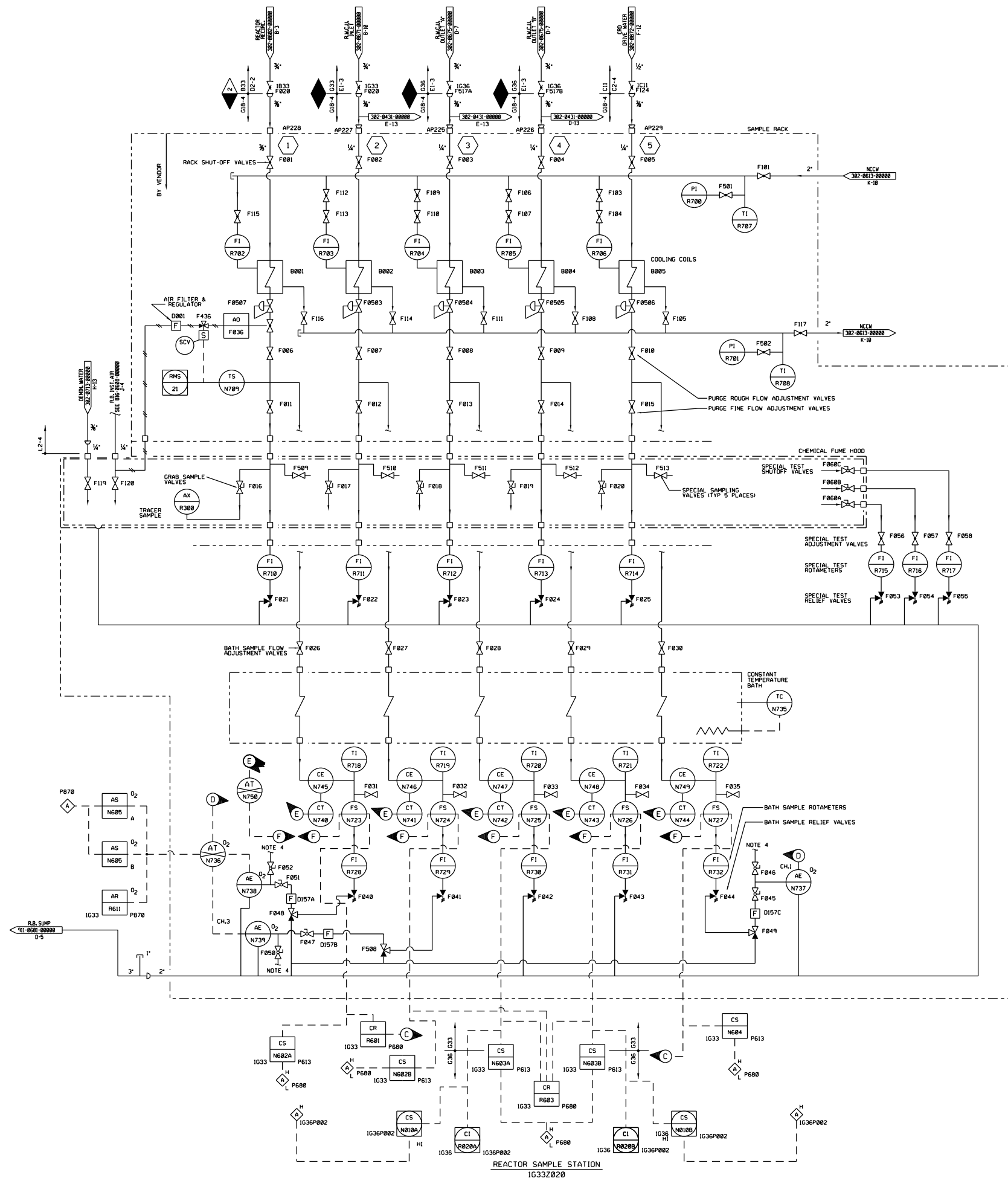
LOCAL SAMPLE TYPE 'B' (RADIOACTIVE) (SEE NOTE 2)



LOCAL SAMPLE TYPE 'D'

(Rev. 15 10/07)


**PERRY NUCLEAR POWER PLANT**  
 Nuclear Sampling System  
 Figure 9.3-27  
 (Dwg. D-302-771)



- NOTES:
1. ALL FUNCTIONAL LOCATION NUMBERS ARE PREFIXED BY IP35, UNLESS OTHERWISE NOTED.
  2. THIS DRAWING WAS DEVELOPED FROM G.E. DWG. 769E336.
  3. ALL PANEL NUMBERS ARE PREFIXED BY IH13, UNLESS OTHERWISE NOTED.
  4. 1/4" NITROGEN CALIBRATION CONNECTION FOR IP35N0736 DISSOLVED OXYGEN ANALYZER.

- REFERENCES:
- |                |  |
|----------------|--|
| 302-0431-00000 | POST ACCIDENT SAMPLING SYSTEM (P87)              |
| 302-0602-00000 | REACTOR WATER RECIRCULATING SYSTEM               |
| 302-0613-00000 | NUCLEAR CLOSED COOLING SYSTEM                    |
| 302-0671-00000 | RWCU SYSTEM                                      |
| 302-0675-00000 | RWCU F/D SYSTEM                                  |
| 302-0713-00000 | MIXED BED DEMINERALIZED WATER SYSTEM             |
| 302-0872-00000 | CRD-HYDRAULIC SYSTEM                             |
| 816-0607-00000 | INSTRUMENT AIR TUBING DIAGRAM - REACTOR BUILDING |
| 911-0601-00000 | REACTOR BUILDING DRAINS                          |

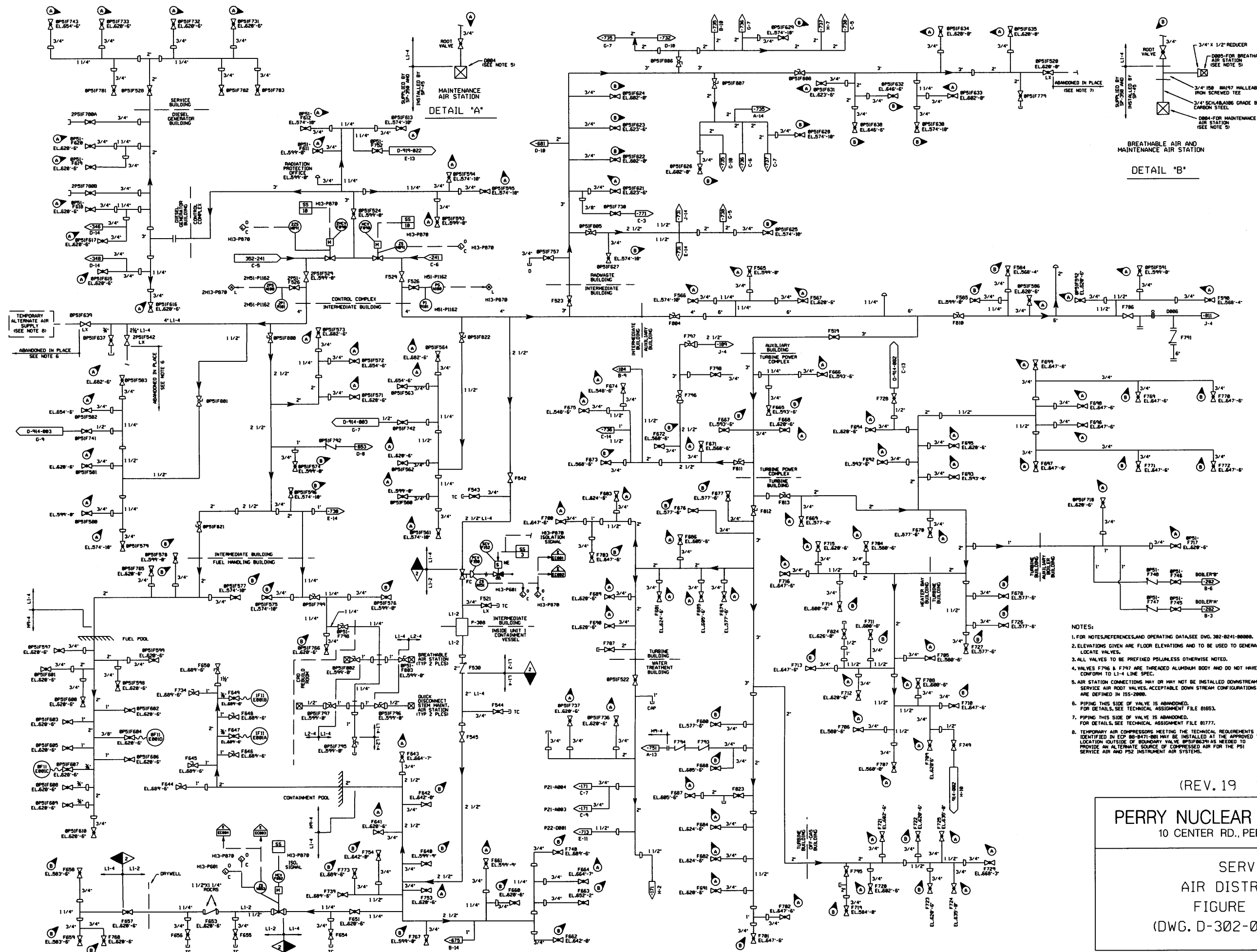
(REV. 22 10/2021)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

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REACTOR  
 PLANT SAMPLING  
 FIGURE 9.3-28  
 (DWG. D-302-0772-00000)



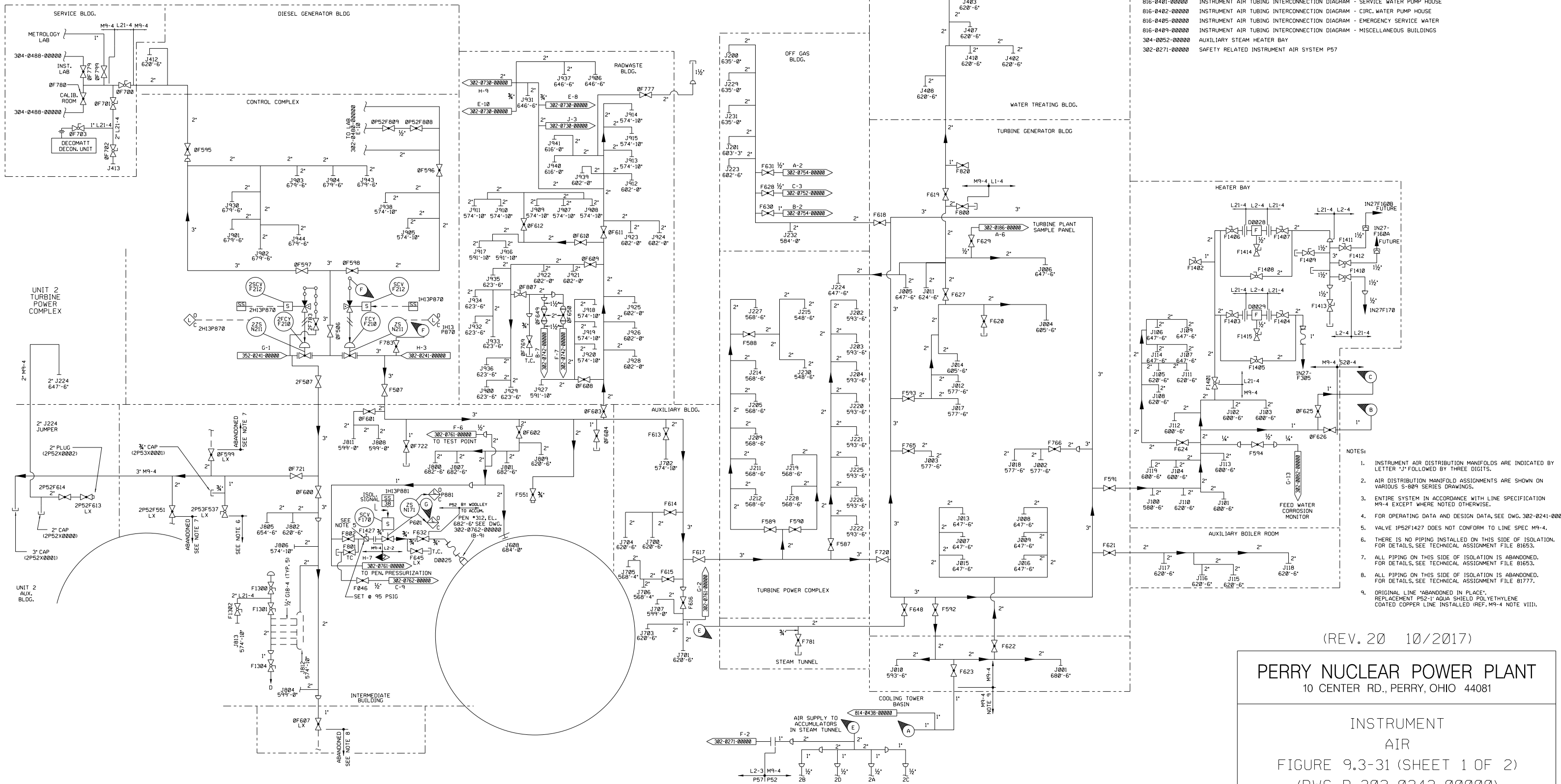
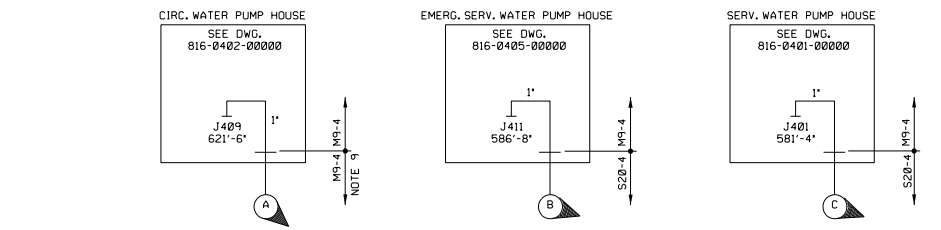


- NOTES:
1. FOR NOTES, REFERENCES AND OPERATING DATA SEE DWG. 382-8241-0000B.
  2. ELEVATIONS GIVEN ARE FLOOR ELEVATIONS AND TO BE USED TO GENERALLY LOCATE VALVES.
  3. ALL VALVES TO BE PREFIXED UNLESS OTHERWISE NOTED.
  4. VALVES F796 & F797 ARE THREADED ALUMINUM BODY AND DO NOT HAVE TO CONFORM TO L1-4 LINE SPEC.
  5. AIR STATION CONNECTIONS MAY OR MAY NOT BE INSTALLED DOWNSTREAM OF THE SERVICE AIR ROOT VALVES. ACCEPTABLE DOWN STREAM CONFIGURATIONS ARE DEFINED IN ISS-2008.
  6. PIPING THIS SIDE OF VALVE IS ABANDONED. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81653.
  7. PIPING THIS SIDE OF VALVE IS ABANDONED. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81777.
  8. TEMPORARY AIR COMPRESSORS MEETING THE TECHNICAL REQUIREMENTS IDENTIFIED IN ECP 08-0471-001 MAY BE INSTALLED AT THE APPROVED TIE-IN LOCATION (OUTSIDE OF BOUNDARY VALVE OPSIF629) AS NEEDED TO PROVIDE AN ALTERNATE SOURCE OF COMPRESSED AIR FOR THE PSI SERVICE AIR AND PS2 INSTRUMENT AIR SYSTEMS.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
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SERVICE  
AIR DISTRIBUTION  
FIGURE 9.3-29  
(DWG. D-302-0242-00000)



- REFERENCES:
- 302-0082-00000 FEEDWATER SYSTEM N27
  - 302-0186-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0241-00000 SERVICE AND INSTRUMENT AIR SUPPLY SYSTEM P51,P52
  - 302-0605-00000 NUCLEAR BOILER SYSTEM B21
  - 302-0675-00000 REACTOR WATER CLEAN-UP FILTER DEMINERALIZER SYSTEM G36
  - 302-0730-00000 LRW - WASTE COLLECTOR FILTER AND FLOOR DRAINS SYSTEM G50
  - 302-0742-00000 LRW - WASTE EVAPORATOR CONDENSERS SYSTEM G50
  - 302-0752-00000 OFF-GAS SYSTEM N64
  - 302-0754-00000 OFF-GAS SYSTEM N64
  - 302-0871-00000 CONTROL ROD DRIVE HYDRAULIC SYSTEM C11
  - 352-0241-00000 SERVICE AND INSTRUMENT AIR SUPPLY SYSTEM P51,P52
  - 304-0476-00000 INSTRUMENT AIR SYSTEM P52 - INTERMEDIATE BUILDING
  - 304-0480-00000 INSTRUMENT AIR DISTRIBUTION SYSTEM P52 - CONTROL COMPLEX
  - 304-0488-00000 INSTRUMENT AIR SYSTEM P52 - DIESEL GENERATOR AND SERVICE BUILDING
  - 302-0761-00000 PENETRATION PRESSURIZATION SYSTEM P53 - REACTOR BUILDING
  - 302-0762-00000 PENETRATION PRESSURIZATION SYSTEM P53 - REACTOR BUILDING
  - 814-0420-00000 FUEL OIL STORAGE TANK - LEVEL INSTRUMENTATION
  - 814-0438-00000 COOLING TOWER BASIN - LEVEL INSTRUMENTATION
  - 816-0401-00000 INSTRUMENT AIR TUBING INTERCONNECTION DIAGRAM - SERVICE WATER PUMP HOUSE
  - 816-0402-00000 INSTRUMENT AIR TUBING INTERCONNECTION DIAGRAM - CIRC. WATER PUMP HOUSE
  - 816-0405-00000 INSTRUMENT AIR TUBING INTERCONNECTION DIAGRAM - EMERGENCY SERVICE WATER
  - 816-0409-00000 INSTRUMENT AIR TUBING INTERCONNECTION DIAGRAM - MISCELLANEOUS BUILDINGS
  - 304-0052-00000 AUXILIARY STEAM HEATER BAY
  - 302-0271-00000 SAFETY RELATED INSTRUMENT AIR SYSTEM P57

- NOTES:
1. INSTRUMENT AIR DISTRIBUTION MANIFOLDS ARE INDICATED BY LETTER "J" FOLLOWED BY THREE DIGITS.
  2. AIR DISTRIBUTION MANIFOLD ASSIGNMENTS ARE SHOWN ON VARIOUS S-809 SERIES DRAWINGS.
  3. ENTIRE SYSTEM IN ACCORDANCE WITH LINE SPECIFICATION M9-4 EXCEPT WHERE NOTED OTHERWISE.
  4. FOR OPERATING DATA AND DESIGN DATA, SEE DWG. 302-0241-00000.
  5. VALVE IP52F1427 DOES NOT CONFORM TO LINE SPEC M9-4. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81653.
  6. THERE IS NO PIPING INSTALLED ON THIS SIDE OF ISOLATION. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81777.
  7. ALL PIPING ON THIS SIDE OF ISOLATION IS ABANDONED. FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81653.
  8. ALL PIPING ON THIS SIDE OF ISOLATION IS ABANDONED. REPLACEMENT P52-1 AQUA SHIELD POLYETHYLENE COATED COPPER LINE INSTALLED (REF. M9-4 NOTE VIII).
  9. ORIGINAL LINE "ABANDONED IN PLACE".

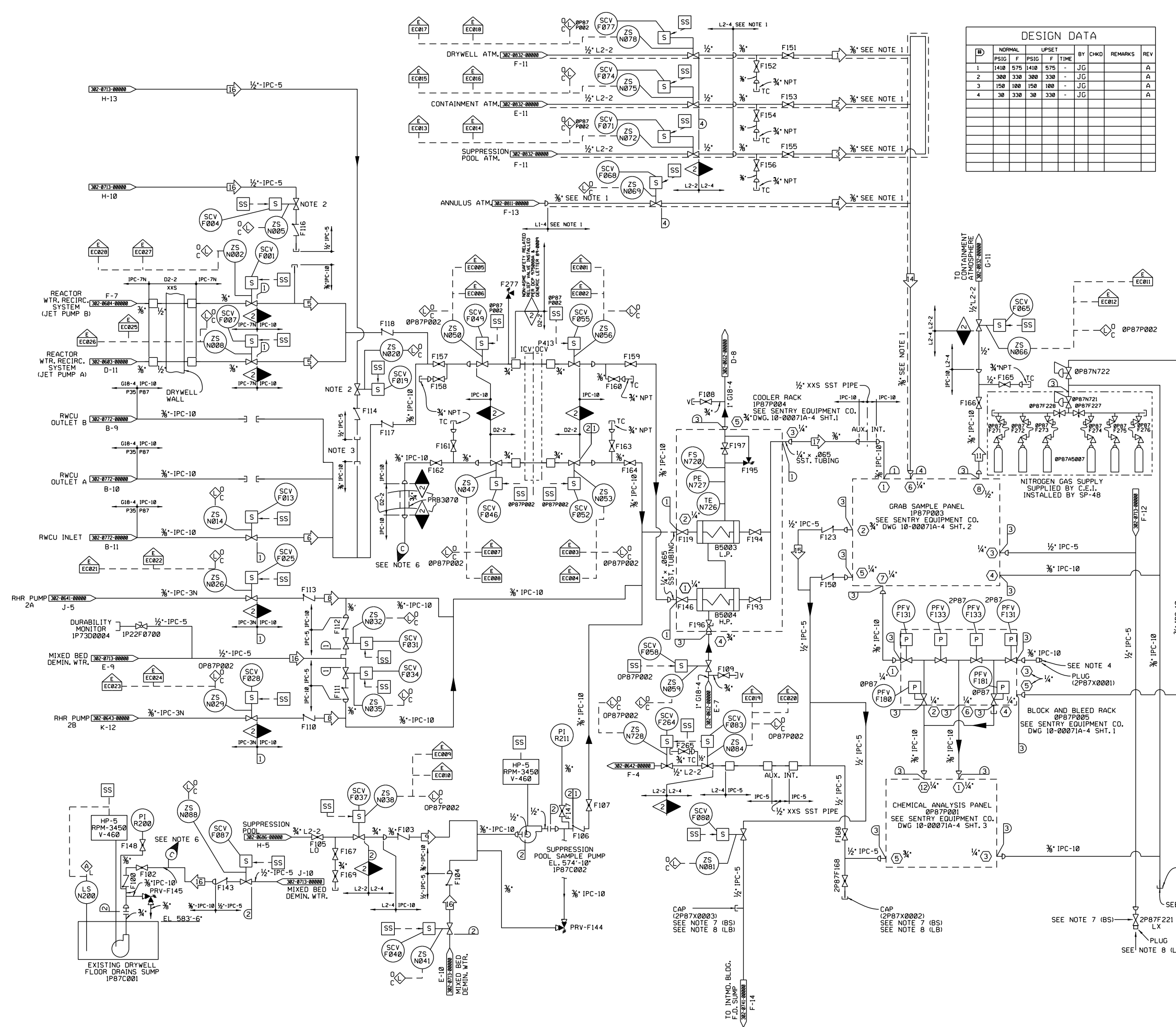
(REV. 20 10/2017)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

**INSTRUMENT AIR**  
FIGURE 9.3-31 (SHEET 1 OF 2)  
(DWG. D-302-0243-00000)

FOR CONTINUATION SEE 302-0605-00000 (B-5) (TYP. 4 PLACES)





DESIGN DATA							
#	NORMAL		UPSET		BY	REMARKS	REV
	PSIG	F	PSIG	F TIME			
1	1418	575	1410	575	JG		A
2	308	338	300	330	JG		A
3	158	100	150	100	JG		A
4	38	338	38	338	JG		A

OPERATING CONDITIONS						
SEE NOTE 5						
#	PSIG	CC/MIN	F	BY	REMARKS	REV
1	30	5600	330	HGE		0
2	15	5600	185	HGE		0
3	15	5600	185	HGE		0
4	-0.014	5600	104	HGE		0
5	1250	200	575	HGE		0
6	1410	200	150	HGE		0
7	-	-	-	-	DELETED	0
8	500	200	358	HGE		0
9	100	100	212	HGE		0
10	100	100	330	HGE		0
11	100	33984	184	HGE		0
12	-	-	-	-	DELETED	0
13	100	28320	AMB	HGE		A
14	100	28320	AMB	HGE		A
15	40	7192	96-105	HGE		A
16	80	3785	AMB	HGE	1 GPM	A
17	100	100	96-105	HGE		A
18	90	37850	95	HGE	(14 GPM)	A
19	70	37850	95	HGE	(14 GPM)	A

- REFERENCES:
- 302-0713-00000 MIXED BED DEMINERALIZER AND DISTRIBUTION SYSTEM - MIXED BED EXCHANGER, STORAGE, AND NORTH ZONE DISTRIBUTION SYSTEM P22
  - 302-0603-00000 REACTOR WATER RECIRCULATION SYSTEM B33
  - 302-0604-00000 REACTOR WATER RECIRCULATION SYSTEM B33
  - 302-0772-00000 REACTOR PLANT SAMPLING STATION SYSTEM P35
  - 302-0641-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0642-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0643-00000 RESIDUAL HEAT REMOVAL SYSTEM E12
  - 302-0666-00000 SUPPRESSION POOL MAKEUP SYSTEM G43
  - 302-0832-00000 COMBUSTIBLE GAS CONTROL HYDROGEN ANALYSIS SYSTEM M51
  - 302-0811-00000 CONTAINMENT INTEGRATED LEAK RATE TESTING SYSTEM E61
  - 302-0612-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 302-0741-00000 LIQUID RADWASTE SUMPS SYSTEM - LAUNDRY, CHEMICAL, COMMON FLOOR, AND EQUIPMENT DRAIN SUMPS SYSTEM G61

- NOTES:
- HEAT TRACED TUBING SHALL BE TECHNICAL HEATERS MODEL 500 OR ENGINEERING APPROVED EQUAL. REFERENCE EER 601230561.
  - VALVE SPARED IN PLACE.
  - CUSTOM BLIND COUPLING.
  - ALL TUBING ON THIS SIDE OF ISOLATION IS ABANDONED, FOR DETAILS, SEE TECHNICAL ASSIGNMENT FILE 81653.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA (PRESSURES, TEMPERATURES, AND FLOWS) PROVIDED ON THIS DRAWING, REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - DRYWELL FLOOR DRAIN SUMP PUMP DISCHARGE PIPING IS DRAINED & FILLED WITH AIR FROM APPROXIMATELY THE P22 CONNECTION (INSIDE DRYWELL) UP TO PASS GRAB SAMPLE PANEL IP87P003 TO PREVENT THERMAL OVER PRESSURIZATION.
  - (BS) UNIT 1 / 2 BOUNDARY SEPARATION, FOR DETAILS SEE TECHNICAL ASSIGNMENT FILE 81653.
  - (LB) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED IN PLACE SSC'S, FOR DETAILS SEE ECP 14-0461 AND ECP 14-0467.

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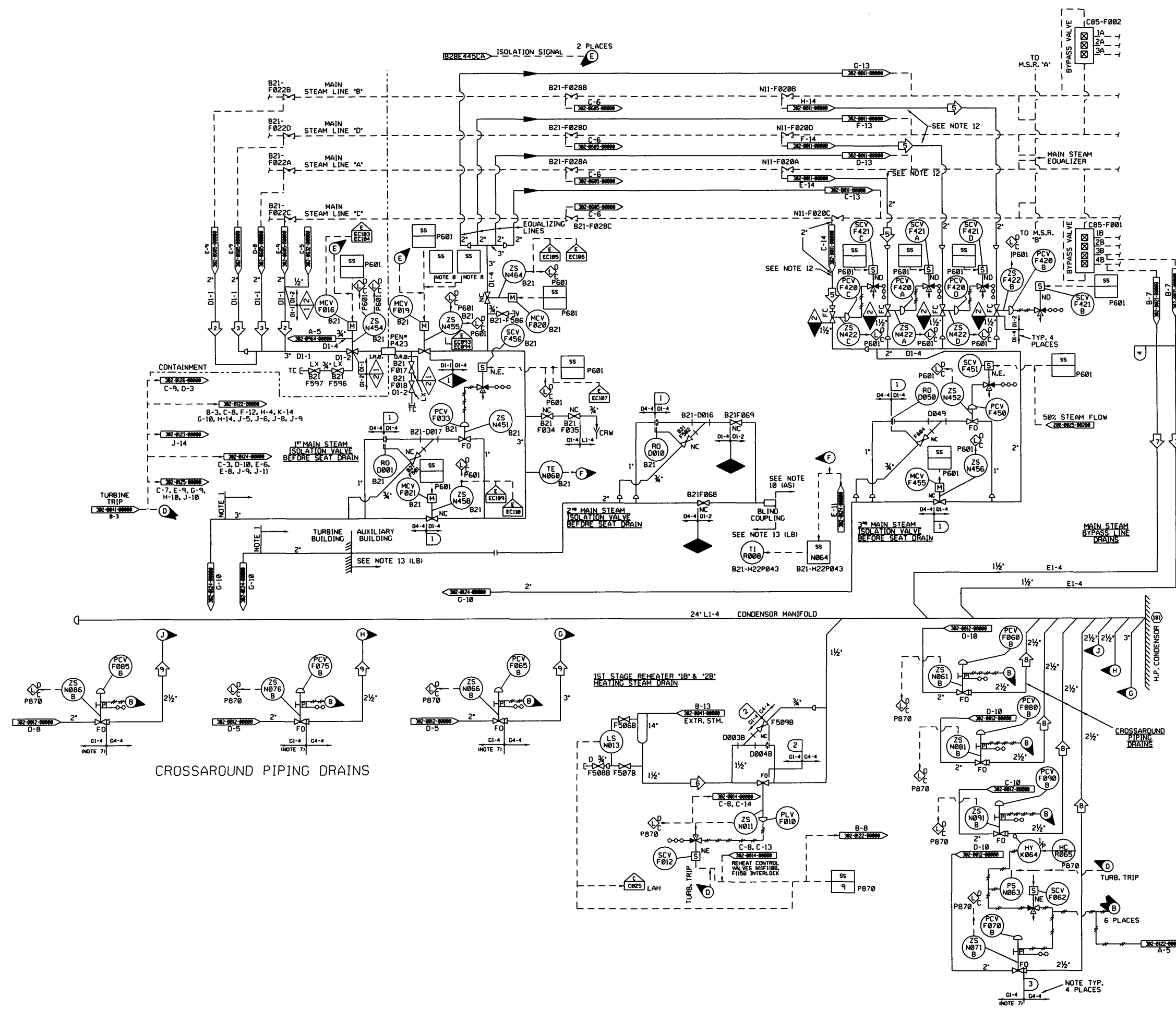
POST ACCIDENT  
SAMPLING SYSTEM  
FIGURE 9.3-33  
(DWG. D-302-0431-00000)

OPERATING DATA						
SEE NOTE 11						
ID	PSIG	lbm/hr	F	BY	REMARKS	REV
2	950	90	540	JEB	1940 WARMUP	
3	950	65	540	JEB	1395 WARMUP	
4	950	0	540	JEB	0	
5	950	80	540	JEB	1820 WARMUP	
6	562	110	485	JEB	2300 WARMUP	
7	450	1250	MAX	450	JEB	1250 WARMUP
8	176	0	380	JEB	8255 WARMUP	
9	176	0	380	JEB	8785 WARMUP	

- NOTES:
- THIS DRAIN SCHEME IS ALSO SHOWN ON G.E. PAID 7086224. IT IS REPEATED HERE FOR COMPLETENESS AND CLARITY.
  - ALL HORIZONTAL DRAIN LINES DOWN TOWARD CONDENSER.
  - PIPING SHOWN AS DOTTED IS NOT INCLUDED IN THIS SYSTEM BUT IS SHOWN FOR EXPLANATORY PURPOSES.
  - ALL PANELS CARRY PREFIX M3, UNLESS NOTED OTHERWISE.
  - ALL INSTRUMENTATION IS N22 PREFIX, UNLESS NOTED OTHERWISE.
  - WHERE LINE SPECIFICATION CHANGES DOWNSTREAM OF THE CONTROL VALVE, THE SAME CHANGE SHALL APPLY DOWNSTREAM OF THE DRIFICE AND BLOWDOWN VALVE.
  - VALVE AND INSTRUMENTATION BY G.E.T.
  - PROVIDES CONTROL ROOM ISOLATION AND REMOTE SHUTDOWN CONTROL OF B21-F019 FOR APPENDIX R REMOTE SHUTDOWN METHOD. A SWITCHES LOCATED ON MOTOR CONTROL CENTER E1401.
  - DELETED.
  - IF ATTACHED PIPING ABANDONED, RETIRED IN PLACE THIS SIDE OF BLIND COUPLING, ABANDONED SSC'S OUTSIDE THE SCOPE OF LICENSE RENEWAL. SEE DCP '96-0044 AND ECP 14-0587 FOR DETAILS.
  - PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCTION WITH THE DESIGN BASIS INFORMATION AND SHALL BE USED WITH CAUTION. IN GENERAL, THE OPERATING DATA PRESSURES, TEMPERATURES, AND FLOWS PROVIDED ON THIS DRAWING REPRESENTS THE MOST COMMON OPERATING CONDITION AND/OR SYSTEM MODE OF OPERATION AND/OR LINEUP. TO DETERMINE THE REQUIRED VALUES FOR A SPECIFIC OPERATING CONFIGURATION, THE APPROPRIATE DESIGN DOCUMENTS NEED TO BE REVIEWED.
  - THIS PORTION OF PIPING IS DESIGNATED AS E32-045V LEAKAGE CONTROL FOR ASME CODE PURPOSES ONLY.
  - LB LICENSE RENEWAL LEAKAGE BOUNDARY. FOR DETAILS SEE ECP 14-0587.

DESIGN DATA						
ID	NORMAL PSIG	UPSET PSIG	F TIME	BY	CHKD	REMARKS
1	1250	575	1250	575	JEB/MCC	
2	620	495			JEB/MCC	
3	270	650			JEB/MCC	
4	500	450			JEB/MCC	

- REFERENCES:
- 302-0011-00000 MAIN STEAM SYSTEM N11
  - 302-0012-00000 REHEAT STEAM SYSTEM N11
  - 302-0041-00000 EXTRACTION STEAM SYSTEM N06
  - 7086324 NUCLEAR BOILER SYSTEM E21 (G.E.)
  - 825E445CA NUCLEAR BOILER SYSTEM ELEMENTARY DIAGRAM
  - 825E445CA NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM ELEMENTARY DIAGRAM
  - 762E481 NUCLEAR BOILER SYSTEM F10
  - 825E399 DIAGRAM OF TURBINE STEAM DRAINS (G.E.T.)
  - 289-0025-00000 FEEDWATER CONTROL SYSTEM C34
  - 302-0021-00000 STEAM BYPASS AND PRESSURE REGULATION SYSTEM C85
  - 302-0122-00000 MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
  - 302-0123-00000 MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
  - 302-0124-00000 MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
  - 302-0125-00000 MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
  - 302-0126-00000 MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
  - 302-0685-00000 NUCLEAR BOILER SYSTEM B21
  - 302-0964-00000 LEAK DETECTION SYSTEM E31
  - 302-0014-00000 REHEATER HEATING STEAM SYSTEM N11
  - 302-0632-00000 REACTOR CORE ISOLATION COOLING SYSTEM E51



CROSSAROUND PIPING DRAINS

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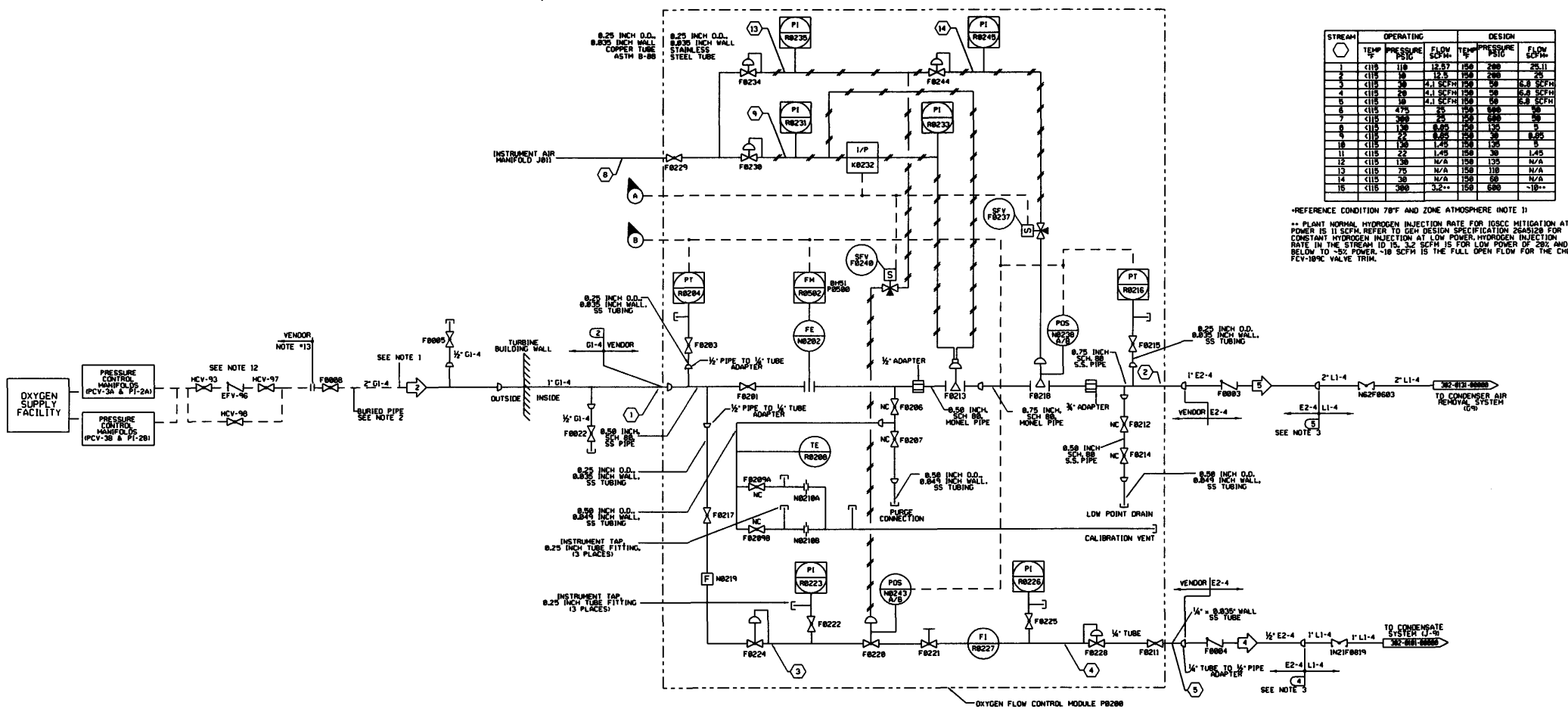
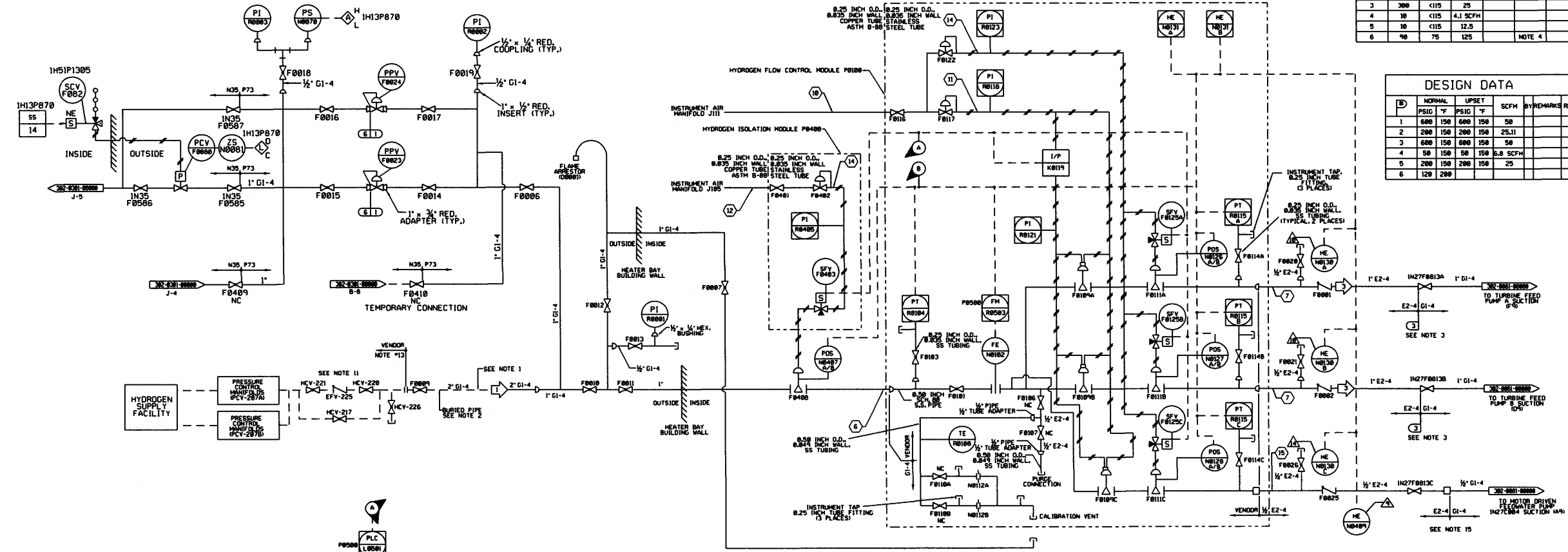
MAIN REHEAT, EXTRACTION  
AND MISCELLANEOUS DRAINS  
FIGURE 9.3-34  
(DWG. D-302-0121-00000)

OPERATING DATA  
SEE NOTE 3

ID	PSIG	T	SCFM	BY	REMARKS	REV
1	475	1115	25			
2	110	1115	12.57			
3	200	1115	25			
4	10	1115	4.1 SCFM			
5	10	1115	12.5			
6	90	75	125		NOTE 4	

DESIGN DATA

ID	NORMAL PSIG	UPSET PSIG	T	SCFM	BY	REMARKS	REV
1	600	150	600	150	50		
2	200	150	200	150	25.11		
3	600	150	600	150	50		
4	50	150	50	150	50	6.8 SCFM	
5	200	150	200	150	25		
6	120	200					



STREAM	OPERATING		DESIGN	
	TEMP	PSIG	TEMP	PSIG
1	1115	110	1115	110
2	1115	110	1115	110
3	1115	200	1115	200
4	1115	200	1115	200
5	1115	200	1115	200
6	1115	475	1115	475
7	1115	200	1115	200
8	1115	200	1115	200
9	1115	200	1115	200
10	1115	200	1115	200
11	1115	200	1115	200
12	1115	130	1115	130
13	1115	75	1115	75
14	1115	200	1115	200
15	1115	200	1115	200

- NOTES:
1. PIPING TO BE INSTALLED AND MAINTAIN CLEANED FOR OXYGEN SERVICE PER ISA 4.2.
  2. BURIED PIPING SHALL BE COATED FOR CORROSION PROTECTION.
  3. DESIGN DATA APPLY UP THROUGH THE ISOLATION VALVE.
  4. MAXIMUM FLOW DURING GENERATOR FILLING FLOW IS 6.8 SCFM.
  5. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DESIGN SHALL BE USED IN CONJUNCTION WITH THE DESIGN DATA. OPERATING DATA SHALL BE USED WITH CAUTION. OPERATING DATA IN THIS TABLE REPRESENTS THE MOST RECENT DATA AVAILABLE. OPERATING DATA VALUES SHOWN IN THIS TABLE NEED TO BE REVIEWED.
  6. FINAL HYDROGEN AND OXYGEN OPERATING FLOW RATES WILL BE DETERMINED AT STARTUP AFTER MODIFICATION OPERATIONS. OPERATING DATA SHOWN ARE BASED ON 0.5 PPM HYDROGEN IN THE FEEDWATER.
  7. ALL SOLENOID OPERATED VALVES (SOV'S) ARE NORMALLY CLOSED. ENERGIZE TO OPEN.
  8. ALL AIR OPERATED VALVES (AOV'S) ARE NORMALLY CLOSED. AIR TO OPEN.
  9. HYDROGEN ELEMENT HE-N0409 SHALL BE MOUNTED NEAR VALVE ADV-F8400.
  10. HYDROGEN ELEMENTS HE-N0130A AND HE-N0130B SHALL BE MOUNTED NEAR STEAM-DRIVEN FEEDWATER PUMPS A AND B, RESPECTIVELY.
  11. EFV-225 IS SET FOR 150 SCFM AT 600 PSIG.
  12. EFV-96 IS SET FOR 75 SCFM AT 150-PSIG.
  13. HYDROGEN AND OXYGEN SUPPLY FACILITIES OPERATIONS AND MAINTENANCE SHALL BE UNDER CONTRACT WITH AIR PRODUCTS, INC.
  14. HYDROGEN ELEMENT HE-N0100 SHALL BE MOUNTED NEAR MOTOR DRIVEN FEEDWATER PUMP #27-C8004.
  15. SEE STREAM 15 FOR OPERATING AND DESIGN DATA.
  16. ALL COMPONENTS ARE IP73 UNLESS OTHERWISE NOTED.

- REFERENCES:
- 302-0001-00000 FEEDWATER (027)
  - 302-0101-00000 CONDENSATE (021)
  - 302-0131-00000 CONDENSER AIR REMOVAL (062)
  - 302-0243-00000 INSTRUMENT AIR (P52)
  - 302-0301-00000 HYDROGEN SUPPLY SYSTEM (N35)
  - 27-0024-00001 HYDROGEN/OXYGEN INJECTION MODULE
  - 27-0024-00002 HYDROGEN/OXYGEN INJECTION MODULE

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**HYDROGEN WATER CHEMISTRY**  
FIGURE 9.3-35  
(DWG. D-302-0077-00000)





NOTES:-

1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
2. ALL CONTROL SWITCHES, FAN STATUS LIGHTS, ALARM INDICATING LIGHTS, AND DAMPER POSITION LIGHTS ARE LOCATED ON THE CORRESPONDING LOCAL PANEL, M51-P177A OR M51-P177B, EXCEPT WHERE NOTED.
3. FAN STATUS LIGHTS, ALARMS, AND TEMPERATURE INDICATORS ARE LOCATED ON THE COMMON HVAC PANEL M13-P804 IN CONTROL ROOM #1.
4. ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS "COMMON HVAC TROUBLE" ON PANEL M13-P800 IN BOTH CONTROL ROOMS.
5. THE FAN TRAIN SETUP SWITCH WILL START THE 3 FANS WITH A TIME DELAY FOR M23-C001A(B) AND M23-C002A(B) IN ORDER TO START M24-C001A(B) FIRST.
6. WHEN A FAN TRAIN IS SIGNALLED TO START, THE FANS ARE PROVIDED WITH TIME DELAY SO THAT THE DAMPERS WILL BE POSITIONED FIRST, PRIOR TO FAN TRAIN START.
7. ON LOSS OF FAN OPERATION (LOW FLOW OR FAN TRIP) ON ANY OF THE 3 OPERATING FANS (A OR B) THE AIR FLOW MONITOR DEVICE WILL TRIP THE REMAINING FANS IN THE TRAIN AND THE DIFFERENTIAL PRESSURE SWITCH WILL PROVIDE A SIGNAL TO AUTOMATICALLY SWITCH OVER TO THE STAND BY FAN TRAIN (A OR B).
8. THE 2 - POSITION SELECTOR SWITCH WILL POSITION THE DAMPERS AS INDICATED IN THE TABLE BELOW:

SYSTEM	ITEM	RECIRC.	NORMAL	REMARKS
M24	FO1A(B)	C	O	
M23	FO10A(S)	C	O	
M24	FO55A(B)	O	C	
M24	FO5A(B)	C	O	SEE NOTE 11

O = OPEN  
C = CLOSED

9. DAMPERS ARE POSITIONED ACCORDING TO THE DAMPER OPERATION SELECTOR SWITCH POSITION ONLY WHEN THE ASSOCIATED FAN TRAIN IS MANUALLY STARTED OR IN STANDBY WITH AUTOMATIC START SIGNAL FROM THE SWITCHOVER NETWORK, OTHERWISE THE DAMPERS ARE IN THE FAIL SAFE POSITION (RECIRCULATION MODE).
10. EACH ROOM (TOTAL OF 23 ROOMS) SERVED BY M23/M24/M27 ARE PROVIDED WITH THE FOLLOWING TEMPERATURE ELEMENTS WHICH TRANSMIT TO THE BILLY WHEEL OR TEMPERATURE MONITORING SYSTEM LOCATED ON PANEL M13-P800.

TEMP. ELEM. NUMBER	ROOM OR AREA LOCATED
M23-N100-TE	DC SWGR ROOM, DIV. 1, UNIT 1
M23-N110-TE	DC SWGR ROOM, DIV. 11, UNIT 1
M23-N120-TE	DC SWGR ROOM, DIV. 1, UNIT 2
M23-N130-TE	DC SWGR ROOM, DIV. 11, UNIT 2
M23-N140-TE	BATTERY ROOM, DIV. 1, UNIT 1
M23-N150-TE	BATTERY ROOM, DIV. 11, UNIT 1
M23-N160-TE	BATTERY ROOM, DIV. 1, UNIT 2
M23-N170-TE	BATTERY ROOM, DIV. 11, UNIT 2
M23-N180-TE	CABLE SPREADING AREA, DIV. 1, UNIT 1
M23-N190-TE	CABLE SPREADING AREA, DIV. 11, UNIT 1
M23-M200-TE	CABLE SPREADING AREA, DIV. 1, UNIT 2
M23-M210-TE	CABLE SPREADING AREA, DIV. 11, UNIT 2
M27-M220-TE	COMPUTER ROOM UNIT 1
M27-M230-TE	COMPUTER ROOM UNIT 2
M23-M240-TE	MCC & SWGR ROOM, DIV. 1, UNIT 1
M23-M250-TE	MCC & SWGR ROOM, DIV. 11, UNIT 1
M23-M260-TE	MCC & SWGR ROOM UNIT 2
M23-M270-TE	M40 MCC ROOM UNIT 2
M23-M280-TE	NPCS TRANSFORMER & BATTERY ROOM, UNIT 1
M23-M290-TE	NPCS TRANSFORMER & BATTERY ROOM, UNIT 2
M23-M300-TE	REMOTE SHUTDOWN PANEL ROOM, UNIT 1
M23-M320-TE	NPS DG SET ROOM, D.V. 1, UNIT 1
M23-M330-TE	NPS DG SET ROOM, DIV. 11, UNIT 1

11. M24-F05A(B) IS POSITIONED CLOSED WHEN ANY OF THE FOLLOWING IS MET:  
A. M25/26 IN SMOKE CLEAR OR EMERG. RECIRC. MANUAL OR AUTO INITIATION  
B. M23/M24 MODE SWITCH IN RECIRC.  
C. ASSOCIATED FAN TRAIN IS SHUT DOWN.

NOTES:-

1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
2. ALL CONTROL SWITCHES, STATUS LIGHTS, ALARMS AND TEMPERATURE INDICATORS ARE LOCATED ON THE COMMON HVAC PANEL (M13-P804) IN CONTROL ROOM #1.
3. ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS "COMMON HVAC TROUBLE" ON PANEL M13-P800 IN BOTH CONTROL ROOMS.
4. THE 3-POSITION MODE SELECT SWITCH WILL POSITION THE DAMPERS AND START AND STOP FANS AS INDICATED IN THE TABLE BELOW:

ITEM	SMOKE CLEAR	NORMAL	REMARKS	EMER. RECIRC.
F100A (B)	O	C		C
F110A (B)	C	O		C
FO10A (B)	O	O		C
F250A (B)	C	O	SEE NOTE 12	C
F255A (B)	C	O		C
SCV-F220A (B)	E	DE	SEE NOTE 9	E
M26-C001A (B)	S	S		R
M25-C001A (B)	R	R		R
M25-C002A (B)	R	R		S
M25-F260A (B)	DE	E	SEE NOTE 9	DE
M25-F263A (B)	C	O		C

R = RUN  
S = STOP  
C = CLOSED  
O = OPEN  
E = EMERGENCY  
DE = DEENERGIZING

5. FANS AND DAMPERS, EXCEPT F100A(B), F260A(B), F255A(B), AND F263A(B), ARE OPERATED ACCORDING TO THE MODE SELECT SWITCH POSITION ONLY WHEN THE ASSOCIATED FAN TRAIN INITIATE SWITCH IS IN THE "ON" POSITION, OTHERWISE THE DAMPERS ARE IN THE FAIL SAFE POSITION.
6. LOSS OF FAN OPERATION (LOW FLOW OR FAN TRIP) ON ANY OF THE OPERATING FAN TRAIN (A OR B) WILL TRIP THE REMAINING FANS. THE STAND BY FAN TRAIN (A OR B) IS MANUALLY STARTED AND WILL OPERATE ACCORDING TO THE MODE SELECT SWITCH POSITION (SEE NOTE 4).
7. LOCA (FROM EITHER REACTOR), HIGH RADIATION, OR LOOP WALL OVERFLOW THE MODE SELECT SWITCH AND OPERATE THE SYSTEM IN THE EMERGENCY RECIRCULATION MODE. BOTH FAN TRAINS WILL RUN.
8. THE SILENCING VALVE (SCV-F220A, B) EMERGENCES TO VENT ACTUATORS (FCV-F200A, B) AND POSITION THE VARIABLE INLET VANES OF FANS (M25-C002A, B) TO REDUCE THE AIR FLOW TO 30,000 CFM.
9. DE-ENERGIZING ACTUATOR (DE-F26A, B) WILL POSITION THE VARIABLE INLET VANES OF FANS (M25-C001A, B) TO REDUCE THE AIR FLOW TO 30,000 CFM.
10. BYPASS AND IMPERABLE STATUS INDICATION IS REQUIRED IN THE CONTROL ROOM.

REFERENCES:

912-8619-8000B MCC SWITCHGEAR AND MISCELLANEOUS ELECTRICAL EQUIPMENT, M23, M24  
912-8619-8000B CONTROL ROOM HVAC AND EMERGENCY RECIRCULATION SYSTEM M25, M26.

NOTES:-

1. SEE DRAWINGS 912-8619-8000B AND 912-8619-8000C

11. FOR PROPER SYSTEM OPERATION, BOTH A AND B TRAIN MODE SELECT SWITCHES SHOULD BE ADMINISTRATIVELY KEPT IN THE SAME POSITION.
12. M24-F05A(B) OPERATES WITH M25-F260A(B) EXCEPT WHEN M26/M24 SYSTEM MODE SWITCH IS IN RECIRC. OR WHEN THE ASSOCIATED M25/M24 FAN TRAIN IS SHUTDOWN EITHER OF WHICH CLOSES M24-F05A(B).
13. M25-F260A(B) IS NOT POSITIONED BY THE MODE SWITCH, BUT IS CLOSED BY LOCA, HIGH RADIATION, OR LOOP. M25-F260A(B) HAS AN INDEPENDENT CONTROL SWITCH FOR MANUAL POSITIONING THE DAMPER IN OTHER MODES.

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PERRY NUCLEAR POWER PLANT

Notes and Operating Data  
for <Figure 6.4-1> and <Figure 9.4-1>

Figure 9.4-1 (Sheet 2 of 2)  
(Dwg. D-912-611)



DESIGN DATA (NORMAL)

NO.	CFM	BY	REMARKS	REV
1	10,100			
2	42,000			
3	39,500			
4	2,500		SEE NOTE 15	
5	24,500			
6	15,000			
7	0			
8	31,900			
9	15,000			
10	4,950			

DESIGN DATA (RECIRCULATION)

NO.	CFM	BY	REMARKS	REV
1	0			
2	42,000			
3	39,500			
4	2,500		SEE NOTE 15	
5	24,500			
6	15,000			
7	15,000			
8	27,000			
9	0			
10	2,500			

- REFERENCES:
- 302-0714-00000 RESPIRATORY CLEANING FACILITY L50
  - 912-0609-00000 MCC SWITCHGEAR AND MISC. ELECTRICAL EQUIPMENT AREAS HVAC SYSTEM AND BATTERY ROOM EXHAUST M23/24
  - 912-0610-00000 CONTROL ROOM HVAC AND EMERGENCY RECIRCULATING SYSTEM M25/M26
  - 912-0613-00000 INTERMEDIATE BUILDING VENTILATION SYSTEM M33
  - 913-0002-00000 CONTROL COMPLEX CHILLED WATER SYSTEM P47
  - 914-0003-00000 FIRE SERVICE WATER P54

- NOTES:
- ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  - ALL CONTROL SWITCHES, FAN STATUS LIGHTS, AND ALARM INDICATING LIGHTS ARE LOCATED ON THE LOCAL PANEL 0H51P033, EXCEPT WHERE NOTED.
  - FAN STATUS LIGHTS, CHAMBER, HIGH TEMPERATURE ALARMS, AND TEMPERATURE INDICATORS ARE LOCATED ON THE COMMON HVAC PANEL 0H3P904 IN THE CONTROL ROOM.
  - ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS "CA AND HEA HVAC SYSTEM TROUBLE ON PANEL M20000 IN BOTH CONTROL ROOMS, EXCEPT LOCAL ALARMS ASSOCIATED WITH SWITCHES R736, R737, R738, & R739.
  - THE FAN TRAIN STOP SWITCH WILL START THE 3 FANS WITH A TIME DELAY FOR 0H21C003A (B) AND 0H21C002A (B) IN ORDER TO START 0H21C001A (B) FIRST.
  - WHEN A FAN TRAIN IS SIGNALLED TO START, THE FANS ARE PROVIDED WITH THE DELAY SO THAT THE DAMPERS WILL BE POSITIONED FIRST PRIOR TO FAN TRAIN START.
  - LOSS OF FAN OPERATION, LOW FLOW OR FAN TRIP ON ANY OF 3 OPERATING FANS IN OR B WILL TRIP THE REMAINING FANS IN THE TRAIN AND AUTOMATICALLY SWITCH OVER TO THE STANDBY FAN TRAIN IN OR B, EXCEPT ON HIGH SHOCK CONDITION IN THE MAIN RETURN DUCT.
  - THE 2-POSITION SELECTOR SWITCH WILL POSITION THE DAMPERS AS INDICATED IN THE TABLE BELOW.

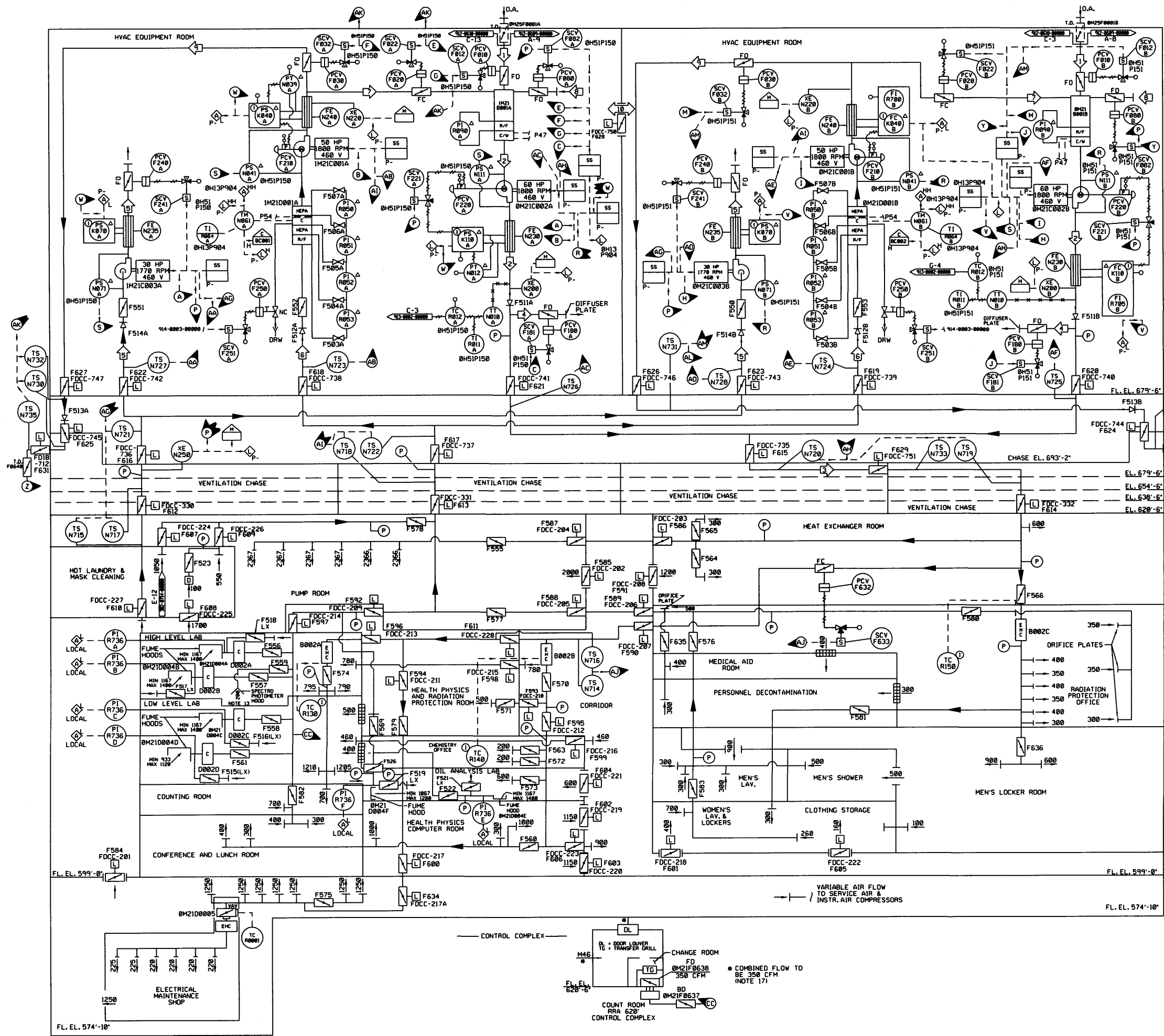
ITEM	RECIRC	NORM
F010A(B)	C	O
F020A(B)	O	C
F030A(B)	C	O
F080A(B)	O	O
F180A(B)	O	O
F240A(B)	O	O

- DAMPERS ARE POSITIONED ACCORDING TO THE DAMPER OPERATOR SELECTOR SWITCH POSITION ONLY WHEN THE ASSOCIATED FAN TRAIN IS MANUALLY STARTED OR IN STANDBY WITH AUTOMATIC START SIGNAL FROM THE SWITCH OVER NETWORK.
- SMOKE DETECTOR, XE-N250, WILL TRIP RETURN FANS 0H21C003A AND B, CLOSE DAMPERS 0H21C003A AND B, AND ENERGIZE SOLENOID SCV-F221A AND B TO REDUCE THE SUPPLY FAN FLOW RATE.
- DAMPER 0H21F010A (B) WILL OPEN WHEN THE CORRESPONDING FAN 0H21C003A (B) OPERATES AND CLOSES WHEN FAN STOPS.
- ALL AIR QUANTITIES ARE IN CFM.
- REFERENCE F04747 VERIFY FLOW WITHOUT EXTINGUISHING THE SPECTRO PHOTOMETER FLAME.
- DUE TO RELOCATION OF WALLS, FIRE DAMPERS FDCC-211, 213, & 214 HAVE BEEN ADMINISTRIATIVELY LOCKED OPEN.
- DAMPER 0H21F010A (B) OPEN WHEN OPPOSITE TRAIN IS IN SERVICE.
- DESIGN DATA ASSUMES OTHER CONTROL COMPLEX VENTILATION SYSTEMS ARE ALSO OPERATED IN THE SAME MODE.
- THE DESIGN SUPPLY/EXHAUST FAN FLOWS DO NOT INCLUDE THE 300 CFM FROM THE RRA 620 CONTROL ROOM. THIS 300 CFM EXHAUST IS A SMALL PERCENTAGE OF THE TOTAL SYSTEM FLOW AND IS ACHIEVED BASED ON AVAILABLE SYSTEM REGISTER AIRFLOW TOLERANCES.
- TORNADO DAMPERS (TD) SHOWN ON THIS DRAWING ARE TO BE SAFETY-RELATED CLASS 3, NON-SEISMIC.

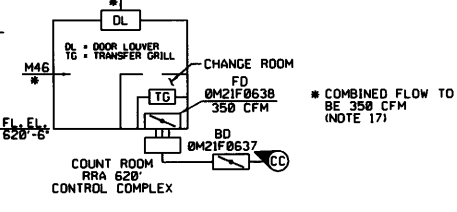
(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

CONTROLLED ACCESS AND  
MISCELLANEOUS EQUIPMENT  
AREAS HVAC SYSTEM  
FIGURE 9.4-2  
(DWG. D-912-0608-00000)



VARIABLE AIR FLOW TO SERVICE AIR & INSTR. AIR COMPRESSORS

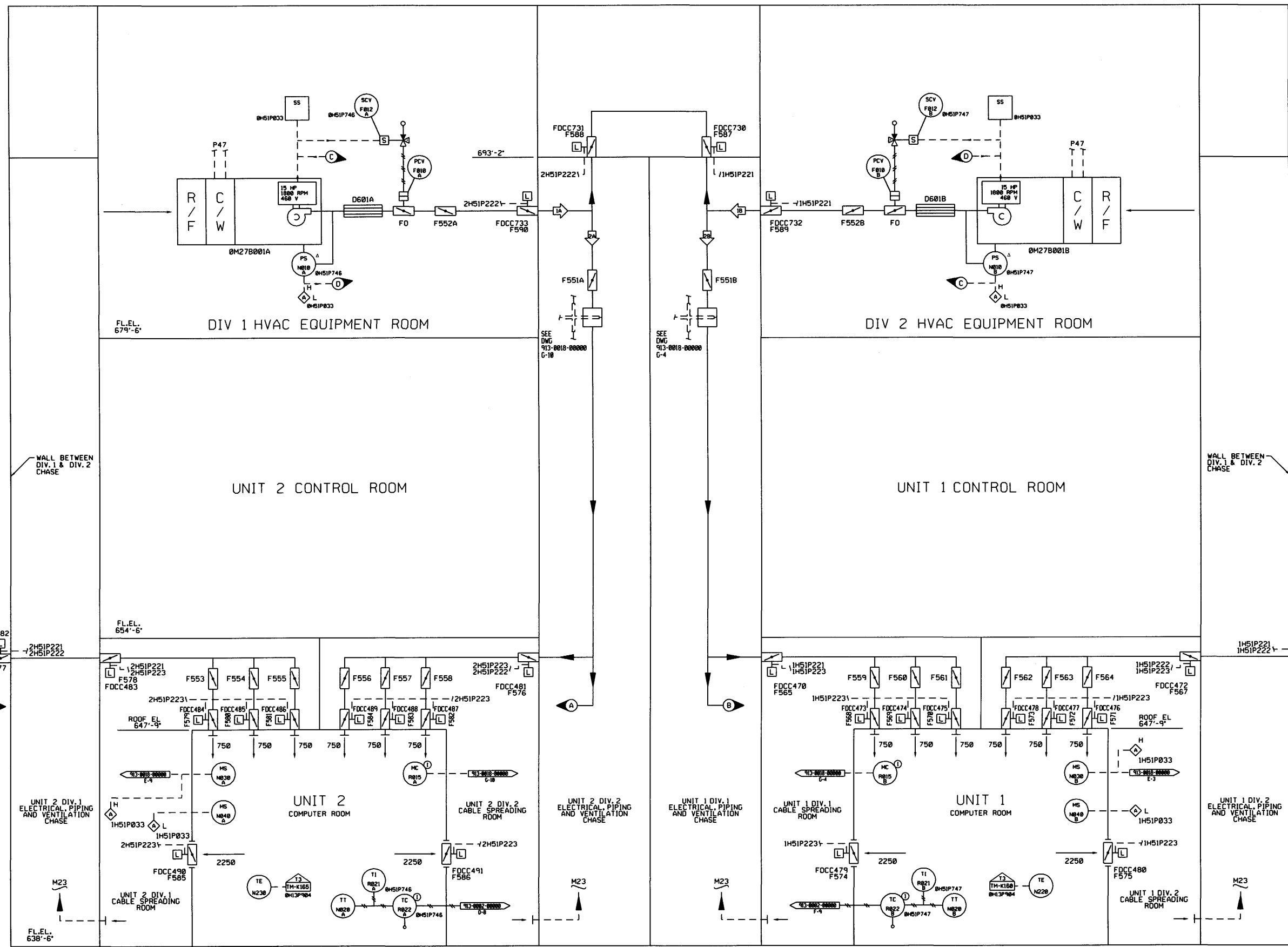


DESIGN DATA					
REV	CFM	BY	REMARKS	REV	
1A, 1B	9800				
2A, 2B	4500				

OPERATING DATA					
RUN FAN	CFM	REMARKS	REV		
0627 0604	1A	8810			
	1B	0			
	2A	4180			
	2B	4630			
0627 0608	1A	0			
	1B	8550			
	2A	3830			
	2B	4720			

- NOTES:
- ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH A TIME DELAY RELAY.
  - ALL CONTROL SWITCHES STATUS LIGHTS AND ALARMS ARE LOCATED ON THE LOCAL HVAC PANEL MS1P033, UNLESS NOTED.
  - ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED INDIVIDUALLY ON PANEL MS1P033 AND AS "M21/M27/M29 TROUBLE" ON PANEL M13-P680 IN BOTH CONTROL ROOMS.
  - ALL AIR FLOWS IN CFM.
  - INDICATES THE SUM OF THE BRANCHES PER FID \* 41635
  - INDICATES THE SUM OF THE DIFFUSERS FOR THE BRANCH PER FID \* 41635. THIS IS THE MOST ACCURATE FLOW READING.

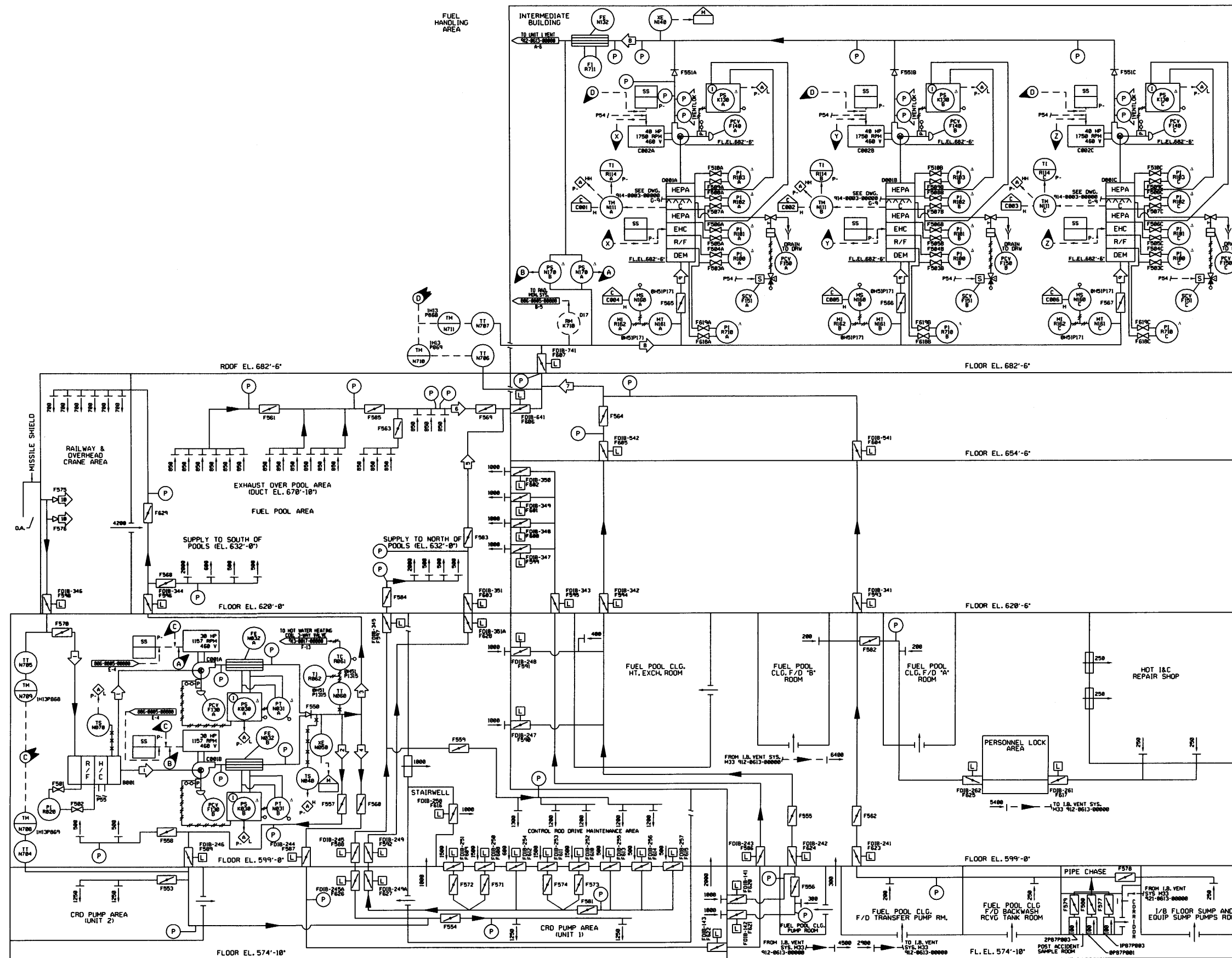
- REFERENCES:
- 912-0609-00000 MCC SWITCHGEAR AND MISCELLANEOUS ELECTRICAL EQUIPMENT AREAS HVAC SYSTEM AND BATTERY ROOM EXHAUST M23/M24
  - 913-0002-00000 P47 CONTROL ROOM COMPLEX CHILLED WATER
  - 913-0010-00000 CONTROL AND COMPUTER ROOMS HUMIDIFICATION SYSTEM M29



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**PERRY NUCLEAR POWER PLANT**  
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COMPUTER ROOM  
HVAC SYSTEM  
FIGURE 9.4-3  
(DWG. D-912-0607-00000)



DESIGN DATA (NORMAL)

#	CFM	BY	REMARKS	REV
1	27,400		SEE NOTE 8	E
2	15,600			E
3	7,000			E
4	4,000			E
5	0,100			E
6	15,300			E
7	6,500			E
8	30,000			E
9	15,000			E
10	0		SEE NOTE 7 F	

- NOTES:
- ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  - ALL CONTROL SWITCHES INCLUDING THE CHARCOAL SPRAY SWITCHES STATUS LIGHTS, ALARMS AND TEMPERATURE INDICATORS ARE LOCATED ON COMMON HYAC PANEL (M33P804) IN THE CONTROL ROOM, EXCEPT WHERE NOTED.
  - ALL ALARMS FROM THIS SYSTEM WILL BE ANNUNCIATED AS "COMMON HYAC P804" ON PANEL M33P808.
  - ALL FAN INLET VANE LEVER ARM GUIDES ARE SUPPLIED WITH A MECHANICAL STOP TO PREVENT AIR FLOW FROM BEING REDUCED BELOW 50%.
  - ALL AIR QUANTITIES ARE IN CFM.
  - FIRE DAMPERS (FDXX-XXX) SHOWN ON THIS DRAWING ARE TO BE AHS SAFETY CLASS HAS AND SEISMIC CATEGORY I.
  - UNDER A HIGH RADIATION CONDITION FLOW FOR DAMPERS F575 AND F576 TO BE 15,000 CFM.
  - SYSTEM FLOW CAN VARY BY +10%. PREOPERATIONAL TEST RESULTS OF 25,167 CFM FOR M33C0000A AND 24,726 CFM FOR M33C0000B ARE ACCEPTABLE AS OPERATIONAL DATA. REFERENCE M33-000-1064.

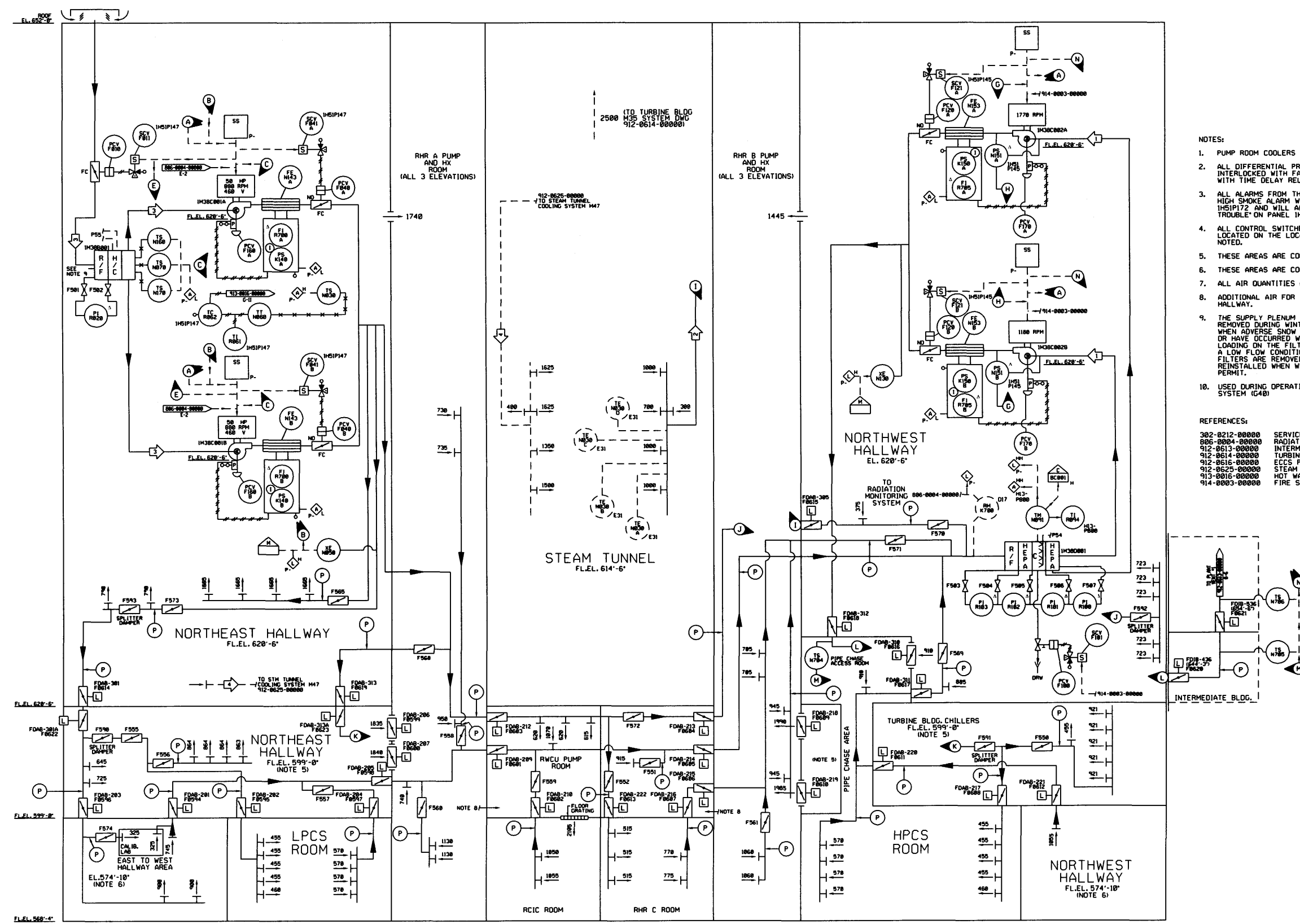
- REFERENCES:
- 000-0000-0000 RADIATION MONITORING SYSTEM D17
  - 912-0613-0000 INTERMEDIATE BUILDING VENTILATION SYSTEM M33
  - 913-0017-0000 HOT WATER HEATING SYSTEM P55
  - 914-0003-0000 FIRE SERVICE WATER P54

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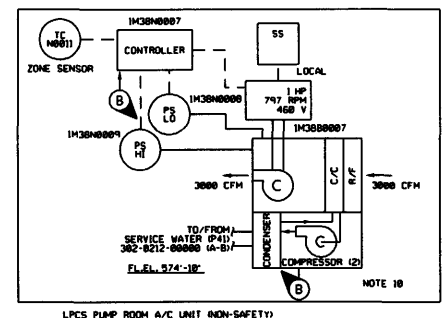
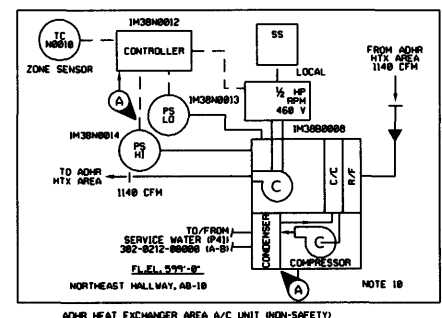
FUEL HANDLING  
VENTILATION SYSTEM  
FIGURE 9.4-4  
(DWG. D-912-0617-00000)

DESIGN DATA				
NO.	CFM	BY	REMARKS	REV
1	29,325			
2	4,000			
3	31,825			
4	6,500			



- NOTES:
- PUMP ROOM COOLERS ARE SHOWN ON DWG 912-0616-00000.
  - ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTERS AND ARE PROVIDED WITH TIME DELAY RELAY.
  - ALL ALARMS FROM THIS SYSTEM EXCEPT HIGH RADIATION AND HIGH SMOKE ALARM WILL BE ANNUNCIATED ON HVAC PANEL IH5IP172 AND WILL ALSO BE ANNUNCIATED AS "HVAC TROUBLE" ON PANEL IH3P680 IN THE CONTROL ROOM.
  - ALL CONTROL SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED ON THE LOCAL PANEL (IH5IP172), EXCEPT WHERE NOTED.
  - THESE AREAS ARE CONNECTED BY EAST-WEST HALLWAYS.
  - THESE AREAS ARE CONNECTED BY EAST-WEST HALLWAYS.
  - ALL AIR QUANTITIES ARE IN CFM.
  - ADDITIONAL AIR FOR THIS AREA IS FROM THE EAST-WEST HALLWAY.
  - THE SUPPLY PLENUM ROUGHING FILTERS MAY BE REMOVED DURING WINTER OPERATING PERIODS WHEN ADVERSE SNOW CONDITIONS ARE EXPECTED OR HAVE OCCURRED WHICH COULD CAUSE SNOW LOADING ON THE FILTER WHICH WOULD CREATE A LOW FLOW CONDITION. IF THE ROUGHING FILTERS ARE REMOVED THEY SHALL BE REINSTALLED WHEN WEATHER CONDITIONS PERMIT.
  - USED DURING OPERATION & TESTING OF ADHR SYSTEM (G40)

- REFERENCES:
- 382-0212-00000 SERVICE WATER SYSTEM P41
  - 806-0004-00000 RADIATION MONITORING SYSTEM D17
  - 912-0613-00000 INTERMEDIATE BUILDING VENT SYSTEM M33
  - 912-0614-00000 TURBINE BUILDING VENT SYSTEM M35
  - 912-0616-00000 ECCS PUMP ROOMS COOLING SYSTEMS M39
  - 912-0625-00000 STEAM TUNNEL COOLING SYSTEM M47
  - 913-0016-00000 HOT WATER HEATING SYSTEM P55
  - 914-0003-00000 FIRE SERVICE WATER P54

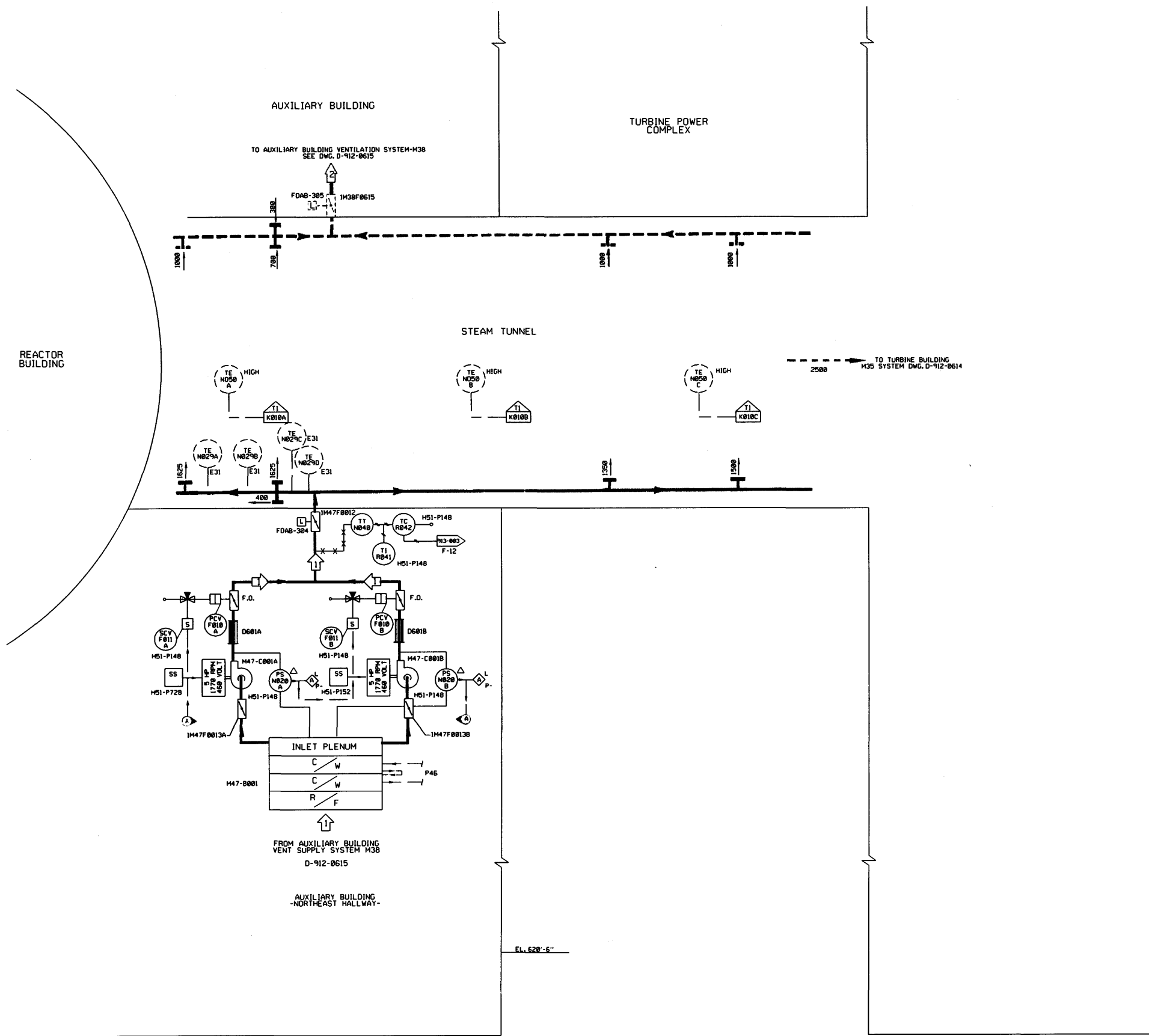


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**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

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AUXILIARY BUILDING  
 VENTILATION SYSTEM  
 FIGURE 9.4-5  
 (DWG. D-912-0615-00000)



DESIGN DATA				
NO.	CFM	BY	REMARKS	REV
1	6500			
2	4000			

- NOTES:-
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTERS AND PROVIDED WITH TIME DELAY RELAY.
  2. ALL ALARMS FROM THIS SYSTEM WILL BE ANNUNCIATED ON PANEL (H51-P172) AND AS "HVAC TROUBLE" ON PANEL (H13-P658) IN THE CONTROL ROOM.
  3. ALL CONTROL SWITCHES AND FAN STATUS LIGHTS ARE LOCATED ON THE LOCAL PANEL (H51-P172).
  4. ALL AIR QUANTITIES ARE IN CFM.
  5. DAMPERS F010A&B ARE FAIL OPEN ON LOSS OF AIR AND CLOSE UPON LOSS OF SYSTEM POWER OR SHUT DOWN OF ASSOCIATED FAN.

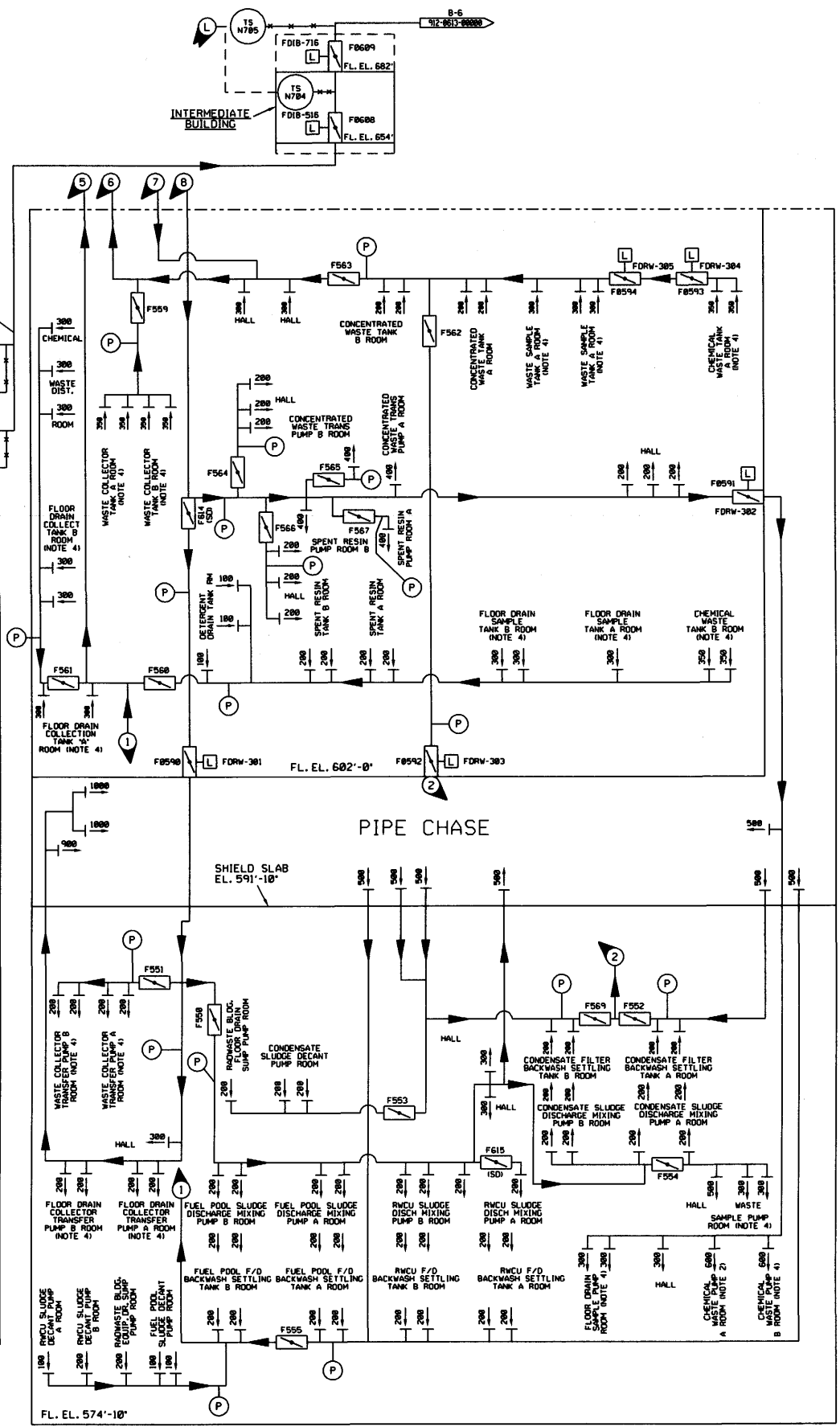
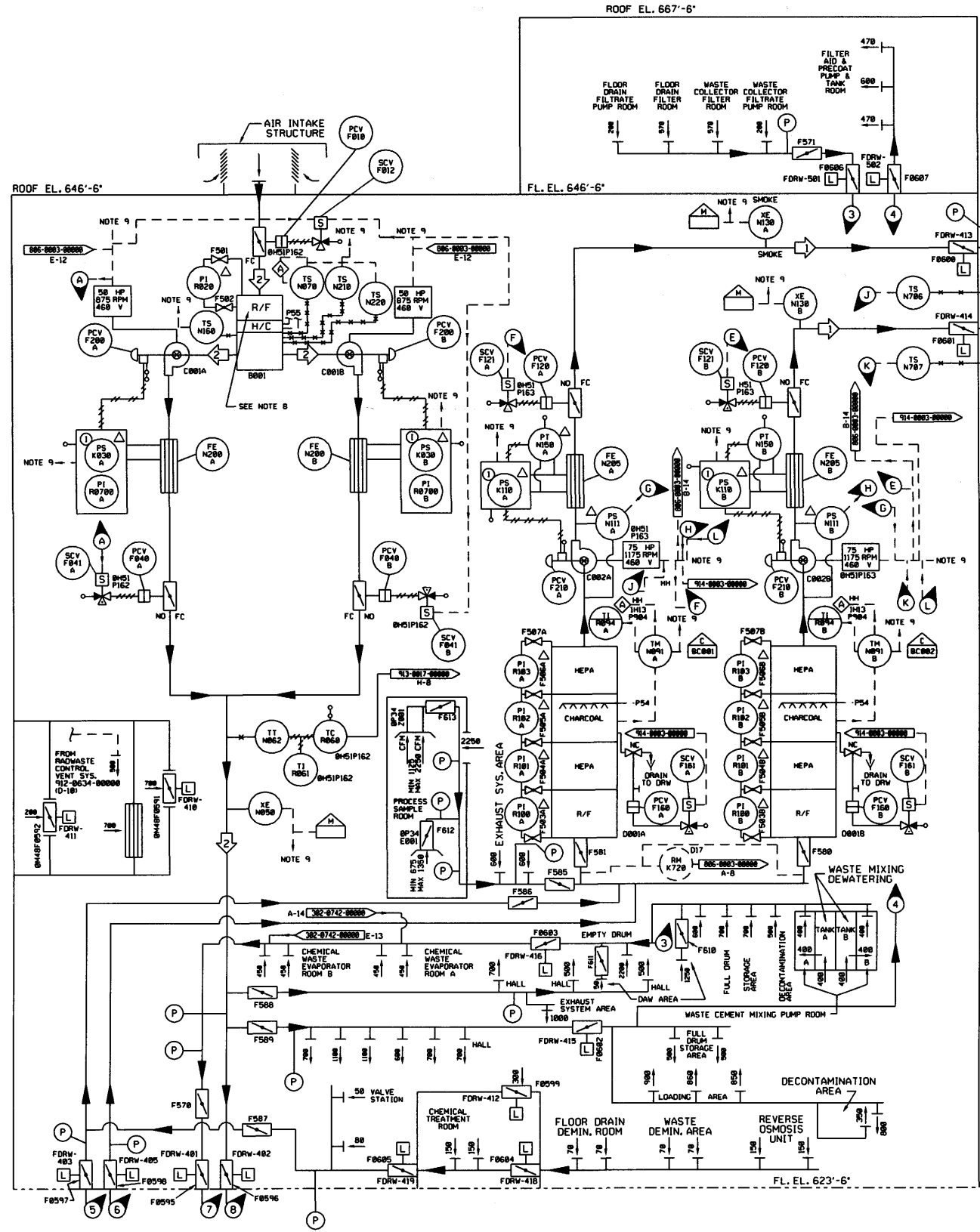
- REFERENCES:-
- D-913-0003 TURBINE BUILDING CHILLED WATER SYSTEM-P46
  - D-912-0615 AUXILIARY BUILDING VENTILATION SYSTEM-M38
  - D-912-0614 TURBINE BUILDING VENTILATION SYSTEM-M35

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**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

STEAM TUNNEL  
COOLING SYSTEM  
FIGURE 9.4-6  
(DWG. D-912-0625-00000)

DESIGN DATA					
ID	CFM	BY	CHKD	REMARKS	REV
1	30,000				
2	24,300				



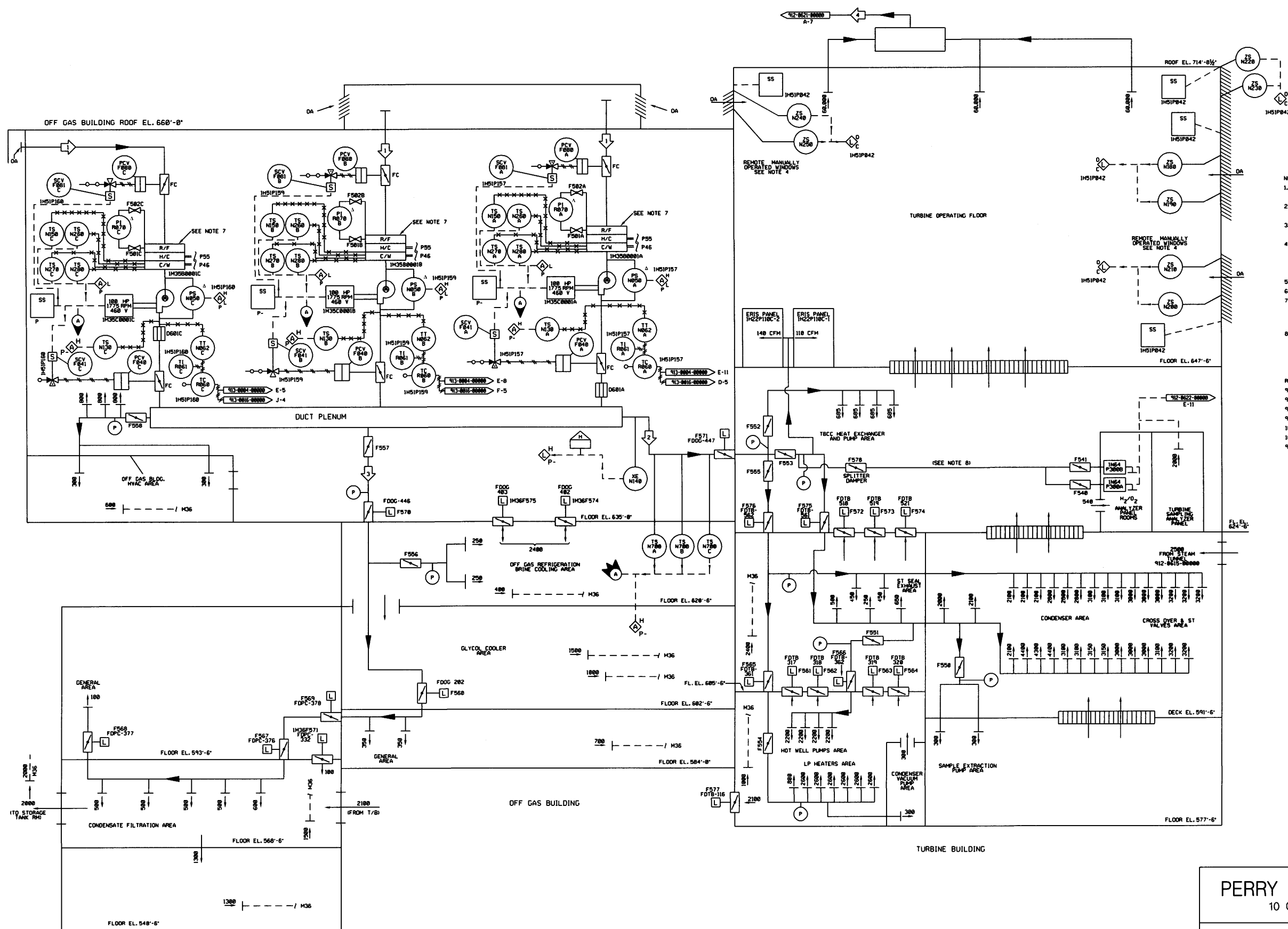
- NOTES:
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH A TIME DELAY RELAY.
  2. DELETED
  3. ALL ALARMS FROM THIS SYSTEM EXCEPT HIGH SMOKE AND HIGH RADIATION WILL BE ANNUNCIATED AS SYSTEM TROUBLE ALARM ON PANEL 0403004.
  4. TANK ROOM PENETRATES FLOOR EL. 602'-0" AIR FLOW INTO ROOM FROM FLOOR EL. 574'-10" TANK PUMP ROOM.
  5. ALL AIR QUANTITIES ARE IN CFM.
  6. DELETED
  7. DELETED
  8. THE SUPPLY PLENUM ROUGHING FILTERS MAY BE REMOVED DURING WINTER OPERATING PERIODS WHEN ADVERSE SNOW CONDITIONS ARE EXPECTED OR HAVE OCCURRED WHICH COULD CAUSE SNOW LOADING ON THE FILTERS WHICH WOULD CREATE A LOW FLOW CONDITION. IF THE ROUGHING FILTERS ARE REMOVED THEY SHALL BE REINSTALLED WHEN WEATHER CONDITIONS PERMIT.
  9. INPUT/OUTPUT TO/FROM THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.
- REFERENCES
- 302-0742-00000 LRV WASTE EVAPORATOR CONDENSERS C50
  - 912-0013-00000 INTERMEDIATE BLDG. VENTILATION SYSTEM H03
  - 912-0034-00000 RADWASTE CONTROL ROOM HVAC SYSTEM H48
  - 913-0017-00000 HOT WATER HEATING SYSTEM P55
  - 914-0003-00000 FIRE SYSTEM WATER P54
  - 006-0003-00000 RADIATION MONITORING SYSTEM D17

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**PERRY NUCLEAR POWER PLANT**  
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**RADWASTE BUILDING  
VENTILATION SYSTEM**  
FIGURE 9.4-7  
(DWG. D-912-0612-00000)

DESIGN DATA				
#	CFM	BY	REMARKS	REV
1	66,125			
2	124,350			
3	3,900			
4	180,000		NOTE 6	



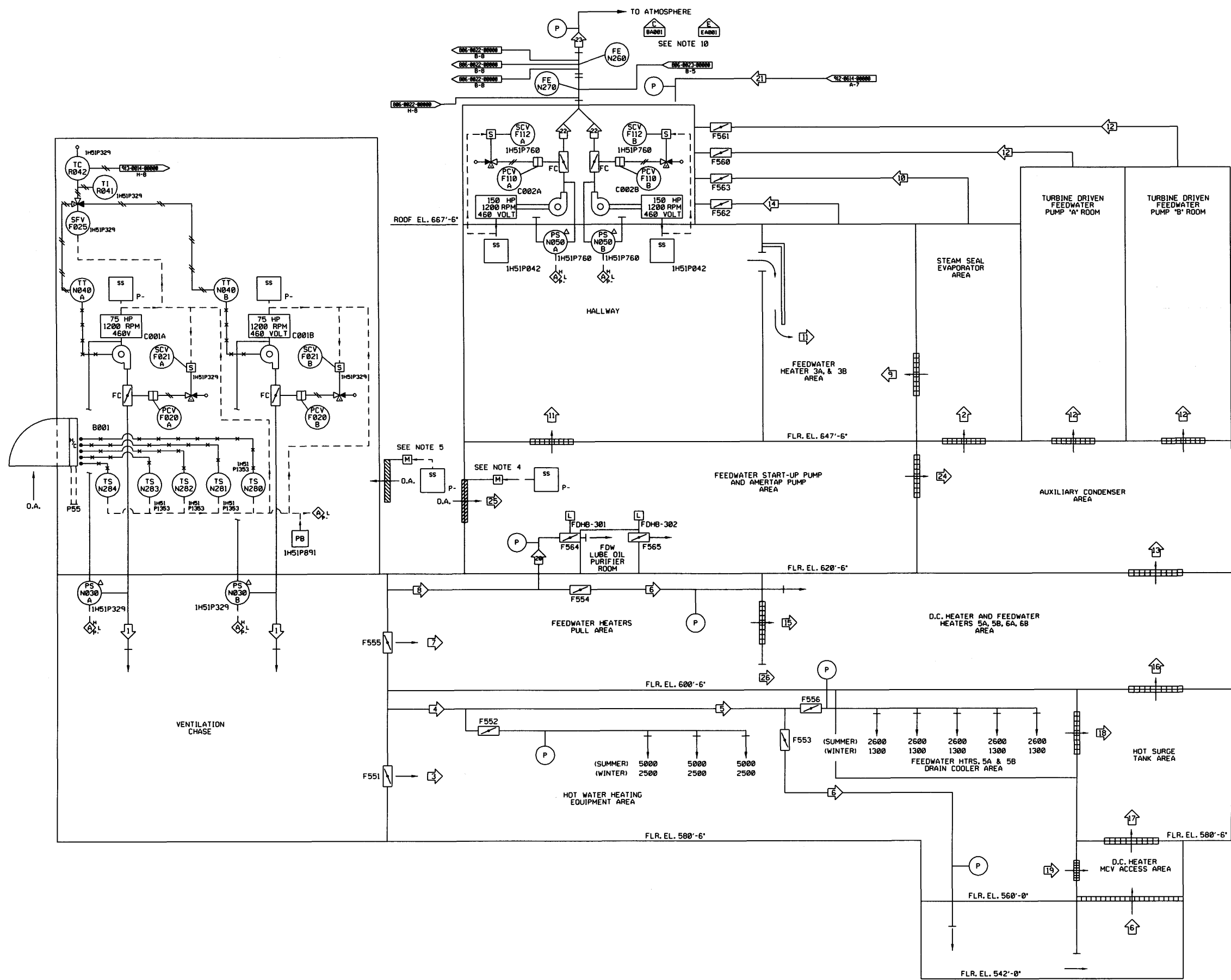
- NOTES
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH A 1 MINUTE DELAY RELAY.
  2. ALL CONTROL SWITCHES STATUS LIGHTS AND ALARMS ARE LOCATED ON THE LOCAL PANEL (IHSIP042) EXCEPT WHERE NOTED.
  3. A COMMON ALARM FROM THIS SYSTEM (M3) EXCEPT HIGH SMOKE WILL BE ANNUNCIATED AS "M3S/M41 TROUBLE" ON PANEL IHS3688.
  4. SELECTOR SWITCHES FOR NORTHEAST WINDOW SASH, CENTRAL WINDOW SASH AND SOUTHWEST WINDOW SASH OPERATE WINDOW MOTOR OPERATOR ILS32001A, ILS32001B, AND ILS32001C RESPECTIVELY. SEE DWG 182-0021-00000 SELECTOR SWITCH FOR WEST WINDOW SASH OPERATES WINDOW MOTOR OPERATOR ILS32001A, ILS32001B, AND ILS32001C. SEE DWG 182-0041-00000.
  5. ALL AIR QUANTITIES ARE IN CFM.
  6. WINTER DESIGN FLOW IS 118,000 CFM.
  7. THE SUPPLY ROUGHING FILTERS MAY BE REMOVED AND REPLACED WITH PERFORATED PLATES CONTAINING 0.375 INCH DIAMETER HOLES WITH A DISTANCE APART OF 0.562 INCH ON CENTER AND 0.862 INCH THICK GALVANIZED IRON INSIDE A WOODEN FRAME DURING THE MONTHS WHEN SNOW IS EXPECTED.
  8. 30 CFM IS DUCTED DIRECTLY TO EACH OF THE IHS4F000A/B H<sub>2</sub>O<sub>2</sub> ANALYZER PANELS.

- REFERENCES
- 913-0004-00000 TURBINE BUILDING CHILLED WATER SYSTEM P46
  - 913-0016-00000 HOT WATER HEATING SYSTEM P55
  - 912-0622-00000 OFF-GAS EXHAUST M36
  - 912-0621-00000 HEATER BAY VENTILATION SYSTEM M41/M35
  - 182-0021-00000 EAST ELEV TURBINE BLDG COMPLEX
  - 182-0041-00000 WEST ELEV TURBINE BLDG COMPLEX
  - 912-0615-00000 AUX BUILDING VENT SYSTEM M33

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**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

TURBINE BUILDING  
 VENTILATION SYSTEM  
 FIGURE 9.4-8  
 (DWG. D-912-0614-00000)



**DESIGN DATA**

REV	REMARKS	WINTER CFM	SUMMER CFM
1	NOTE 8	80,000	80,000
2		83,000	39,000
3		82,000	41,000
4		36,000	19,000
5		23,000	11,500
6		10,000	5,000
7		28,500	14,250
8		11,500	5,750
9		46,000	22,000
10		37,000	17,000
11		14,000	400
12		41,500	19,900
13		158,500	79,250
14		60,000	28,000
15		20,000	10,000
16		120,000	60,000
17		107,000	53,500
18		13,000	6,500
19		97,000	48,500
20		1,500	750
21		180,000	118,000
22	A DR B	180,000	198,000
23	NOTE 9	360,000	198,000
24		7,500	30
25		28,000	0
26		8,500	4,250

- NOTES:**
- ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER & PROVIDED WITH A TIME DELAY RELAY.
  - ALL CONTROL SWITCHES, STATUS LIGHTS & ALARMS ARE LOCATED ON THE LOCAL PANEL 1H51P042, EXCEPT WHERE NOTED.
  - A COMMON ALARM FROM THIS SYSTEM WILL BE ANNUNCIATED AS 'M35/M41 TROUBLE' ON THE MINIATURIZED CONTROL CONSOLE 1H13P080B IN THE CONTROL ROOM.
  - OPERATORS FOR THESE LOUVERS CONSIST OF 3 ELECTRIC MOTOR OPERATORS: IL53E033 & IL53E034 & IL53E035, CONNECTED TO ONE SELECTOR SWITCH, SEE DWG. 101-0016-00000.
  - OPERATORS FOR THESE LOUVERS CONSIST OF EIGHT ELECTRIC MOTOR OPERATORS: IL53E034 & IL53E035 & IL53E036 & IL53E037 & IL53E038 & IL53E039 & IL53E040, CONNECTED TO ONE SELECTOR SWITCH, SEE DRAWING 101-0016-00000.
  - POSITION OF LOUVERS IS SHOWN ON PANEL 1H51P042.
  - ALL AIR QUANTITIES ARE IN CFM.
  - ACTUAL COMBINED SUMMER FLOW FROM 1H41C001A & B IS 199,135 CFM.
  - ACTUAL COMBINED SUMMER FLOW FROM 1H41C002A & B IS 345,888 CFM.
  - COMPUTER POINTS ACTUALLY OBTAINED FROM INSTRUMENTATION WITHIN 1H51P145 ON 806-0022-00000 BUT ARE SHOWN HERE FOR CLARITY.
  - THE ENERGIZED SELECTION FOR SOLENOID VALVE 1M41F025 IS 1M41N048A. THE DEFAULT DE-ENERGIZED STATE IS 1M41N048B AND MANUAL OVERRIDE SELECTION IS ACCESSIBLE IN THE EVENT OF SOLENOID FAILURE.
- REFERENCES:**
- 101-0016-00000 TURBINE BUILDING COMPLEX FLOOR PLAN
  - 806-0022-00000 PLANT RADIATION MONITORING - D17
  - 806-0023-00000 PLANT RADIATION MONITORING AUTOMATIC ISOKINETIC SAMPLING SYSTEM - D17
  - 912-0014-00000 TURBINE BUILDING VENTILATION SYSTEM - M35
  - 913-0014-00000 HOT WATER HEATING SYSTEM - P55

(REV. 19 10/2015)

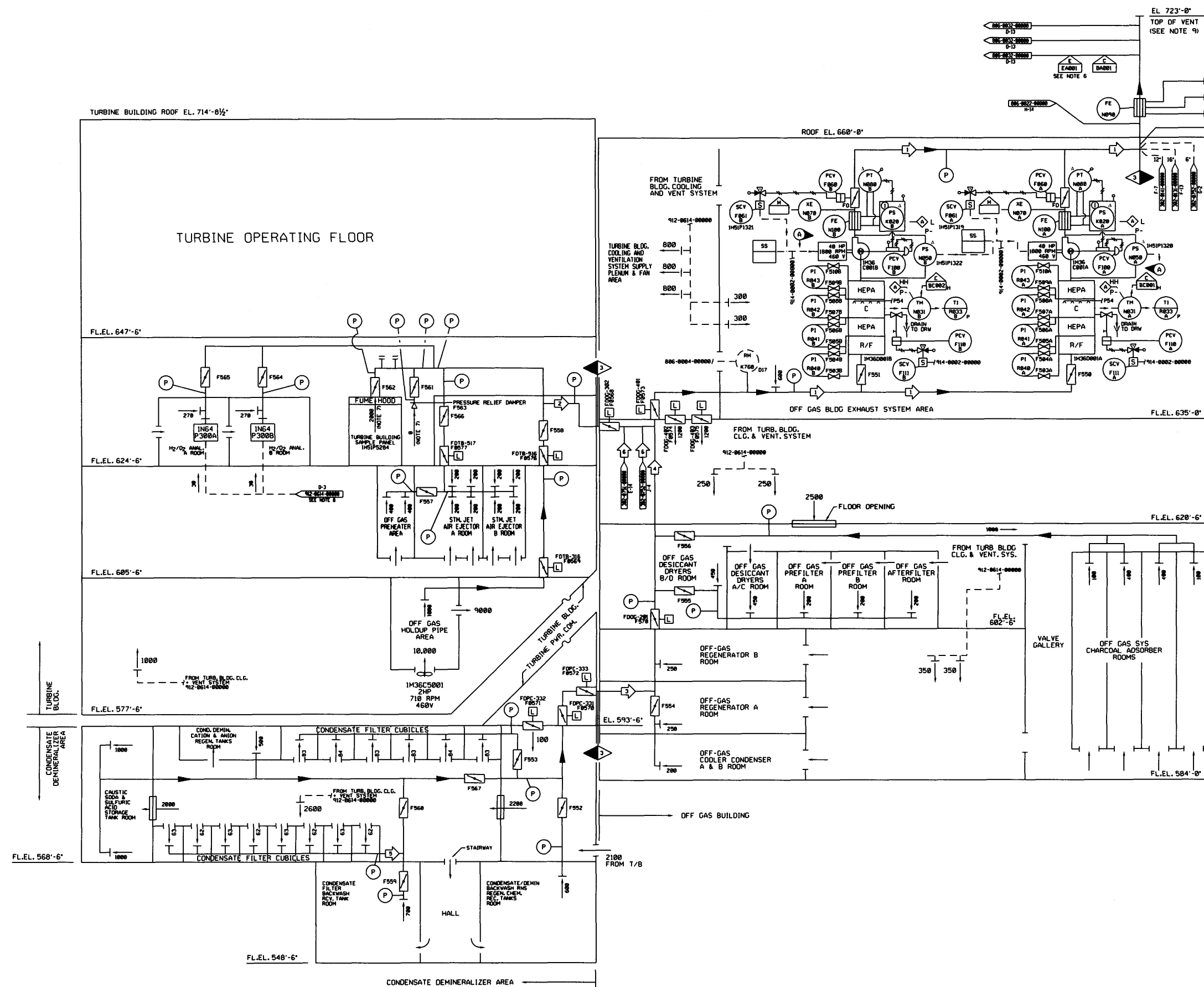
**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

HEATER BAY  
VENTILATION SYSTEM  
FIGURE 9.4-9  
(DWG. D-912-0621-00000)



DESIGN DATA

#	CFM	BY	REMARKS	REV
1	15,000		SEE NOTE 1	
2	6,000			
3	4,000			
4	6,000			
5	500			G
6	200			



- NOTES:
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTERS AND ARE PROVIDED WITH TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES (INCLUDING THE CHARCOAL SPRAY SWITCHES), STATUS LIGHTS, ALARMS, AND TEMPERATURE INDICATORS ARE LOCATED ON THE HVAC PANEL IH3P680 IN THE CONTROL ROOM EXCEPT WHERE NOTED.
  3. ALL ALARMS FROM THIS SYSTEM EXCEPT HIGH SMOKE AND HIGH RADIATION ALARMS ARE ANNUNCIATED AS 'HVAC TROUBLE' ON PANEL IH3P680 IN THE CONTROL ROOM.
  4. ALL AIR QUANTITIES ARE IN CFM.
  5. FIRE DAMPERS (FDXX-XXX) SHOWN ON THIS DRAWING, LOCATED IN THE OFF-GAS BUILDING ARE TO BE ANS SAFETY CLASS NMS AND SEISMIC CATEGORY I. ALL OTHER FIRE DAMPERS ARE ANS SAFETY CLASS NMS AND NON-SEISMIC.
  6. COMPUTER POINTS ACTUALLY OBTAINED FROM INSTRUMENTATION WITHIN IH5IP146 DN 806-0022-00000 BUT ARE SHOWN HERE FOR CLARITY.
  7. PATHS ARE BALANCED WITH THE SAMPLE PANEL DOORS OPEN OR SHUT. EXHAUST FLOW IS 2000 CFM VIA THE FUME HOOD AND 0 CFM VIA THE BYPASS.
  8. 30 CFM IS DUCTED DIRECTLY TO EACH OF THE NE4P300A/B H<sub>2</sub>/O<sub>2</sub> ANALYZER PANELS (60 CFM TOTAL).
  9. SEE PERRY PLANT COMPUTER SYSTEM FOR TOTAL VENT STACK FLOW.

- REFERENCES:
- 302-0131-00000 CONDENSER AIR REMOVAL N62
  - 302-0141-00000 STEAM SEAL SYSTEM N33
  - 302-0751-00000 OFF GAS SYSTEM N64
  - 302-0752-00000 GAS WASTE DISPOSAL (OFF-GAS) N64
  - 806-0004-00000 RADIATION MONITORING SYSTEM D17
  - 806-0008-00000 PLANT RADIATION MONITORING D17
  - K-808, K-838, AND K-840 PLANT RADIATION MONITORING D17
  - 806-0022-00000 AUTOMATIC ISOKINETIC SAMPLING SYSTEM
  - 806-0032-00000 POST ACCIDENT RADIATION MONITORING SYSTEM IODINE & PARTICULATE SAMPLING D19
  - 912-0614-00000 TURBINE BUILDING VENTILATION SYSTEM M35
  - 914-0002-00000 FIRE SERVICE WATER SYSTEM P54

(REV. 19 10/2015)

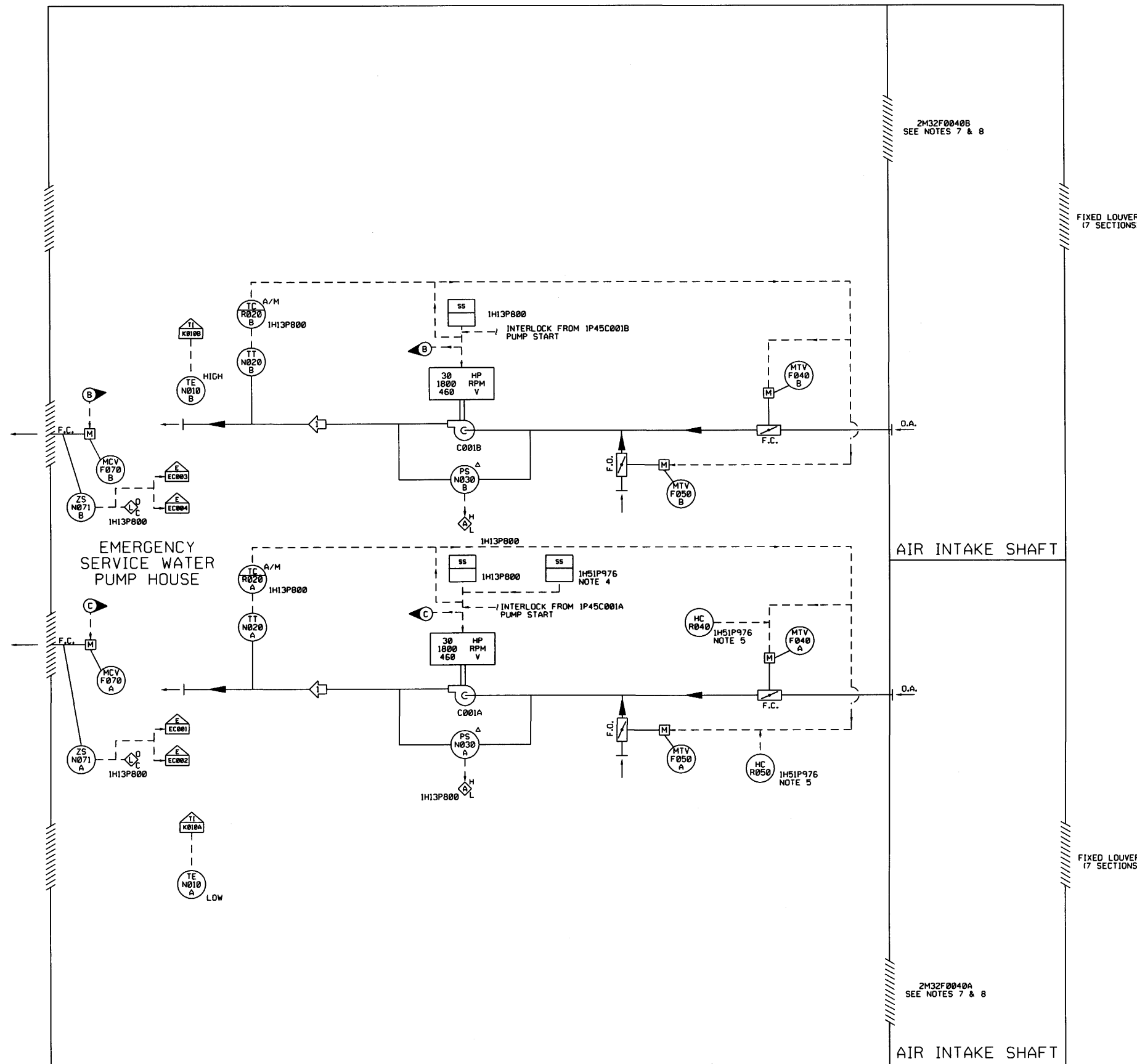
**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

OFFGAS BUILDING  
EXHAUST  
FIGURE 9.4-10  
(DWG. D-912-0622-00000)

DESIGN DATA						
←	CFM	H <sub>D</sub>	*F	BY	REMARKS	REV
1	40,000		95		SUMMER	
1	40,000		60		WINTER	

OPERATING DATA							
FAN NUMBER	←	CFM	H <sub>D</sub>	*F	BY	REMARKS	REV
C001A	1	46,428	0.90*	*			
C001B	1	47,436	0.87*	*			

\*TEMP. IS 95°F SUMMER AND 60°F WINTER



NOTES:

1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
2. ALL CONTROL SWITCHES, STATUS LIGHTS, AND ALARMS FROM THIS SYSTEM WILL BE ANNUNCIATED ON PANEL IHI3P800 LOCATED IN THE CONTROL ROOM.
3. HIGH AND LOW TEMPERATURE ALARMS ARE PROVIDED FOR THIS SYSTEM.
4. PROVIDES CONTROL ROOM ISOLATION OF IM32C001A, IM32F040A, IM32F070A AND IM32F050A AND REMOTE SHUTDOWN CONTROL OF IM32C001A AND IM32F070A, FOR APPENDIX R REMOTE SHUTDOWN METHOD A.
5. PROVIDES REMOTE SHUTDOWN CONTROL OF IM32F040A AND IM32F050A FOR APPENDIX R REMOTE SHUTDOWN METHOD A.
6. ALL COMPONENTS ARE IM32 UNLESS OTHERWISE NOTED.
7. ABANDONED, RETIRED IN PLACE UNIT 2 DAMPER BLOCKED CLOSED AS A BARRIER TO AIR FLOW.
8. LICENSE RENEWAL, SHELTER AND PROTECT. FOR DETAILS SEE ECP 14-0355.

EMERGENCY SERVICE WATER PUMPHOUSE  
VENTILATION SYSTEM  
SAFETY CLASS 3, SEISMIC CATEGORY 1

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

EMERGENCY SERVICE WATER  
PUMPHOUSE VENTILATION SYSTEM  
FIGURE 9.4-11  
(DWG. D-912-0630-00000)

DESIGN DATA					
REV	CFM	BY	REMARKS	REV	
1A	18,000				
1B	18,000				

OPERATING DATA			
REV	CFM	REMARKS	REV
1A	11,142	FAN B001B OPERATING	
1B	11,512	FAN B001B OPERATING	

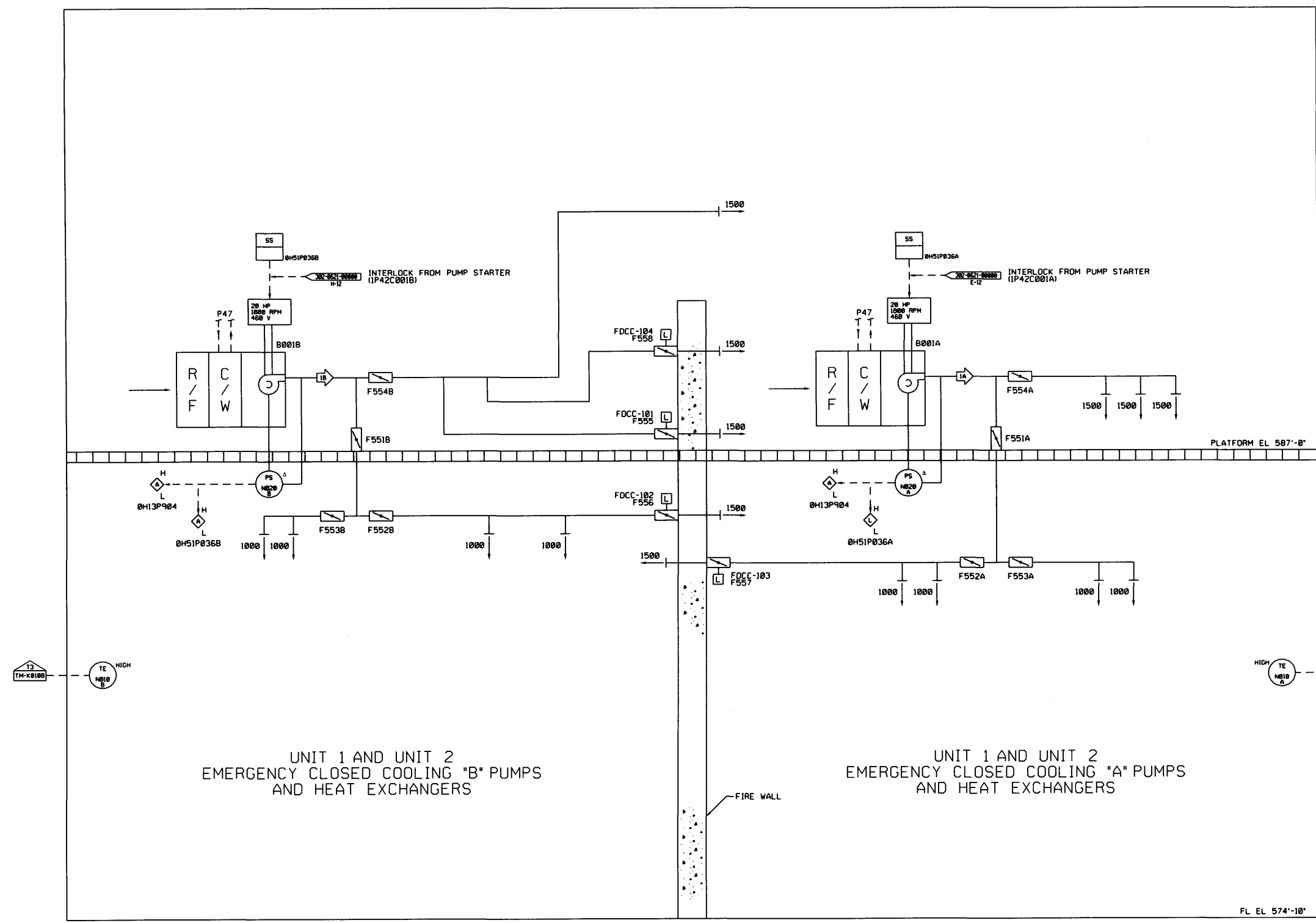
PER NR'S OOC 1229 AND OOC 946

NOTES:

1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY
2. THE SHARED AREA SAFETY RELATED TEMPERATURE MONITORING SYSTEM ON PANEL 0H13P904 IS A MULTI-TRIP UNIT. ANY ALARMED POINT WILL ALARM A SINGLE ALARM ON 0H13P904. THE TEMPERATURE ON ANY POINT CAN BE READ FROM A COMMON TEMPERATURE INDICATOR
3. ALL ALARMS FOR THIS SYSTEM WILL BE ANNUNCIATED ON PANEL 0H13P904 AND WILL ALSO BE ANNUNCIATED AS "COMMON HVAC P904" ON PANEL 1H13P0680.
4. FAN STATUS LIGHTS FOR SYSTEM M2B ARE LOCATED ON THE LOCAL PANEL (0H51P036A AND B) AND ON 0H13P904
5. HIGH TEMPERATURE ALARMS ARE PROVIDED FOR THIS SYSTEM
6. ALL AIR QUANTITIES ARE IN CFM
7. FIRE DAMPER (FOXX-XXX) SHOWN ON THIS DRAWING IS TO BE ANS SAFETY CLASS NNS AND SEISMIC CATEGORY I

REFERENCES:

- 913-0001-00000 CONTROL COMPLEX CHILLED WATER SYSTEM - P47
- 302-0621-00000 EMERGENCY CLOSED COOLING SYSTEM - P42



UNIT 1 AND UNIT 2  
EMERGENCY CLOSED COOLING "B" PUMPS  
AND HEAT EXCHANGERS

UNIT 1 AND UNIT 2  
EMERGENCY CLOSED COOLING "A" PUMPS  
AND HEAT EXCHANGERS

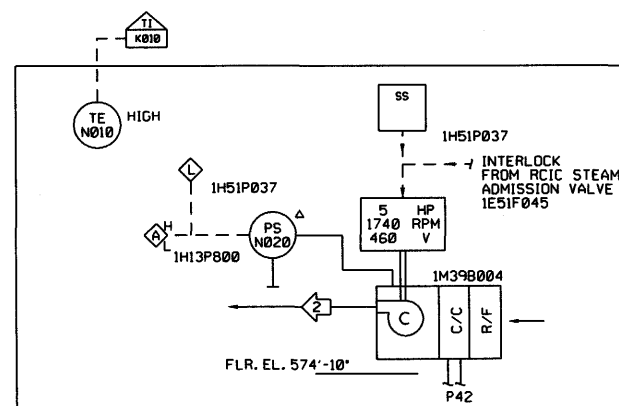
CONTROL COMPLEX

(REV. 19 10/2015)

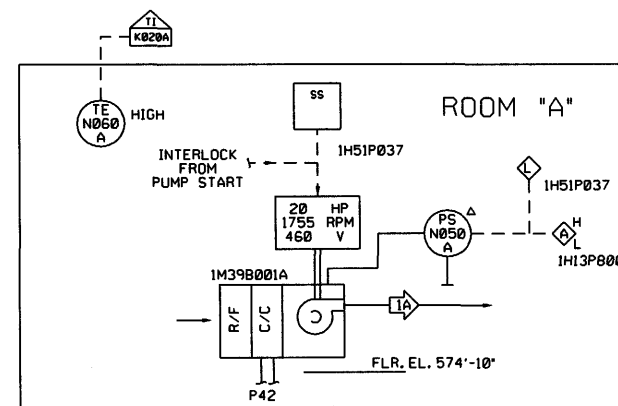
PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

EMERGENCY CLOSED COOLING  
PUMP AREA COOLING SYSTEM  
FIGURE 9.4-12  
(DWG. D-912-0623-00000)

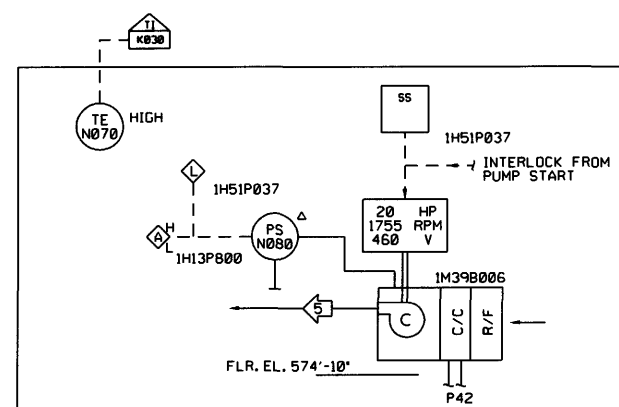
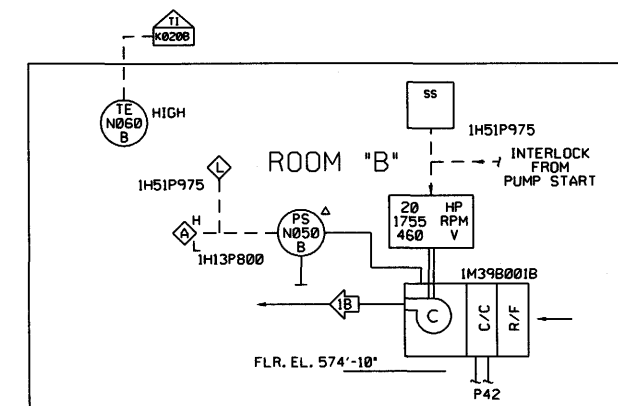
DESIGN DATA (NORMAL)		
CFM	REMARKS	
1A, 1B	11,150	SEE NOTE 5
2	1,999	SEE NOTE 5
3	10,750	SEE NOTE 5
4	12,050	SEE NOTE 5
5	11,150	SEE NOTE 5



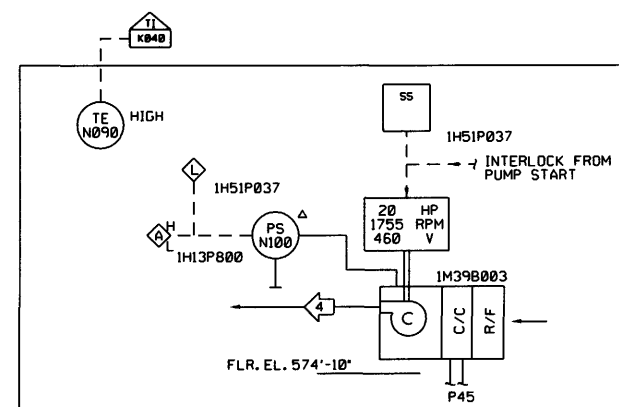
RCIC PUMP ROOM COOLING SYSTEM  
SAFETY CLASS 3, SEISMIC CATEGORY 1



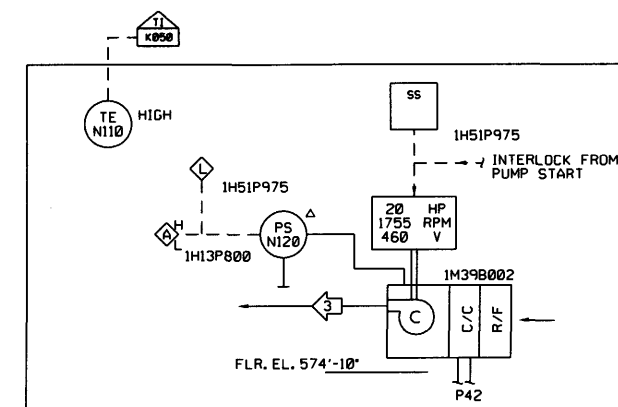
RHR "A" & "B" PUMP & HEAT EXCHANGER COOLING SYSTEM  
SAFETY CLASS 3, SEISMIC CATEGORY 1



LPCS PUMP ROOM COOLING SYSTEM  
SAFETY CLASS 3, SEISMIC CATEGORY 1



HPCS PUMP ROOM COOLING SYSTEM  
SAFETY CLASS 3, SEISMIC CATEGORY 1



RHR "C" PUMP ROOM COOLING SYSTEM  
SAFETY CLASS 3, SEISMIC CATEGORY 1

NOTES:

- ALL DIFF. PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTERS AND PROVIDED WITH TIME DELAY RELAY.
- ALL ALARMS WILL BE ANNUNCIATED ON THE HVAC PANEL (1H13P800) AND AS 'HVAC TROUBLE' ON THE PANEL (1H13P680) IN THE CONTROL ROOM.
- FAN STATUS LIGHTS FOR ALL FANS, EXCEPT 1M39B001B AND 1M39B002 ARE LOCATED ON LOCAL PANEL 1H51P975 AND ALSO ON THE HVAC PANEL (1H13P800) IN THE CONTROL ROOM.
- FAN STATUS LIGHTS FOR 1M39B001B AND 1M39B002 ARE LOCATED ON LOCAL PANEL 1H51P975 AND ALSO ON THE HVAC PANEL (1H13P800) IN THE CONTROL ROOM.
- DESIGN CFM REPRESENTS THE MINIMUM 'CLEAN FILTER' AIR HANDLING UNIT AIRFLOW. THIS CLEAN FILTER AIRFLOW MAY NOT REPRESENT THE MOST CONSERVATIVE DESIGN AIRFLOW SINCE FLOW DEGRADATIONS, SUCH AS THOSE CAUSED BY FILTER LOADING, ARE NOT CONSIDERED. DESIGN DATA SHOWN ON THIS SYSTEM DIAGRAM REPRESENTS ONLY A SINGLE OPERATING CONDITION. PROPER APPLICATION OF THIS INFORMATION SHOULD BE BASED ON REFERENCE TO THE APPROPRIATE DESIGN BASIS CALCULATIONS.

REFERENCES:

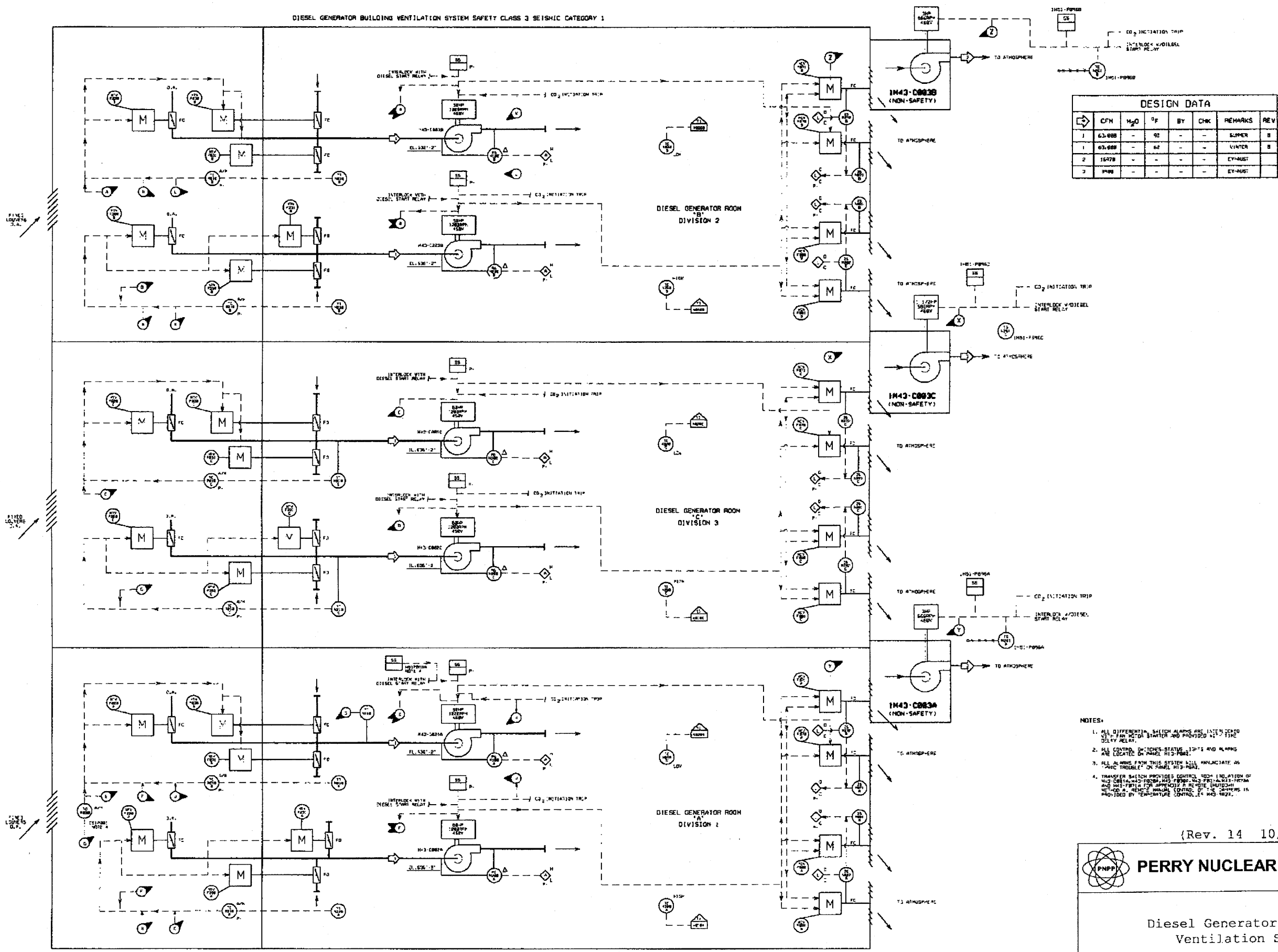
- 302-0622-00000 EMERGENCY CLOSED COOLING SERVICE, P42
- 302-0791-00000 EMERGENCY SERVICE WATER SYSTEM, P45

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

ECCS PUMP ROOMS  
COOLING SYSTEMS  
FIGURE 9.4-13  
(DWG. D-912-0616-00000)

DIESEL GENERATOR BUILDING VENTILATION SYSTEM SAFETY CLASS 3 SEISMIC CATEGORY 1



DESIGN DATA

NO.	CFM	H <sub>2</sub> O	°F	BY	CHK	REMARKS	REV
1	63,000	-	92	-	-	SUMMER	B
1	63,000	-	62	-	-	WINTER	B
2	16,078	-	-	-	-	EXHAUST	
3	3,998	-	-	-	-	EXHAUST	

- NOTES:
1. ALL DIFFERENTIAL SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED ON PANEL H13-P002.
  3. ALL ALARMS FROM THIS SYSTEM WILL ANNUNCIATE AS "FAN TROUBLE" ON PANEL H13-P002.
  4. TRANSFER SWITCH PROVIDES CONTROL TECH (RELATION OF H13-C003A AND H13-C003B) FROM H13-P002. PRE-ALARM FROM H13-P002 IS PROVIDED FOR SAFETY AND H13-P002 IS PROVIDED BY TEMPERATURE CONTROL OF H13-C003A AND H13-C003B.

(Rev. 14 10/05)

**PNPP PERRY NUCLEAR POWER PLANT**

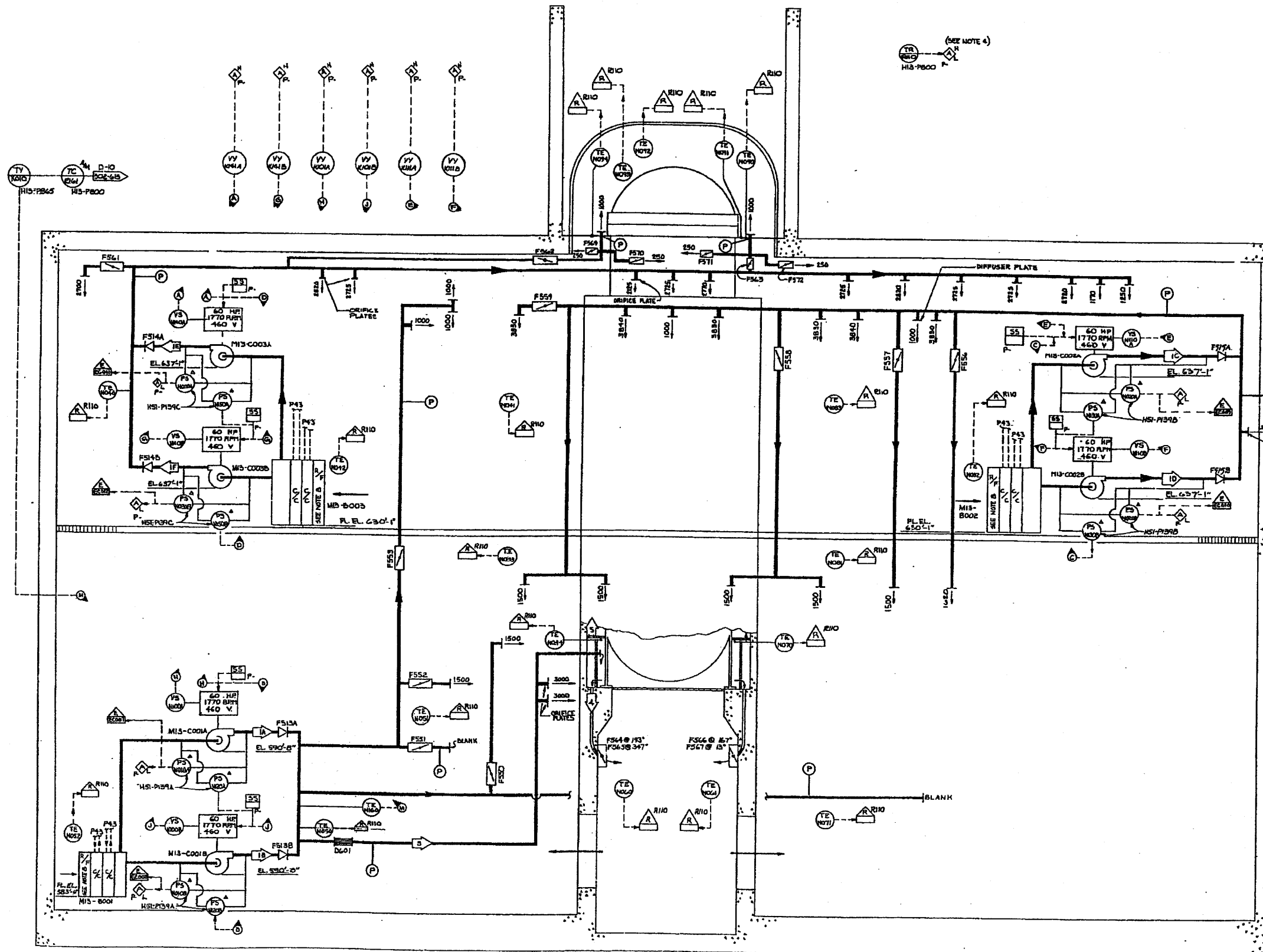
Diesel Generator Building Ventilation System

Figure 9.4-14  
(Dwg. D-912-619)

DESIGN DATA		
1	CFM @ 11770 RPM	BYREMARKS
2	HP @ 460 V	
3	27,000	
4	27,000	
5	1,000	

OPERATING DATA		
1A	15100	
1B	33400	
1C	34500	
1D	37400	
1E	34200	
1F	34200	



- NOTES:
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE CORRESPONDING FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED ON PANEL M13-7000 IN THE CONTROL ROOM.
  3. ALL ALARMS FROM THIS SYSTEM ARE ADMITTED ON PANEL M13-7000 AND AS "MISC TROUBLE" ON PANEL M13-7000.
  4. PANEL M13-7000 HAS A TEMPERATURE RECORDER THAT INDICATES, ALARMS, AND RECORDS THE FOLLOWING POINTS:
    - A. 9-INCH AIR TEMPERATURE
    - 12-ZONE TEMPERATURE
    - 3-DE-FUELING BELLONS TEMPERATURE
  5. THERMOCOUPLES IN DRYWELL HEAD REGION WILL BE CAPABLE OF BEING RESET DURING REFUELING OPERATION.
  6. ALL DIFFERENTIAL PRESSURE SWITCHES ARE LOCATED IN PANEL M13-7000.
  7. ALL AIR QUANTITIES ARE IN CFM @ 100" AND STANDARD PRESSURE.
  8. RELIEFING FILTERS MAY BE REQUIRED DURING NORMAL OPERATIONS. FILTERS SHALL BE INSTALLED IN INSTANT SITUATIONS WHEN WORK IS BEING PERFORMED IN THE DRYWELL AREA.

REFERENCES:  
 302-0613-00000 NUCLEAR CLOSED COOLING SYSTEM P15

(Rev. 12 1/03)

**PERRY NUCLEAR POWER PLANT**

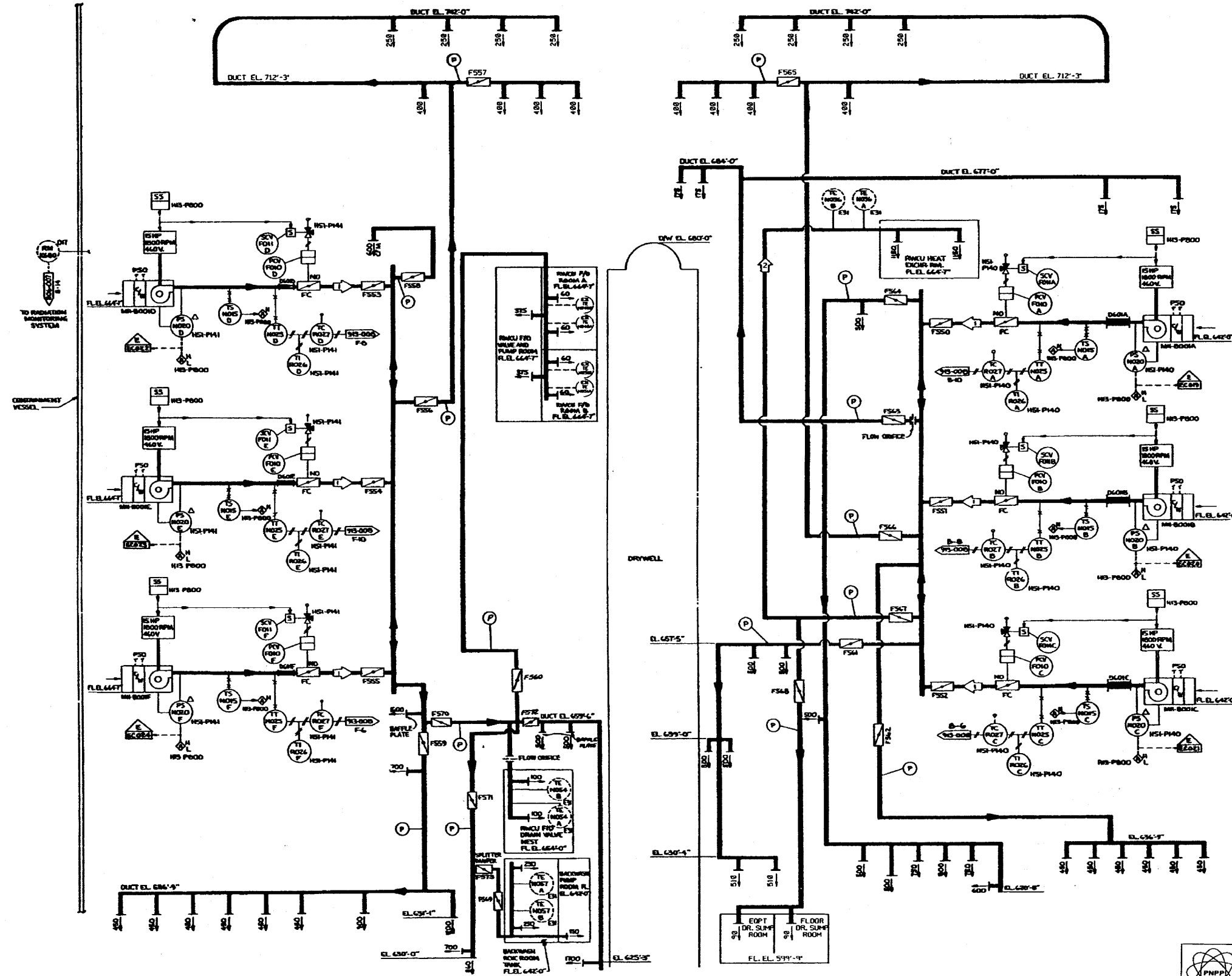
Drywell Cooling System

Figure 9.4-15

(Dwg. D-912-603)

DESIGN DATA				
NO.	CFM	BY	REMARKS	REV.
1	2,200			
2	2,300		NOTE 4	


OPERATING DATA	
FAN COMBINATION	CFM
AB	17400
BC	17500
AC	18500
DE	17500
DF	17400
EF	17500



- NOTES: -
1. ALL DIFFERENTIAL PRESSURE SWITCH AND TEMPERATURE SWITCH ALARMS ARE INTERLOCKED WITH THE CORRESPONDING FAN MOTOR STARTER AND PROVIDED WITH THE DELAY RELAY.
  2. ALL ALARMS ARE ANNUNCIATED ON THE HVAC CONTROL PANEL (H13-P600) AND ALSO ANNUNCIATED AS "HVAC TROUBLE" ON PANEL H13-P608.
  3. ALL AIR QUANTITIES ARE CFM.
  4. THIS FLOW HAS A LIMITED TOLERANCE OF +18%/-8%. REFERENCE CALCULATION H11-808.

- REFERENCES: -
- D-913-808 CONTAINMENT VESSEL CHILLED WATER SYSTEM P58
  - D-806-807 RADIATION MONITORING SYSTEM D17

(Rev. 13 12/03)

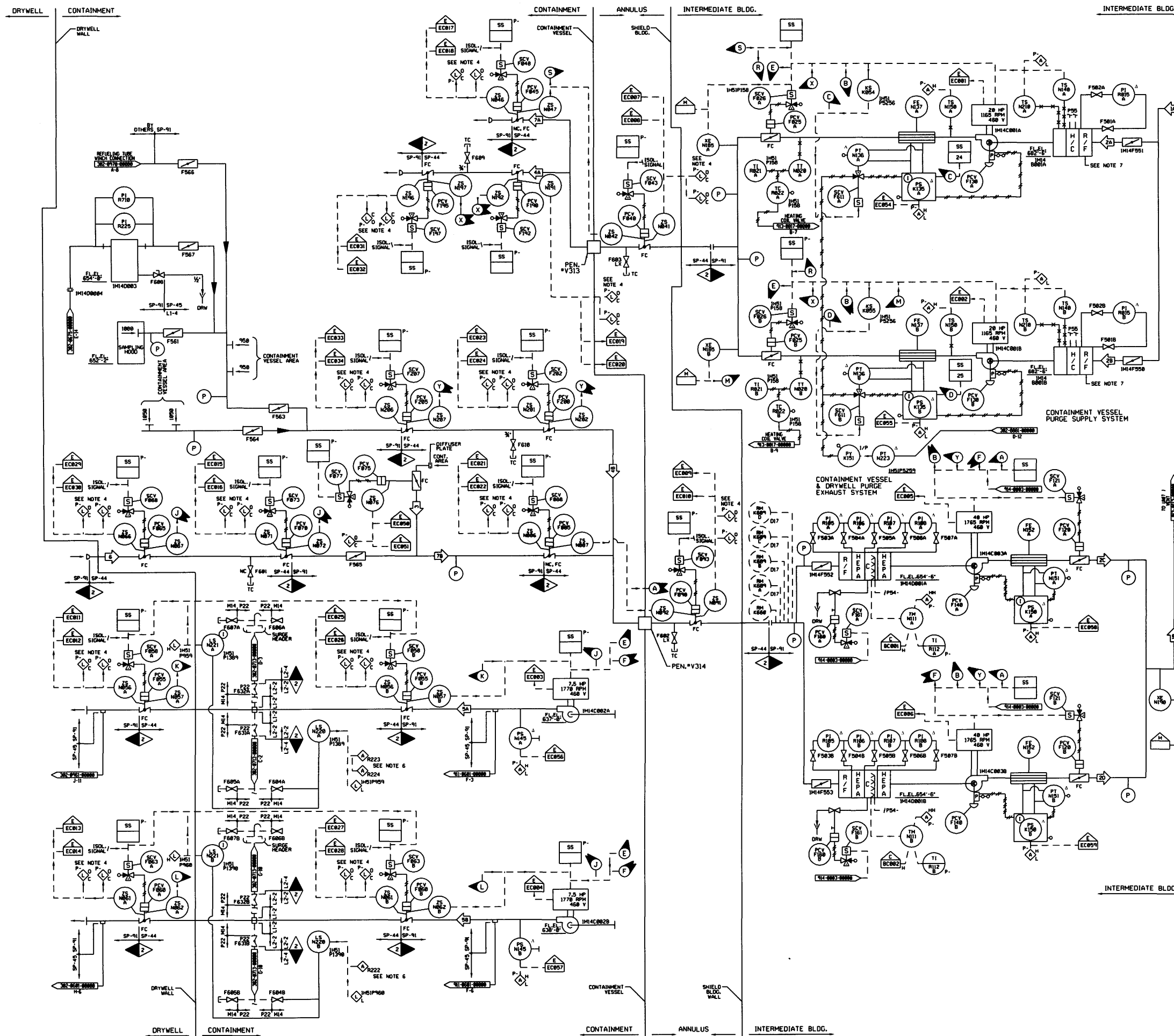


**PERRY NUCLEAR POWER PLANT**

Containment Vessel Cooling System

Figure 9.4-16

(Dwg. D-912-602)



DESIGN DATA (NORMAL)				
NO.	CFM	BY	REMARKS	REV
1A, 1B	5,000			
2A-2D	5,000			
3	0			
4A, 4B	5,000			
5	0			
6	0			
7A, 7B	0			

DESIGN DATA (SHUTDOWN)				OPERATING DATA	
NO.	CFM	BY	REMARKS	REV	CFM
1A	30,000				24,701
1B	30,000				24,832
2A	15,000			D	12,435
2B	15,000			D	12,286
2C	15,000			D	12,256
2D	15,000			D	12,576
3	5,000				4,891
4A	5,000			D	2,438
4B	5,000			D	3,998
5A	10,000				8,181
5B	10,000				8,188
6	20,000				16,744
7A	25,000				22,271
7B	25,000				20,835

- NOTES:
- ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  - ALL CONTROL SWITCHES, STATUS LIGHTS, ALARMS AND TEMPERATURE INDICATORS ARE LOCATED ON THE HVAC CONTROL PANEL (IHI3P888) AND ALSO ANNUNCIATED AS "HVAC TROUBLE" ON PANEL IHI3P888, EXCEPT AS NOTED.
  - ALL ALARMS ARE ANNUNCIATED ON THE HVAC CONTROL PANEL (IHI3P888) AND ALSO ANNUNCIATED AS "HVAC TROUBLE" ON PANEL IHI3P888, EXCEPT AS NOTED.
  - THESE LIGHTS ARE LOCATED ON THE CONTAINMENT ISOLATION STATUS PANEL (IHI3P881).
  - ALL AIR QUANTITIES ARE IN CFM.
  - FLASHING ALARM BEACON LOCATED AT ENTRANCE TO M14 PENETRATION AREA.
  - THE SUPPLY PLENUM ROUGHING FILTERS MAY BE REMOVED DURING WINTER OPERATING PERIODS WHEN ADVERSE SNOW CONDITIONS ARE EXPECTED OR HAVE OCCURRED WHICH COULD CAUSE EXCESSIVE SNOW LOADING ON THE FILTERS WHICH WOULD CREATE A LOW FLOW CONDITION. IF THE ROUGHING FILTERS ARE REMOVED THEY SHALL BE REINSTALLED WHEN WEATHER CONDITIONS PERMIT.

- REFERENCES:
- 302-0081-00000 REACTOR WATER RECIRCULATION SYSTEM B33
  - 302-0075-00000 REACTOR WATER CLEAN-UP FILTER/DEMIN SYS. U36
  - 302-0713-00000 MIXED BED DEMINERALIZER AND DISTRIBUTION SYSTEM MIXED BED EXCHANGER, STORAGE AND NORTH ZONE DISTRIBUTION P22
  - 302-0713-00000 CONTAINMENT ATMOSPHERE MONITORING SYSTEM D23
  - 302-0741-00000 LEAK DETECTION SYSTEM E21
  - 302-0778-00000 INCLUDING FUEL TRANSFER SYS. F42
  - 000-0000-00000 PLANT RADIATION MONITORING - K800, ALPHA, XE800
  - 000-0024-00000 PLANT RADIATION MONITORING - K809
  - 01-0001-00000 REACTOR BUILDING DRAINING P56
  - 013-0013-00000 VENTILATION SYSTEM M23
  - 013-0017-00000 HOT WATER HEATING SYSTEM P55
  - 01-0003-00000 FIRE SERVICE WATER P54

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

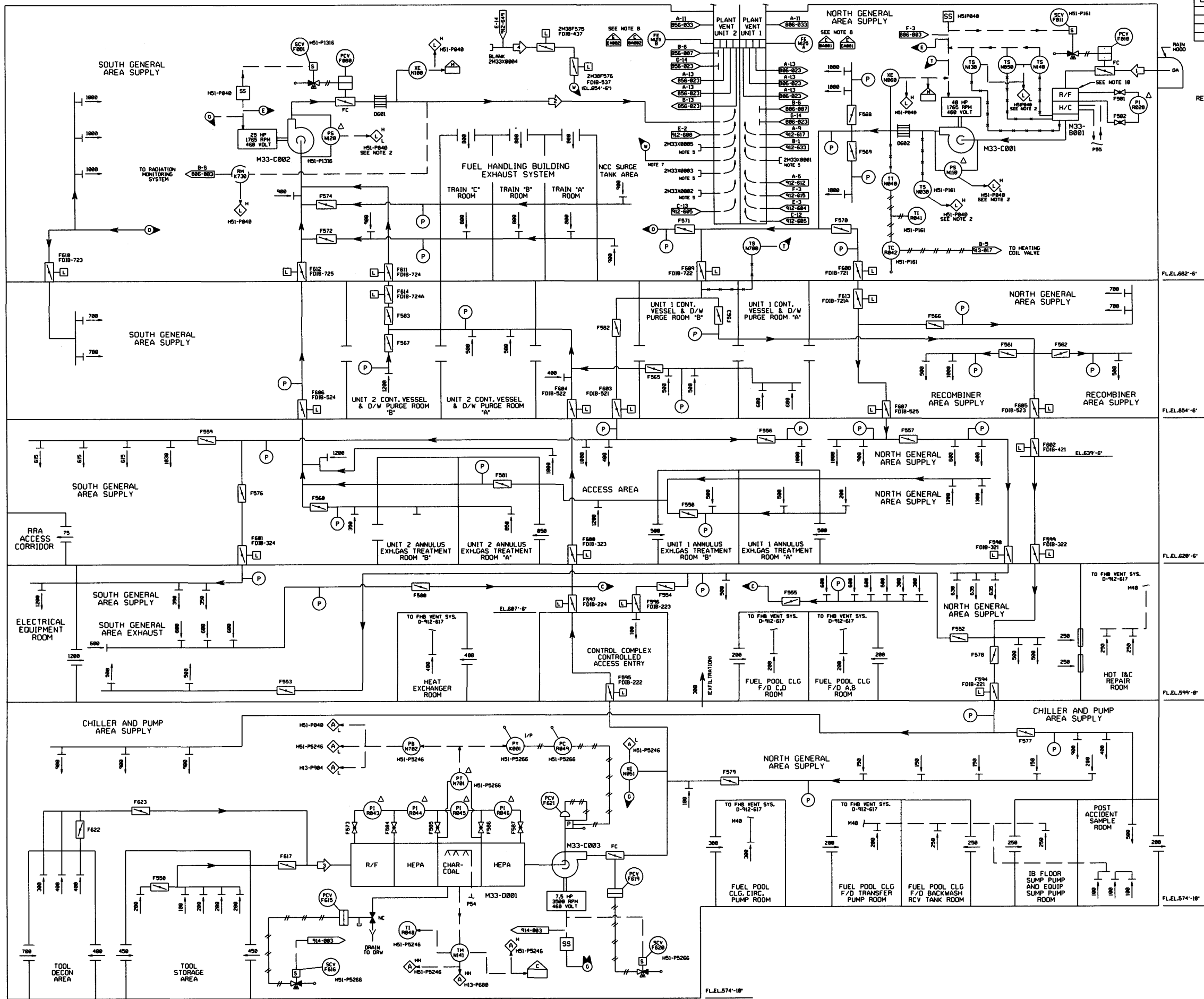
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CONTAINMENT VESSEL  
AND DRYWELL PURGE  
FIGURE 9.4-17  
(DWG. D-912-0604-00000)



DESIGN DATA				
NO.	CFM	BY	CHKD	REV
1	30000	NOTE 11		
2	27400			
3	2600			
4	12000			

- REFERENCES:
- D-886-883 PLANT RAD.MON.L728K728X818 SYS.D17
  - D-886-887 PLANT RAD.MON.L658K728X770 SYS.D17
  - D-886-823 PLANT RAD.MON.AUTOMATIC ISOMETRIC SAMPLING SYSTEM D19
  - D-886-832 POST ACCIDENT MONITORING SYSTEM D19
  - D-886-833 POST ACCIDENT RADJON. SYSTEM D19
  - D-886-834 POST ACCIDENT MONITORING SYS. D19
  - D-886-835 POST ACCIDENT RADJON. SYSTEM D19
  - D-912-884 CONTM.VESSEL & DRYWELL PURGE SYS. M4
  - D-912-886 REACTOR BUILDING ANNULEX EXHAUST GAS TREATMENT MISC. EQUIP. AREAS HVAC SYSTEM M21
  - D-912-812 RADWASTE BLDG. VENT. SYSTEM M31
  - D-912-815 AUXILIARY BLDG. VENT. SYSTEM M38
  - D-912-817 FUEL HANDLING AREA VENT. SYSTEM M40
  - D-912-833 SHMKE VENTING SYSTEM/MISC. ELECTRICAL AREAS M41
  - D-912-649 SERVICE BUILDING HOT MACHINE SHOP HVAC SYSTEM
  - D-912-817 HOT WATER HEATING SYSTEM P55

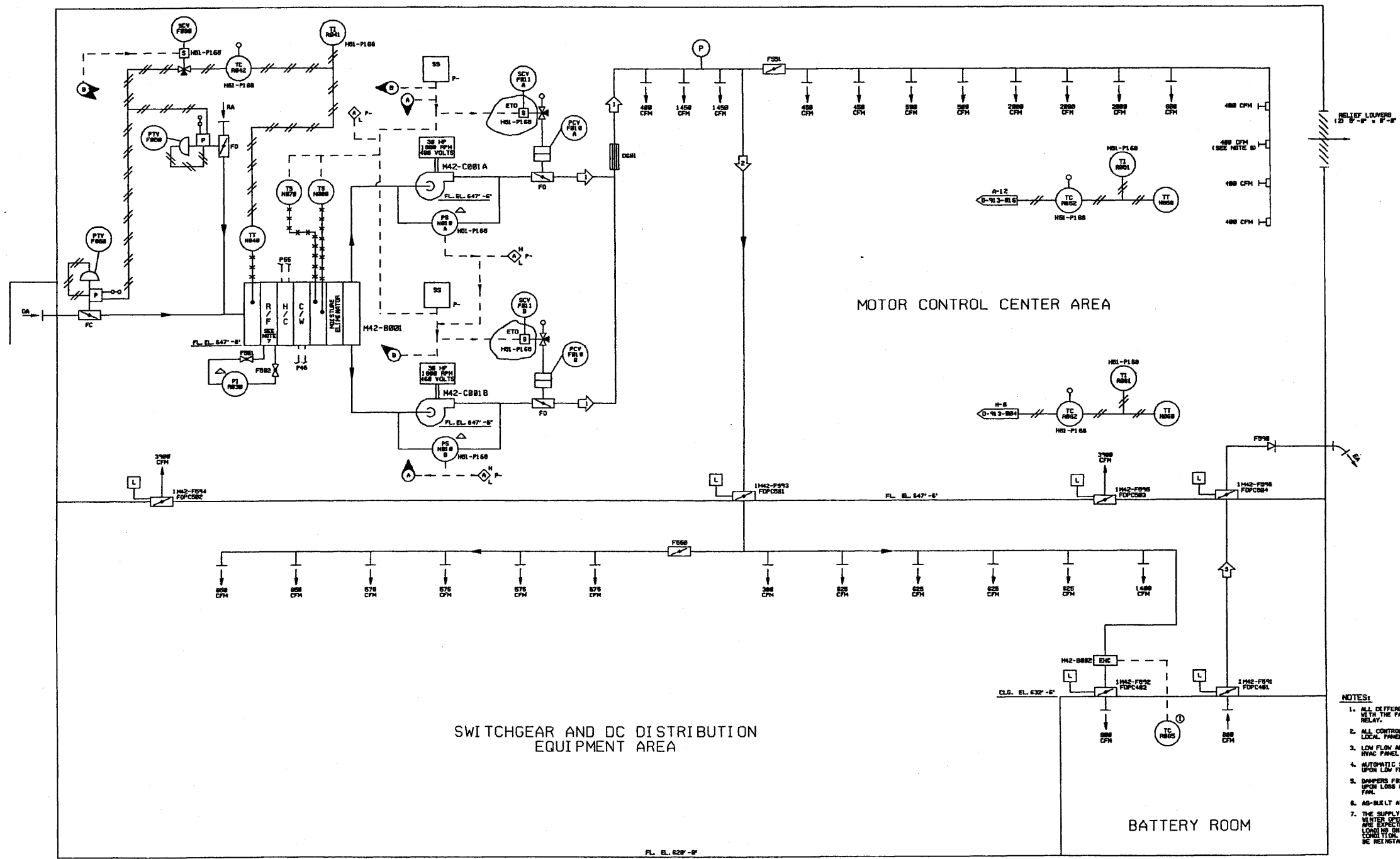


- NOTES:
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  2. FAN LOW FLOW OR SUPPLY AIR TEMP HIGH OR LOW ANNUNCIATES AS TO ROOM TROUBLE ON PANEL M33-P688 IN BOTH CONTROL ROOMS.
  3. HIGH RADIATION AND SMOKE ALARMS ARE ALSO INDICATED ON THE LOCAL PANEL H51-P848 WITH RED INDICATING LIGHTS.
  4. ALL AIR QUANTITIES ARE IN CFM.
  5. THIS IS A UNIT 2 SYSTEM WHICH IS ISOLATED FROM THE PLANT VENT FOR UNIT 1 OPERATION. SHEET METAL BLANKS ARE INSTALLED AND IDENTIFIED WITH THE PREFIX "2433".
  6. ALL FIRE DAMPERS ARE APPLICABLE TO THE AUGMENTED QA PROGRAM.
  7. THIS IS A UNIT 2 SYSTEM (2433-A PORTION OF WHICH IS REQUIRED FOR UNIT 1 OPERATION). A SHEET METAL BLANK IS INSTALLED UPSTREAM OF THE M54 SYSTEM EXHAUST AIR FLOW ALLOWING M54 EXHAUST AIR TO REACH THE PLANT VENT WHILE ISOLATING THE 2433 SYSTEM FROM THE PLANT VENT. THE SHEET METAL BLANK 2433X8004 IS INSTALLED.
  8. COMPUTER POINTS ACTUALLY OBTAINED FROM INSTRUMENTATION WITHIN H51-P149 & 2431-P149 ON D-886-823 & D-886-823, BUT ARE SHOWN HERE FOR CLARITY.
  9. THE CHARCOAL ADSORBER BANK WITHIN THE M33-0801 SUB-EXHAUST PLENUM IS NOT FOR FILTERING GASEOUS IODINE AND THEREFORE SHALL NOT COMPLY WITH RG L148.
  10. THE SUPPLY PLENUM ROUGHING FILTERS MAY BE REMOVED DURING WINTER OPERATING PERIODS WHEN ADVERSE SNOW CONDITIONS ARE EXPECTED, OR HAVE OCCURRED, WHICH COULD CAUSE SNOW LOADING ON THE FILTER, WHICH COULD CREATE A LOW FLOW CONDITION IF THE ROUGHING FILTERS ARE REMOVED. THEY SHALL BE REINSTALLED WHEN WEATHER CONDITIONS PERMIT.
  11. AN ADDITIONAL 75 CFM SUPPLY IS PROVIDED TO M-520 PER DCP 99-0048. THE INCREASE IN TOTAL SUPPLY FLOW IS INSIGNIFICANT AND THEREFORE NOT REFLECTED IN THE TOTAL SUPPLY FAN FLOW.
  12. FAN IXC40081 ONLY OPERATES WHEN TEMPERATURE IS ABOVE THE SETPOINT. OUR DEC. F.A. FAN IS RATED FOR 1300 CFM @ 28" / "8L.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

INTERMEDIATE BUILDING  
VENTILATION SYSTEM  
FIGURE 9.4-18  
(DWG. D-912-0613-00000)



DESIGN DATA					
ID	CFM	BY	CHKD	REMARKS	REV
1	2280				B
2	0600				B
3	000				B

- NOTES:**
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES AND STATUS LIGHTS ARE LOCATED ON THE LOCAL PANEL, H42-P041, EXCEPT WHERE NOTED.
  3. LOW FLOW ALARM FROM EITHER FAN WILL ANNUNCIATE ON THE SYNC PANEL, H42-P086 IN THE CONTROL ROOM.
  4. AUTOMATIC SWITCH OVER FEATURE TO START THE STANDBY FAN UPON LOW FLOW CONDITION OF THE OPERATING FAN IS PROVIDED.
  5. DAMPERS FV18A & B ARE FALL OPEN ON LOSS OF AIR AND CLOSE UPON LOSS OF SYSTEM POWER OR SHUTDOWN OF ASSOCIATED FAN.
  6. AS-BUILT AT 298 CFM.
  7. THE SUPPLY ROUGHING FILTERS MAY BE REMOVED DURING WINTER OPERATING PERIODS WHEN ADVERSE SNOW CONDITIONS ARE EXPECTED OR HAVE OCCURRED WHICH COULD CAUSE SNOW LOADING ON THE FILTERS WHICH WOULD CREATE A LOW FLOW CONDITION. IF THE ROUGHING FILTERS ARE REMOVED THEY SHALL BE REINSTALLED WHEN WEATHER CONDITIONS PERMIT.

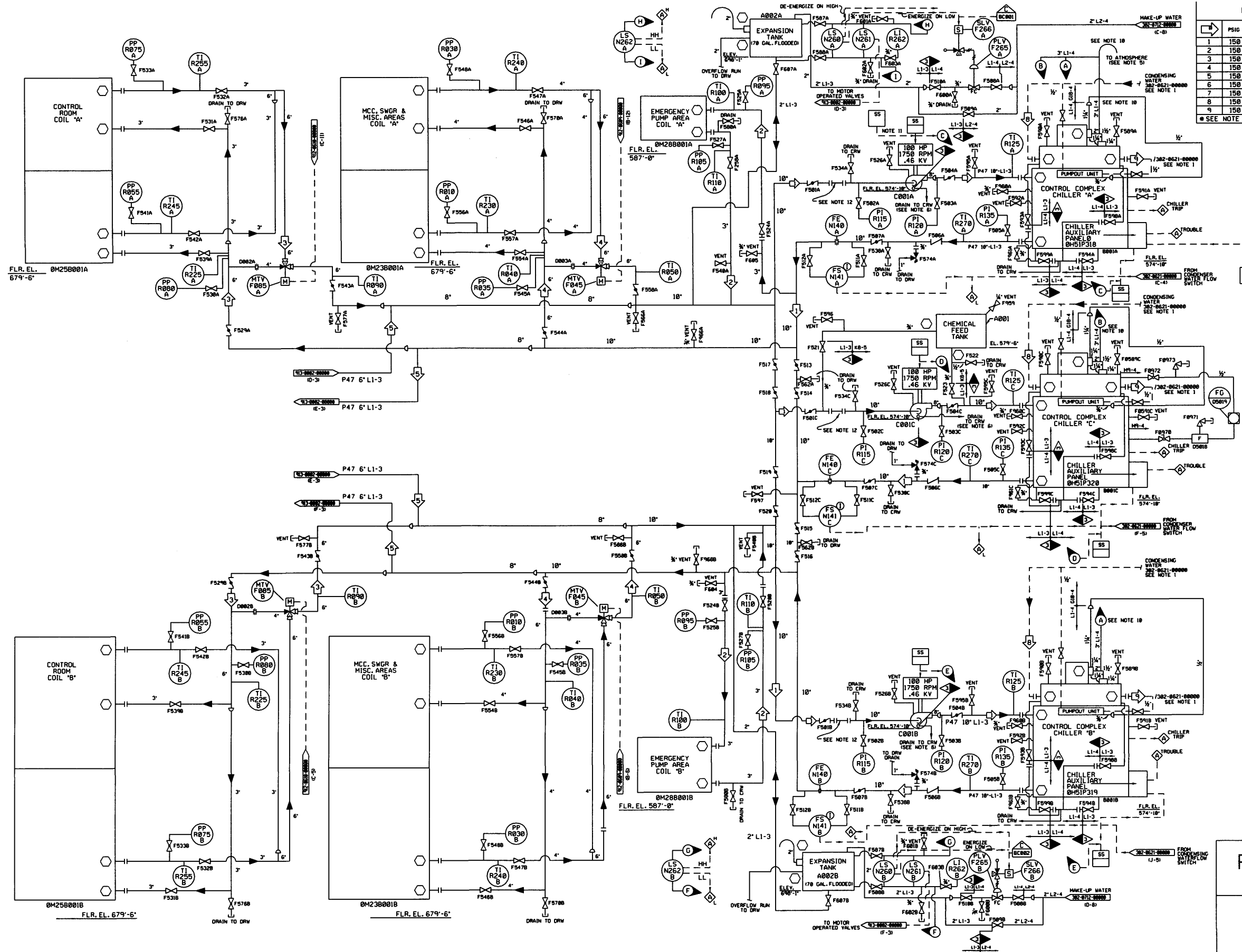
- REFERENCES:**
- D-913-884 TURBINE BUILDING CHILLED WATER SYSTEM, P46
  - D-913-816 BUILDING HEATING SYSTEM, P85

(Rev. 12 1/03)

**PERRY NUCLEAR POWER PLANT**

Turbine Power Complex  
Ventilation System

Figure 9.4-19  
(Dwg. D-912-618)



OPERATING DATA \*

#	PSIG	GPM	°F	BY	REMARKS	REV
1	150	1513	55			
2	150	108	55		NOTE 8	
3	150	400	55			
4	150	500	55			
5	150	505	55			
6	150	420	55			
7	150	85	55			
8	150	1700	95			
9	150	1700	106			

\* SEE NOTE 9

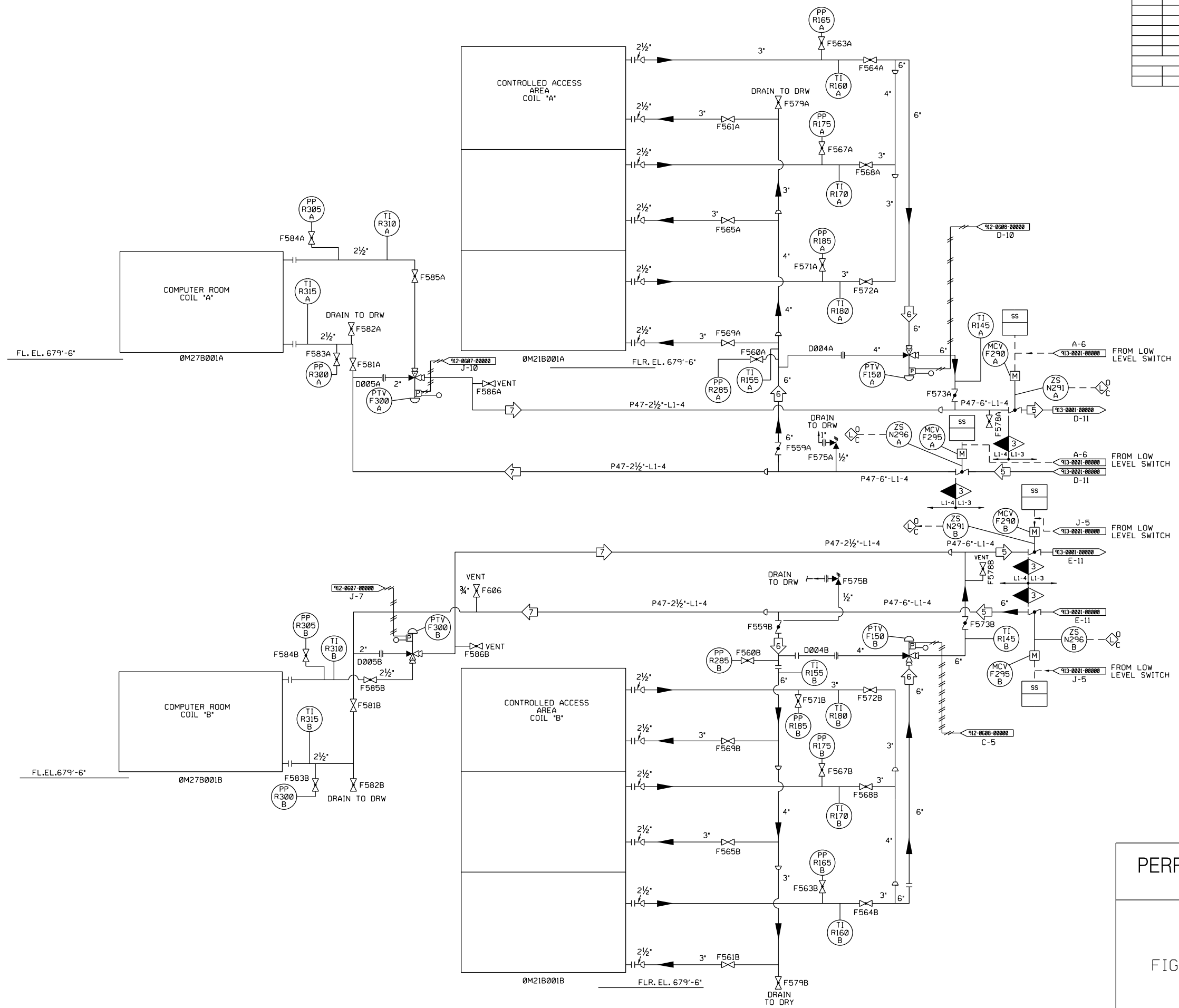
- NOTES:
- CONDENSER WATER SUPPLY TO THE "C" CHILLER IS FROM NUCLEAR CLOSED COOLING SYSTEM FOR NORMAL OPERATION & SHUTDOWN. CONDENSER WATER SUPPLY TO THE "A" & "B" CHILLERS IS FROM EMERGENCY CLOSED COOLING SYSTEM FOR ALL OPERATING MODES, INCLUDING LOCA & BLACKOUT.
  - "A" & "B" OPERATING TRAINS CHILLERS & CHILLED WATER PUMPS START (RESTART) ON A LOCA/LOOP SIGNAL. TRAINS ARE MANUALLY STARTED FROM THE CONTROL ROOM FOR NORMAL OPERATION.
  - CONTROL ROOM SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED IN THE CONTROL ROOM COMMON HVAC PANEL 0HSIP3041.
  - ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS "COMMON HVAC P504" ON PANEL 0HSIP3088.
  - REFRIGERANT RELIEF VALVE CONNECTION TO ATMOSPHERE.
  - PUMP SHAFT SEAL LEAKAGE TO BE PIPED TO DRAIN.
  - MAX. OPERATING TEMPERATURE IS 95 °F FOR THE NORMALLY OPERATING LOOP. THE CHILLED WATER SUPPLY TO EACH COMPONENT COOLING COILS IS 45 °F AND THE CHILLED WATER RETURN IS 55 °F. FOR THE NON-OPERATING LOOP, THE SYSTEM IS AT AN AMBIENT TEMPERATURE OF 80 °F TO 104 °F DURING NORMAL PLANT OPERATION.
  - THE DESIGN CONDITIONS FOR ALL SAFETY RELATED PIPING ARE 150 PSIG & 120 °F.
  - THE LI-4 REFRIGERANT ATMOSPHERIC VENT TO BE SEISMICALLY SUPPORTED.
  - PROVIDES CONTROL ROOM ISOLATION & REMOTE MANUAL CONTROL OF #P470000A & #P470000B FOR APPENDIX A REMOTE SHUTDOWN METHOD A. #P470000A TRANSFER SWITCH LOCATED ON SWITCH GEAR #F108L. #P470000B TRANSFER SWITCHES LOCATED ON SWITCH GEAR #E1107 & ON PANEL 0HSIP318.
  - TEMPORARY STRAINERS USED FOR START UP ONLY, ARE REMOVED FOR PLANT OPERATION.
  - ALL STANDARD ROOT VALVE CONFIGURATIONS FOR NORMALLY CLOSED VENT, DRAIN & INSTRUMENTATION LINES SHALL BE CAPPED.
  - "C" CHILLER AND CHILLED WATER PUMP WILL TRIP ON LOCA/LOOP SIGNAL AND WILL NOT AUTOMATICALLY RESTART.

- REFERENCES:
- 912-0604-00000 MCC, SWGR. & MISC. ELEC. EQUIP. AREAS HVAC SYSTEM & BATTERY RM #C2/24
  - 912-0610-00000 CONTROL ROOM HVAC & EMERGENCY RECIRCULATION SYSTEMS #C2/26
  - 912-0623-00000 EMERGENCY CLOSED COOLING PUMP COOLING SYSTEM #C2
  - 302-0621-00000 EMERGENCY CLOSED COOLING P42
  - 302-0712-00000 MAKE-UP WATER - TWO BED DEMIN STORAGE & DIST. SYSTEM #P1
  - 913-0002-00000 CONTROL COMPLEX CHILLED WATER SYSTEM DIAGRAM P47

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081  
  
**CONTROL COMPLEX**  
**CHILLED WATER**  
 FIGURE 9.4-20 (SHEET 1 OF 2)  
 (DWG. D-913-0001-00000)

OPERATING DATA						
#	PSIG	GPM	°F	BY	REMARKS	REV
SEE 913-0001-00000						



NOTE:  
 1. CONTROL SWITCHES AND ALARMS ARE ALL LOCATED ON THE HVAC PANEL IN CONTROL ROOM, UNIT 1 (0413P904)

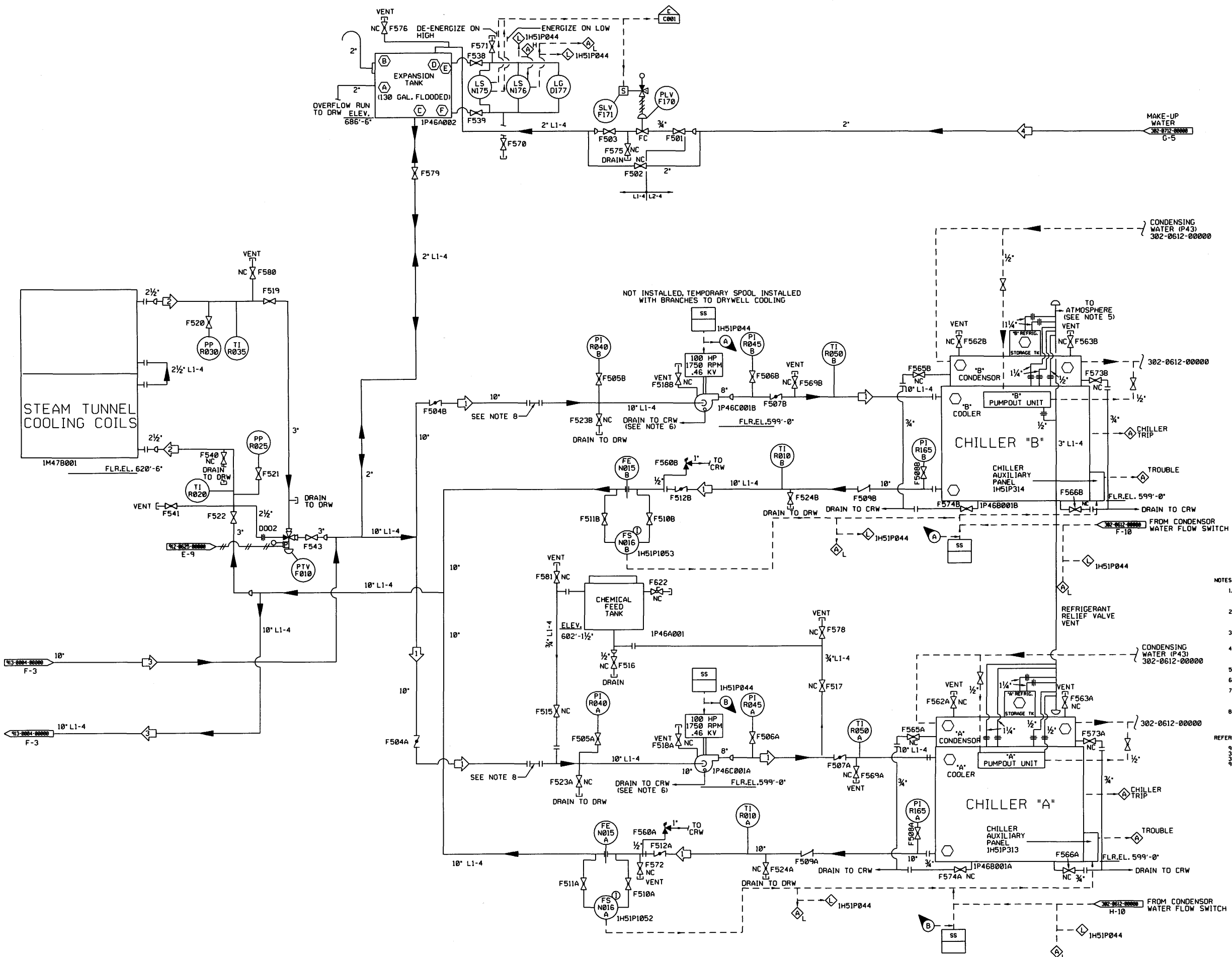
REFERENCES:  
 912-0608-00000 CONTROLLED ACCESS AND MISC EQUIPMENT AREAS M21  
 912-0607-00000 COMPUTER ROOMS HVAC SYSTEM M27  
 913-0001-00000 CONTROL COMPLEX CHILLED WATER SYSTEM DIAGRAM (P47)

(REV. 22 10/2021)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

CONTROL COMPLEX  
 CHILLED WATER  
 FIGURE 9.4-20 (SHEET 2 OF 2)  
 (DWG. D-913-0002-00000)

OPERATING DATA						
#	PSIG	OPH	F	BY	REMARKS	REV
1	150	1972	55			
2	150	120	55			
3	150	1852	55			
4	150	25	85			



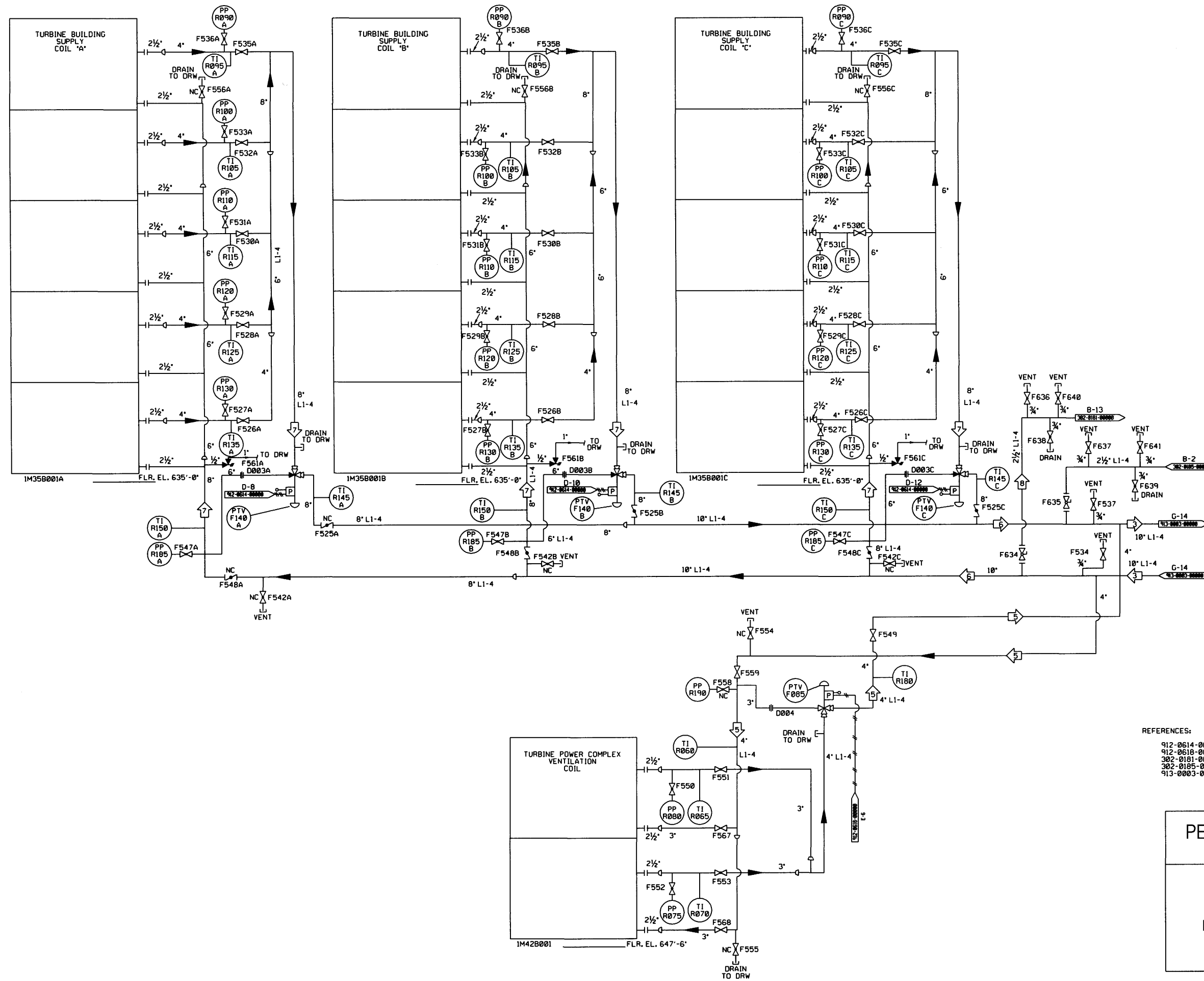
- NOTES:
1. ALL FLOW SWITCH ALARMS ARE INTERLOCKED WITH PUMP MOTOR STARTER AND PROVIDED WITH A TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED ON PANEL IH51P044, EXCEPT WHERE NOTED.
  3. CHILLED WATER PUMPS STATUS LIGHTS ARE LOCATED IN THE LOCAL PANEL IH51P044.
  4. ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS "HVAC TROUBLE" ON PANEL IH51P044 IN THE CONTROL ROOM.
  5. REFRIGERANT RELIEF VALVE CONNECTION TO ATMOSPHERE.
  6. PUMP SHAFT SEAL LEAKAGE TO BE PIPED TO DRAIN.
  7. ALL STANDARD ROOT VALVE CONFIGURATIONS FOR NORMALLY CLOSED VENT, DRAIN AND INSTRUMENT LINES SHALL BE CAPPED.
  8. TEMPORARY STRAINERS USED FOR START-UP ONLY AND REMOVED FOR PLANT OPERATION.
- REFERENCES:
- 912-0625-00000 STEAM TUNNEL COOLING SYSTEM P47
  - 302-0612-00000 NUCLEAR CLOSED COOLING SYSTEM P43
  - 302-0712-00000 MAKE-UP WATER - TWO BED STORAGE & DIST. SYSTEM P21
  - 913-0004-00000 TURBINE BUILDING CHILLED WATER P46

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

**TURBINE BUILDING  
CHILLED WATER**  
FIGURE 9.4-21 (SHEET 1 OF 2)  
(DWG. D-913-0003-00000)

OPERATING DATA						
#	PSIG	GPM	°F	BY	REMARKS	REV
1						
2						
3	150	1852	55			
4						
5	150	300	55			
6	150	1512	55			
7	150	756	55			
8	150	40	55			



- REFERENCES:
- 912-0614-00000 TURBINE BUILDING VENTILATION M35
  - 912-0618-00000 TURBINE POWER COMPLEX VENTILATION M42
  - 302-0181-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 302-0185-00000 TURBINE PLANT SAMPLING SYSTEM P33
  - 913-0003-00000 TURBINE BUILDING CHILLED WATER P46

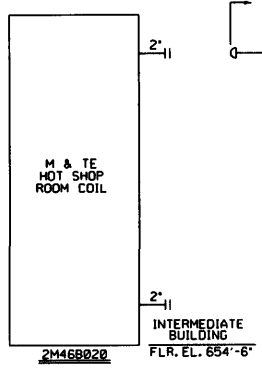
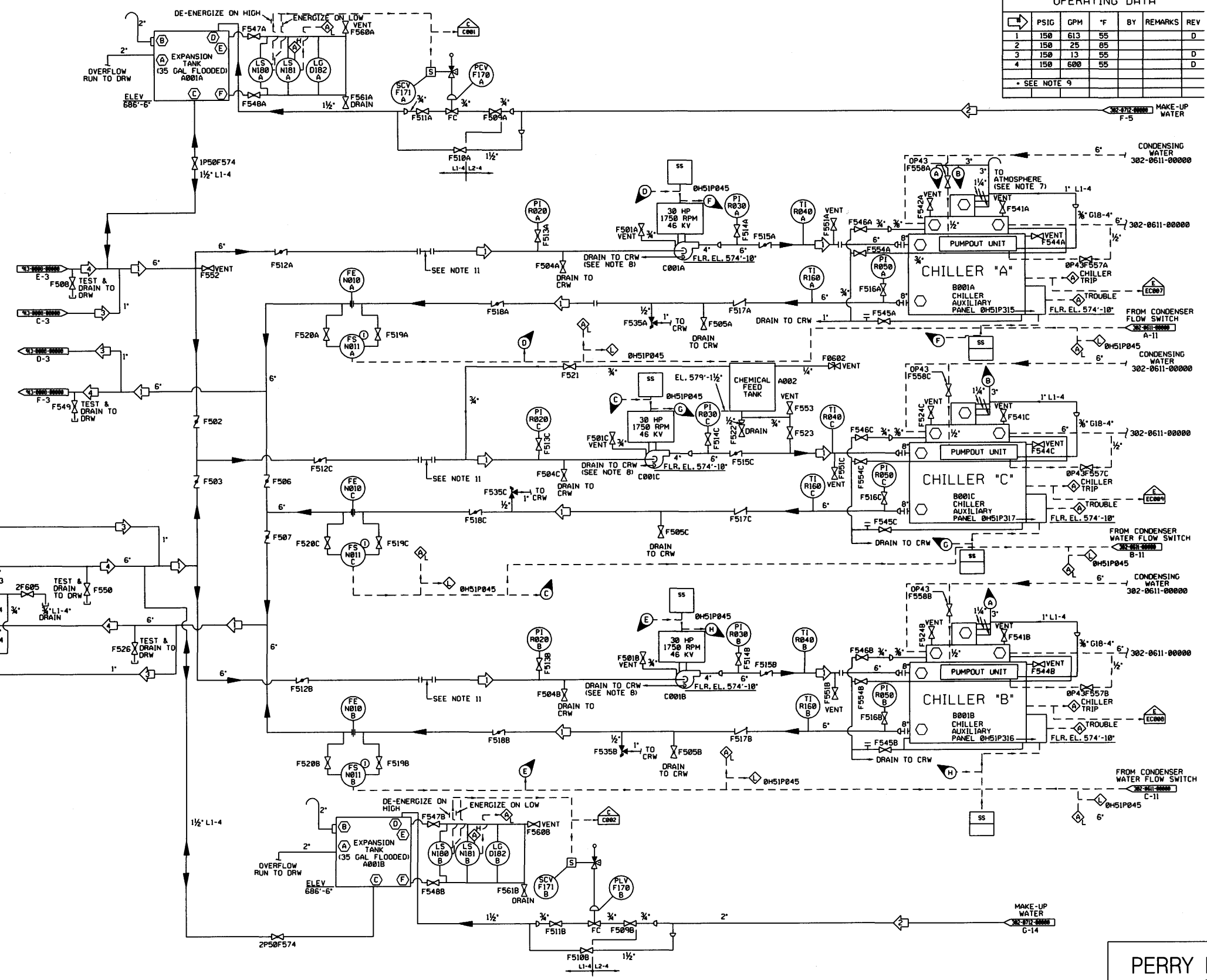
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

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TURBINE BUILDING  
CHILLED WATER  
FIGURE 9.4-21 (SHEET 2 OF 2)  
(DWG. D-913-0004-00000)

OPERATING DATA						
#	PSIG	GPM	°F	BY	REMARKS	REV
1	150	613	55			D
2	150	25	85			D
3	150	13	55			D
4	150	600	55			D
- SEE NOTE 9						



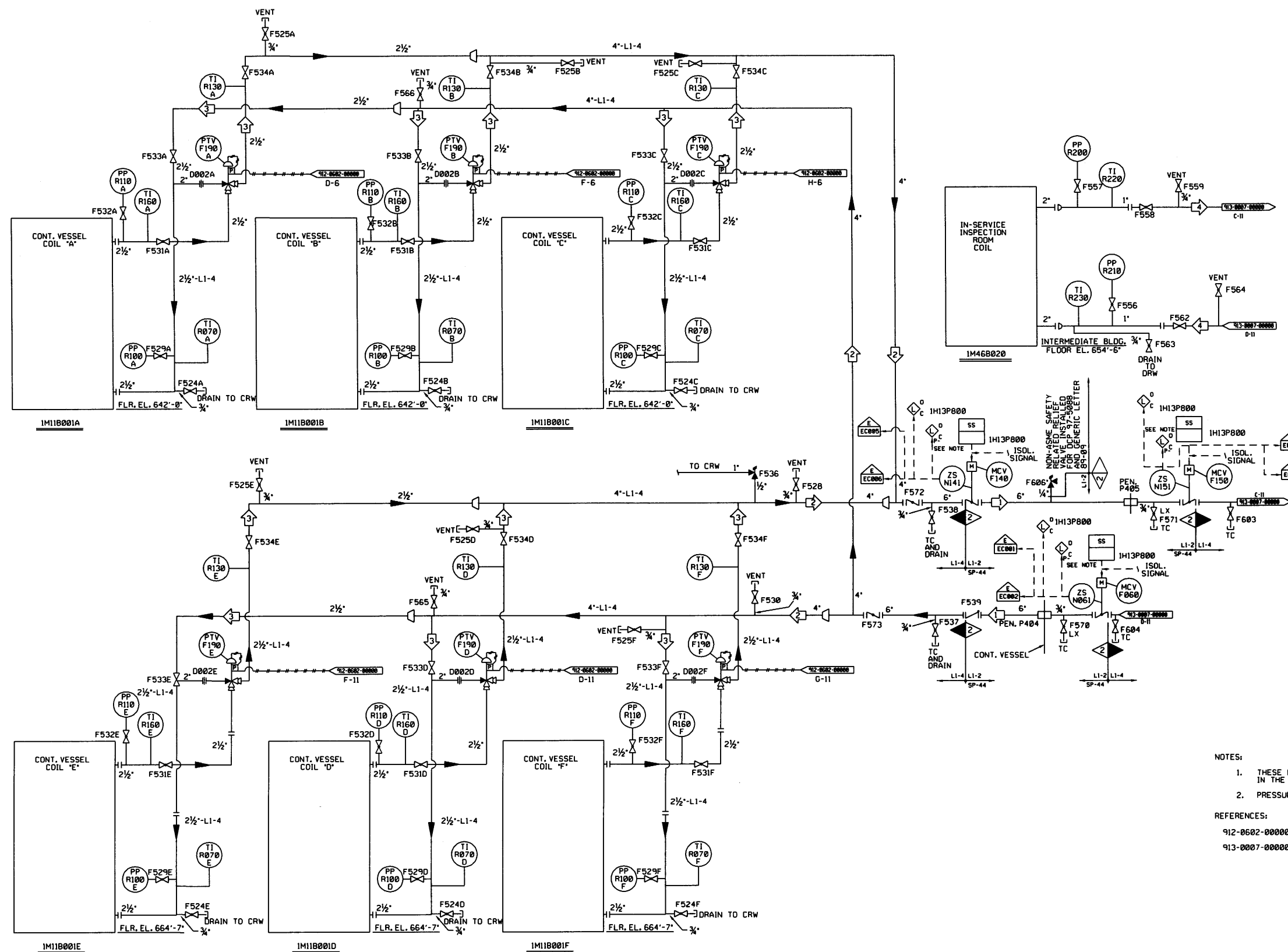
- NOTES:
- ALL FLOW SWITCH ALARMS ARE INTERLOCKED WITH PUMP MOTOR STARTER AND PROVIDED WITH TIME DELAY RELAY.
  - ALL CONTROL SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED ON PANEL 0413 P084 EXCEPT WHERE NOTED.
  - CHILLED WATER PUMP STATUS LIGHTS ARE ALSO LOCATED ON PANEL 1H3P088.
  - STATUS LIGHTS FOR CHILLERS A & C ARE ALSO LOCATED ON PANEL 1H3P088.
  - STATUS LIGHTS FOR CHILLERS B & C ARE ALSO LOCATED ON PANEL 2H2P088.
  - ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS COMMON HVAC PUMP ON PANEL 1H3P088.
  - REFRIGERANT RELIEF VALVE CONNECTION TO ATMOSPHERE.
  - PUMP SHAFT SEAL LEAKAGE TO BE PIPED TO DRAIN.
  - PRESSURE INDICATED IS PIPE DESIGN PRESSURE.
  - ALL STANDARD ROOT VALVE CONFIGURATIONS FOR NORMALLY CLOSED VENT, DRAIN AND INSTRUMENTATION LINES SHALL BE CAPPED.
  - TEMPORARY STRAINERS USED FOR START-UP ONLY ARE REMOVED FOR PLANT OPERATION.
  - DELETED
  - DELETED
  - (BS) UNIT 1/2 BOUNDARY SEPARATION, FOR DETAILS SEE TECHNICAL ASSIGNMENT FILE 01003.
  - (LB) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED RETIRED IN PLACE SSC'S, FOR DETAILS SEE ECP-14-0488.
- REFERENCES:
- 302-0611-00000 NUCLEAR CLOSED COOLING P-43.
  - 302-0712-00000 MAKE-UP WATER-TWO SED STORAGE & DIST. SYSTEM P-21.
  - 413-0000-00000 CONT. VESSEL CHILLED WATER SYSTEM P08 UNIT #1.

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
10 CENTER RD., PERRY, OHIO 44081

CONTAINMENT VESSEL  
CHILLED WATER SYSTEM  
FIGURE 9.4-22 (SHEET 1 OF 2)  
(DWG. D-913-0007-00000)

OPERATING DATA						
#	PSIG	GPM	'F	BY	REMARKS	REV
1	150	600	55			
2	150	300	55			
3	150	100	55			
4	150	13	55			
* SEE NOTE 2						



NOTES:

1. THESE LIGHTS ARE LOCATED ON A STATUS PANEL IN THE CONTROL ROOM.
2. PRESSURE INDICATED IS PIPE DESIGN PRESSURE.

REFERENCES:

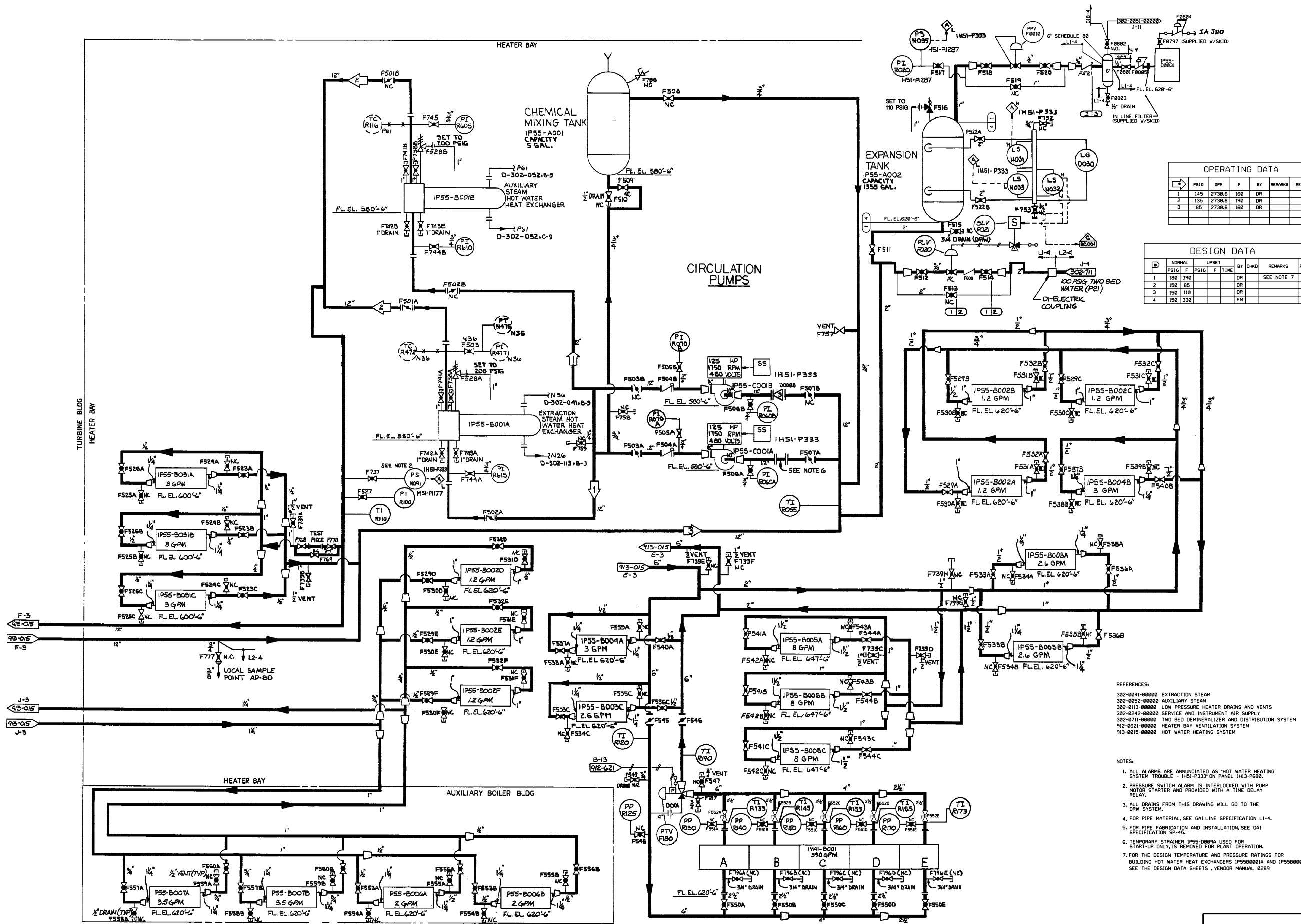
- 912-0602-00000 CONTAINMENT VESSEL COOLING SYSTEM M11
- 913-0007-00000 CONTAINMENT VESSEL CHILLED WATER SYSTEM P50

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

CONTAINMENT VESSEL  
CHILLED WATER SYSTEM  
FIGURE 9.4-22 (SHEET 2 OF 2)  
(DWG. D-913-0008-00000)





OPERATING DATA

ID	PSIG	GPM	F	BY	REMARKS	REV
1	145	2730.6	160	DR		
2	135	2730.6	190	DR		
3	85	2730.6	160	DR		

DESIGN DATA

ID	NORMAL PSIG	UPSET PSIG	F	TIME	BY	CHKD	REMARKS	REV
1	180	390					DR	SEE NOTE 7
2	150	85					DR	
3	150	110					DR	
4	150	330					FM	

REFERENCES:

- 382-0041-00000 EXTRACTION STEAM
- 382-0052-00000 AUXILIARY STEAM
- 382-0113-00000 LOW PRESSURE HEATER DRAINS AND VENTS
- 382-0242-00000 SERVICE AND INSTRUMENT AIR SUPPLY
- 382-0711-00000 TWO BED DEMINERALIZER AND DISTRIBUTION SYSTEM
- 912-0621-00000 HEATER BAY VENTILATION SYSTEM
- 913-0015-00000 HOT WATER HEATING SYSTEM

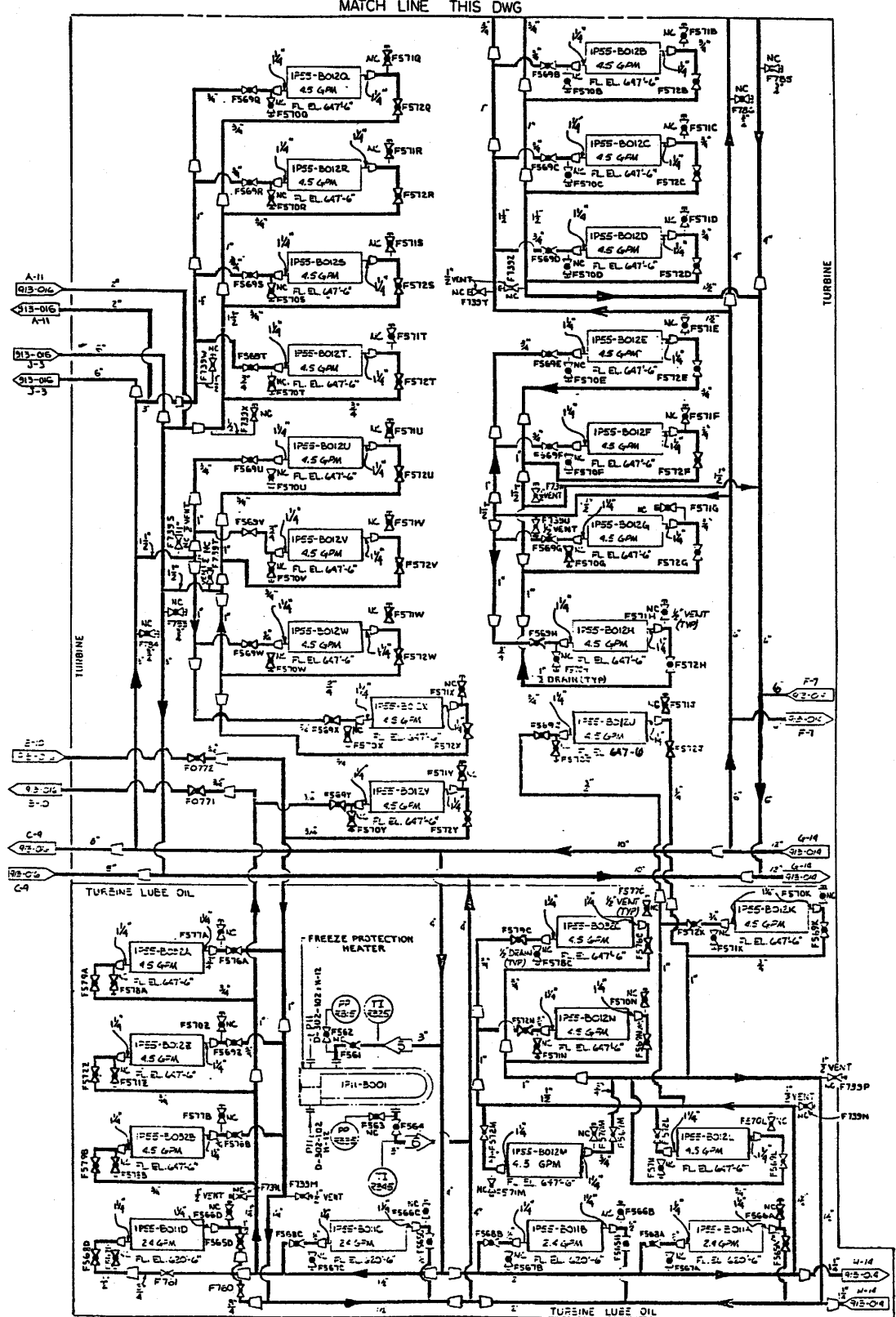
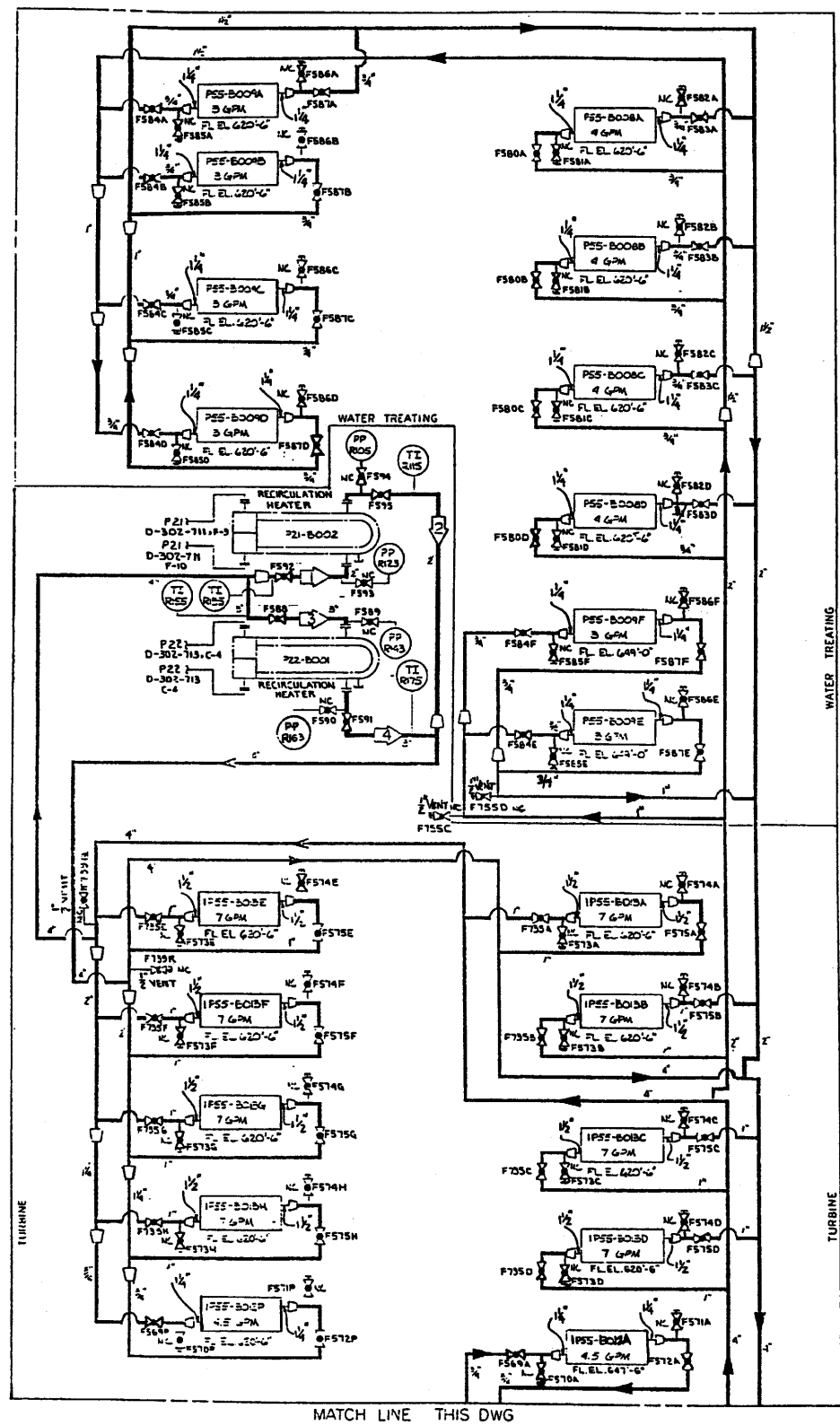
NOTES:

- ALL ALARMS ARE ANNUNCIATED AS "HOT WATER HEATING SYSTEM TROUBLE - IH51-P333" ON PANEL IH13-P680.
- PRESSURE SWITCH ALARM IS INTERLOCKED WITH PUMP MOTOR STARTER AND PROVIDED WITH A TIME DELAY RELAY.
- ALL DRAINS FROM THIS DRAWING WILL GO TO THE DRAIN SYSTEM.
- FOR PIPE MATERIAL, SEE GAI LINE SPECIFICATION LI-4.
- FOR PIPE FABRICATION AND INSTALLATION, SEE GAI SPECIFICATION SP-45.
- TEMPORARY STRAINER IP55-0809A USED FOR START-UP ONLY, IS REMOVED FOR PLANT OPERATION.
- FOR THE DESIGN TEMPERATURE AND PRESSURE RATINGS FOR BUILDING HOT WATER HEAT EXCHANGERS IP55B0001A AND IP55B0001B SEE THE DESIGN DATA SHEETS, VENDOR MANUAL 0289

(Rev. 17 10/11)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

Hot Water Heating System,  
 Heater Bay and Auxiliary  
 Boiler Building, Unit 1  
 Figure 9.4-23 (Sheet 1 of 3)  
 (DWG. D-913-0014-00000)



OPERATING DATA

PSIG	GPM	F	BY	REMARKS
1	110	157.5	150	DR
2	108	157.5	150	DR
3	109	150	150	DR
4	106	150	150	DR
5	105	150	150	DR
6	102	150	150	DR

DESIGN DATA

PSIG	F	PSIG	F	TIME	BY	REMARKS

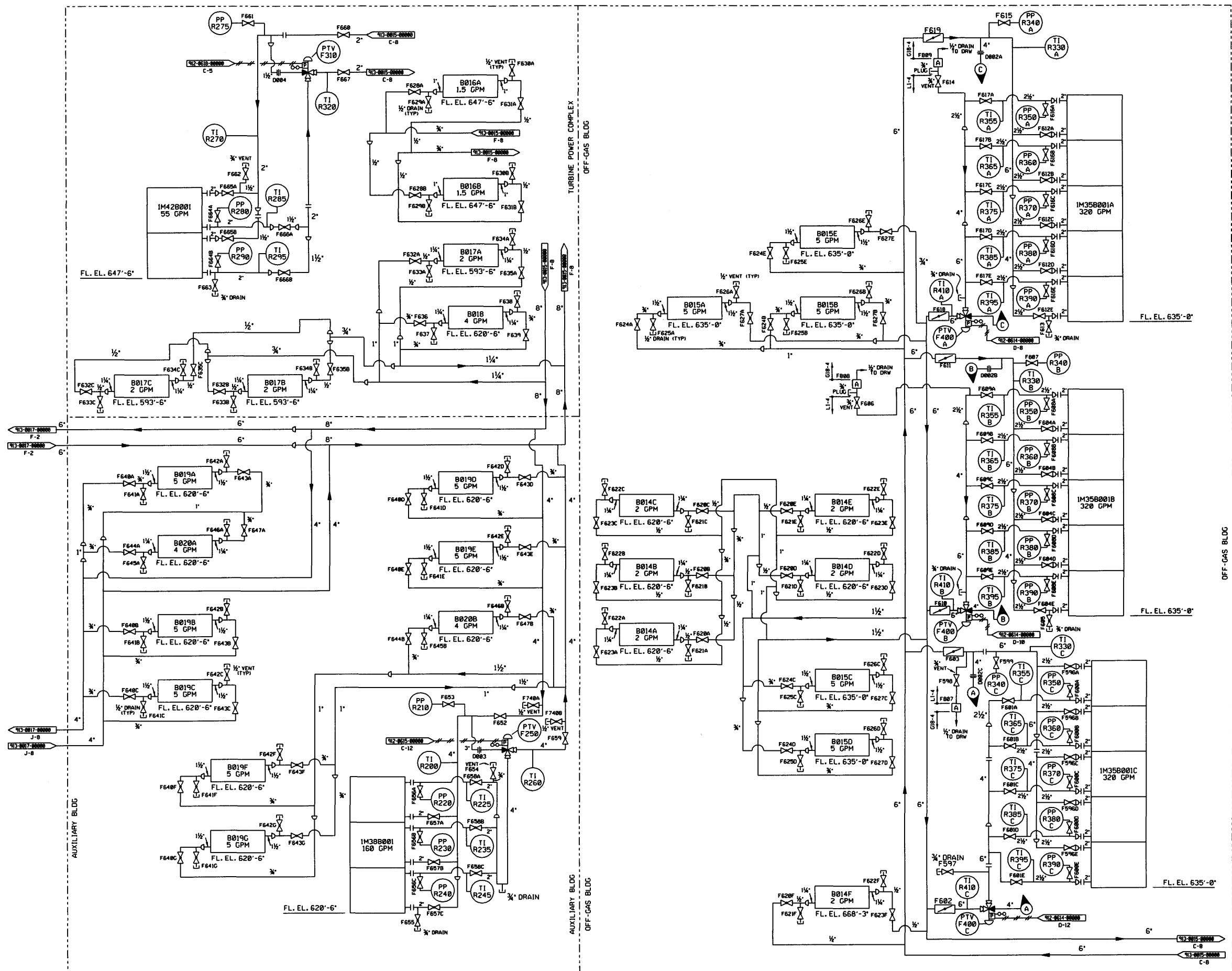
- REFERENCES -
- D-302-102 CONDENSATE TREATMENT AND STORAGE SYSTEM
  - D-302-711 TURBINE BUILDING OPERATING AND DISTRIBUTION SYSTEM
  - D-302-713 PIPING AND CONTROLS FOR CONDENSATE TREATMENT AND STORAGE SYSTEM
  - D-302-714 DISTRIBUTION SYSTEM
  - D-302-715 NOT WATER HEATING SYSTEM
  - D-302-716 NOT WATER HEATING SYSTEM

(Rev. 12 1/03)



Hot Water Heating System, Turbine Building, Water Treatment Building and Turbine Lube Oil System, Unit 1

Figure 9.4-23 (Sheet 2 of 3)  
(Dwg. D-913-015)



OPERATING DATA

PSIG	GPM	F	BY	REMARKS	REV

DESIGN DATA

NORMAL	UPSET		BY	CHKD	REMARKS	REV
	PSIG	F TIME				

- REFERENCES:
- 912-0614-00000 TURBINE BUILDING VENTILATION SYSTEM M35
  - 912-0615-00000 AUXILIARY BUILDING VENTILATION SYSTEM M38
  - 912-0616-00000 TURBINE POWER COMPLEX VENTILATION SYSTEM M42
  - 913-0015-00000 HOT WATER HEATING SYSTEM P55
  - 913-0017-00000 HOT WATER HEATING SYSTEM P55

(REV. 19 10/2015)

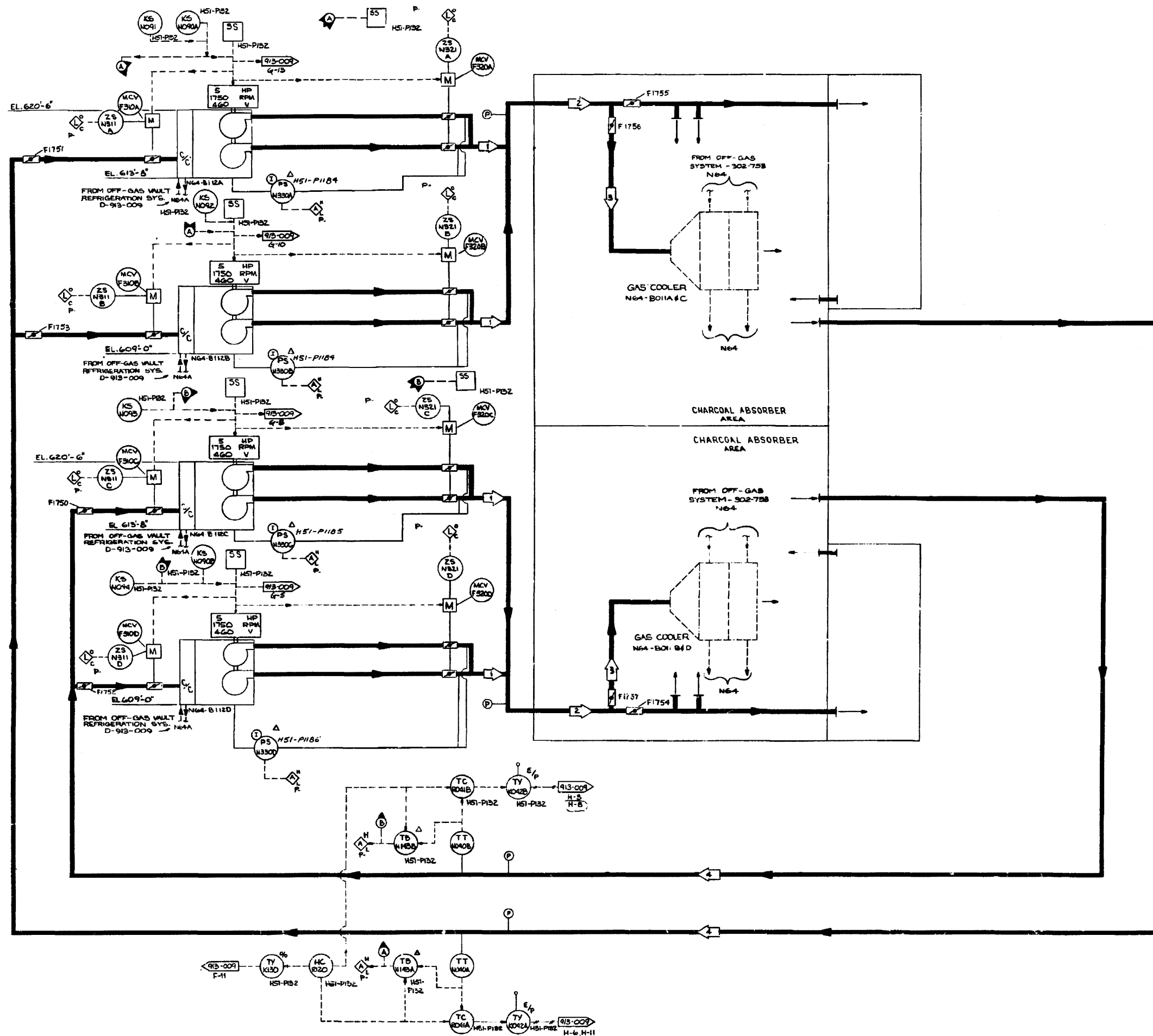
**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

HOT WATER HEATING SYSTEM,  
 TURBINE POWER COMPLEX, AUXILIARY  
 BUILDING AND OFF-GAS BUILDING, UNIT 1

FIGURE 9.4-23 (SHEET 3 OF 3)  
 (DWG. D-913-0016-00000)

OPERATING DATA						
IN	CFM	H <sub>2</sub> O	F	BY	REMARKS	T <sub>E</sub>
1	5,000	20 IN	A			
2	5,000					
3	1,800	20 IN	B			
4	5,000					

\* AS REQUIRED TO MAINTAIN THE CHARCOAL ABSORBER VAULT TEMPERATURE BETWEEN NOMINAL 87° AND 48° F (REF. REFERENCED).



- NOTES:
1. ALL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH MOTOR CONTROL SWITCHES OF AIR HANDLING UNITS, AND PROVIDED WITH TIME RELAY RELAY.
  2. ALL CONTROL SWITCHES, STATUS LIGHTS AND ALARMS ARE LOCATED IN THE LOCAL PANEL H51-P152, EXCEPT WHERE NOTED.
  3. ALL ALARMS FROM THIS SYSTEM ARE ANNOUNCED AS "N64 SYSTEM TROUBLE" ON PANEL H51-P154 IN THE CONTROL ROOM.
- REFERENCES:-
- D-913-009 OFF-GAS VAULT REFRIGERATION SYSTEM - CHILLED LIQUID DIAGRAM - N64
  - D-302-751 OFF-GAS SYSTEM - N64

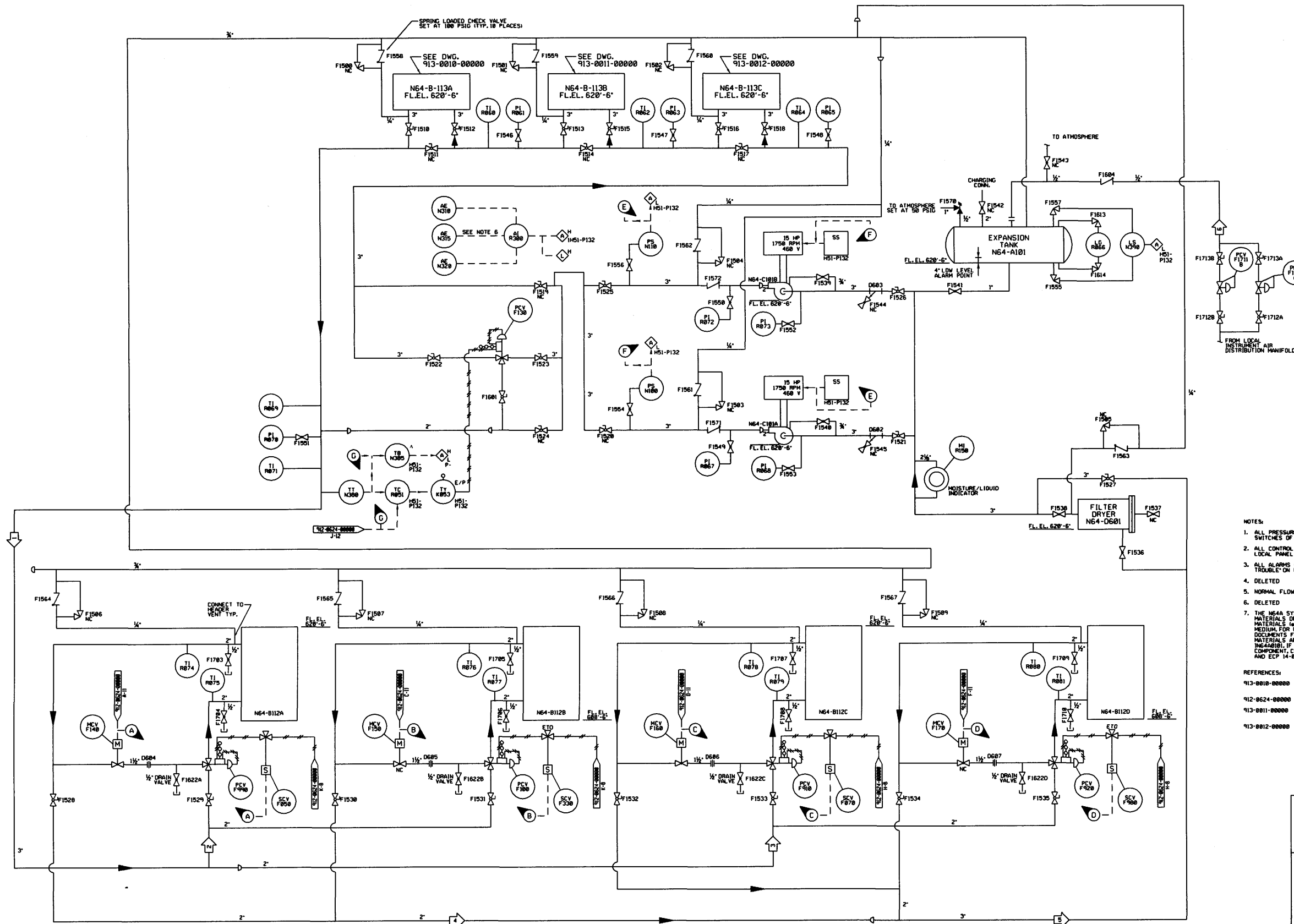
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PERRY NUCLEAR POWER PLANT  
 10 CENTER RD., PERRY, OHIO 44081

OFFGAS CHARCOAL VAULT  
 REFRIGERATION SYSTEM,  
 CHILLED LIQUID DIAGRAM  
 FIGURE 9.4-24 (SHEET 1 OF 5)  
 (DWG. D-912-0624-00000)

OPERATING DATA						
#	PSIG	GPM	F	BY	CKD	REMARKS
1	15	130	*			
2	15	65	*			
3	15	65	*			
4	15	65	*			
5	15	130				
6	15	-				

\* AS REQUIRED TO MAINTAIN THE CHARCOAL ADSORBER VAULT TEMPERATURE BETWEEN NOMINAL 0°F AND 40°F (-30°F REFERENCE)



- NOTES:
1. ALL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH MOTOR CONTROL SWITCHES OF BRINE PUMPS AND PROVIDED WITH A TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES, STATUS LIGHTS, AND ALARMS ARE LOCATED IN THE LOCAL PANEL H01-P132, EXCEPT WHERE NOTED.
  3. ALL ALARMS FROM THIS SYSTEM ARE ANNUNCIATED AS 'N64A SYSTEM TROUBLE' ON PANEL H13-P600 IN THE CONTROL ROOM.
  4. DELETED
  5. NORMAL FLOW IS TO TWO AIR HANDLING UNITS WITH TWO IN STANDBY.
  6. DELETED
  7. THE N64A SYSTEM HEAT TRANSFER MEDIUM IS AN ENGINEERED FLUID. MATERIALS OF CONSTRUCTION OF WETTED COMPONENTS AND ASSOCIATED MATERIALS (e.g. GASKETS) NEED TO BE COMPATIBLE WITH THE HEAT TRANSFER MEDIUM FOR REPLACEMENT PARTS / COMPONENTS. UTILIZE CURRENT DESIGN DOCUMENTS FOR ACCEPTABLE MATERIALS, ACCEPTABLE PACKING / GASKET MATERIALS ARE IDENTIFIED IN THE TENDOR MANUAL, ASSOCIATED WITH INQUIRY. IF UNCERTAIN ABOUT ACCEPTABILITY OF A REPLACEMENT ITEM / COMPONENT, CONTACT ENGINEERING FOR ASSISTANCE. REFERENCE CR 98-2805 AND ECP 14-0064.

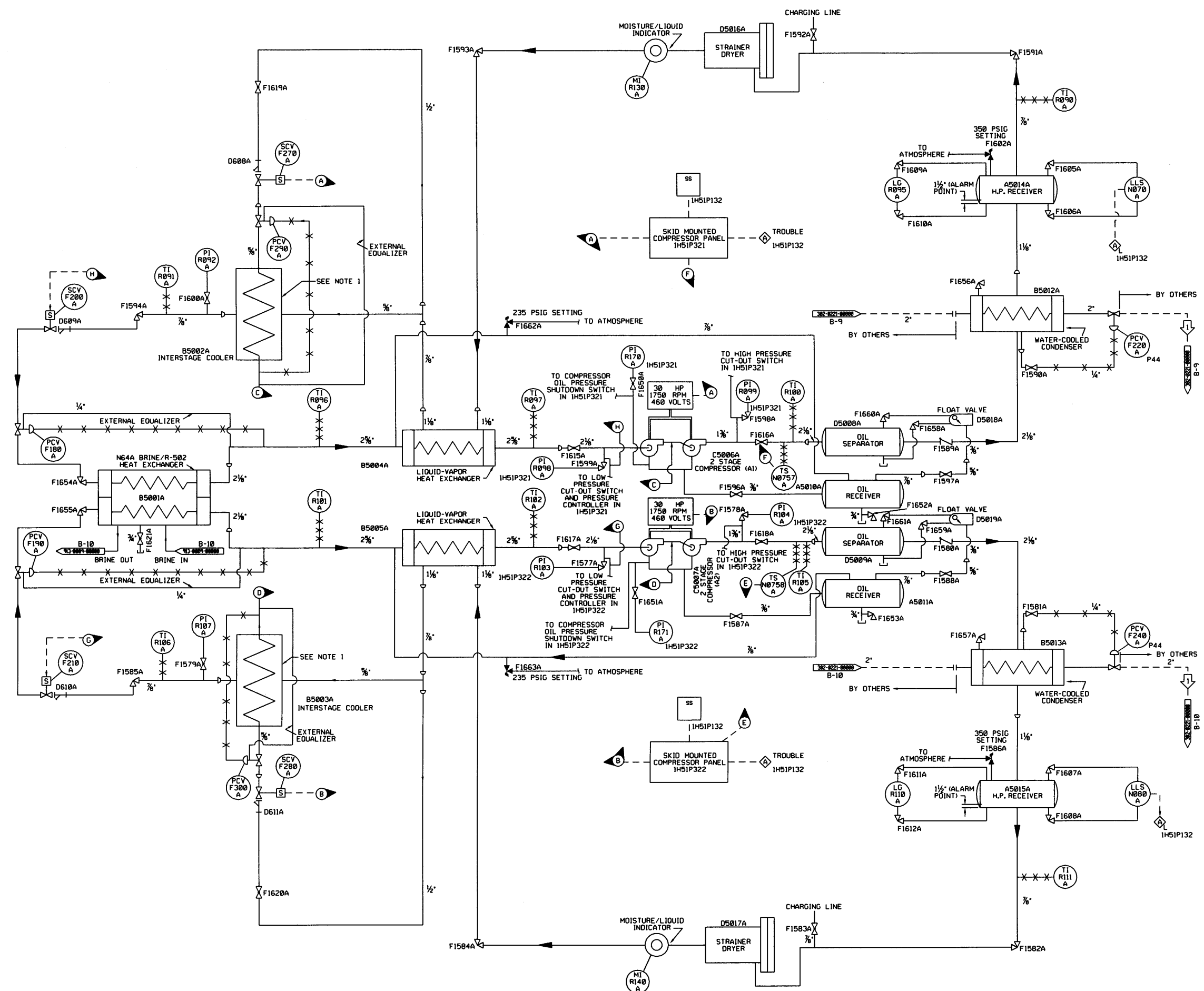
- REFERENCES:
- 913-0010-00000 OFF-GAS VAULT REFRIGERATION SYSTEM BRINE COOLING PACKAGE DIAGRAM (N64-B113A)
  - 912-0624-00000 OFF-GAS CHARCOAL VAULT REFRIGERATION SYSTEM
  - 913-0011-00000 OFF-GAS VAULT REFRIGERATION SYSTEM BRINE COOLING PACKAGE DIAGRAM (N64-B113B)
  - 913-0012-00000 OFF-GAS VAULT REFRIGERATION SYSTEM BRINE COOLING PACKAGE DIAGRAM (N64-B113C)

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

OFFGAS CHARCOAL VAULT  
 REFRIGERATION SYSTEM,  
 CHILLED LIQUID DIAGRAM  
 FIGURE 9.4-24 (SHEET 2 OF 5)  
 (DWG. D-913-0009-00000)

OPERATING DATA						
REV	PSIG	GPM	'F	BY	CHECKED	REMARKS
1		45				



- NOTES:
1. INTERSTAGE COOLER AND RELATED PIPING, VALVES AND CONTROLS ARE INCLUDED IN THE COMPRESSOR PACKAGE.
  2. SKID MOUNTED COMPRESSOR PANEL HAS THE FOLLOWING INDICATION AND CONTROLS:
    - A. HIGH PRESSURE CUTOUT (MANUAL RESET) WITH CORRESPONDING RED ALARM LIGHT.
    - B. AUTOMATIC RESET LOW PRESSURE CUTOUT FOR PUMPDOWN CONTROL.
    - C. OIL PRESSURE FAILURE SWITCH (MANUAL RESET) WITH CORRESPONDING RED ALARM LIGHT.
    - D. HIGH DISCHARGE TEMPERATURE CUTOUT WITH CORRESPONDING RED ALARM LIGHT.
    - E. CRANKCASE HEATER CONTROL.
    - F. COMPRESSOR ON-OFF SELECTOR SWITCH.
    - G. PRESSURE CONTROL TO ENERGIZE LIQUID LINE SOLENOID AT 15 PSIG OR LOWER.
    - H. SUCTION AND DISCHARGE PRESSURE GAGES.
    - I. OIL PRESSURE GAGE.
    - J. INHERENT PROTECTION MOTOR RELAY WITH CORRESPONDING RED ALARM LIGHT (HIGH WINDING TEMPERATURE).

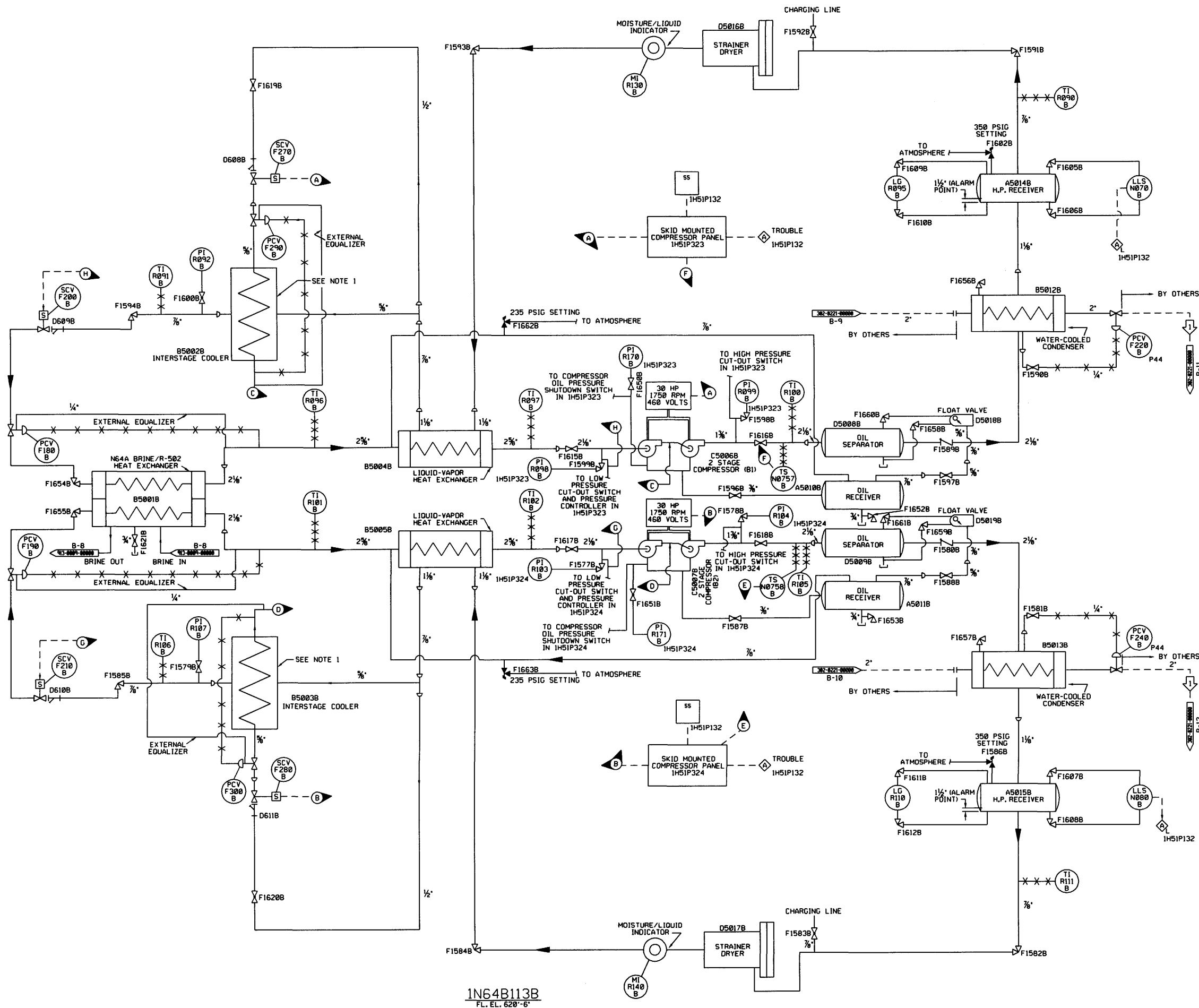
REFERENCES:  
 302-0221-00000 TURBINE BLDG. CLOSED COOLING SYSTEM-P44  
 913-0009-00000 OFF-GAS VAULT REFRIGERATION SYSTEM-CHILLED LIQUID DIAGRAM

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

OFFGAS CHARCOAL VAULT  
 REFRIGERATION SYSTEM, BRINE  
 COOLING PACKAGE BOILER DIAGRAM  
 FIGURE 9.4-24 (SHEET 3 OF 5)  
 (DWG. D-913-0010-00000)

OPERATING DATA							
#	PSIG	GPM	°F	BY	CHECKED	REMARKS	REV
1		45					



- NOTES:
- INTERSTAGE COOLER AND RELATED PIPING, VALVES AND CONTROLS ARE INCLUDED IN THE COMPRESSOR PACKAGE.
  - SKID MOUNTED COMPRESSOR PANEL HAS THE FOLLOWING INDICATION AND CONTROLS:
    - A. HIGH PRESSURE CUTOFF (MANUAL RESET) WITH CORRESPONDING RED ALARM LIGHT.
    - B. AUTOMATIC RESET LOW PRESSURE CUTOFF FOR PUMPDOWN CONTROL.
    - C. OIL PRESSURE FAILURE SWITCH (MANUAL RESET) WITH CORRESPONDING RED ALARM LIGHT.
    - D. HIGH DISCHARGE TEMPERATURE CUTOFF WITH CORRESPONDING RED ALARM LIGHT.
    - E. CRANKCASE HEATER CONTROL.
    - F. COMPRESSOR ON-OFF SELECTOR SWITCH.
    - G. PRESSURE CONTROL TO ENERGIZE LIQUID LINE SOLENOID AT 15 PSIG OR LOWER.
    - H. SUCTION AND DISCHARGE PRESSURE GAGES.
    - I. OIL PRESSURE GAGE.
    - J. INHERENT PROTECTION MOTOR RELAY WITH CORRESPONDING RED ALARM LIGHT (HIGH WINDING TEMPERATURE).
- REFERENCES:
- 302-0221-00000 TURBINE BLDG. CLOSED COOLING SYSTEM-P44  
 913-0009-00000 OFF-GAS VAULT REFRIGERATION SYSTEM-  
 CHILLED LIQUID DIAGRAM

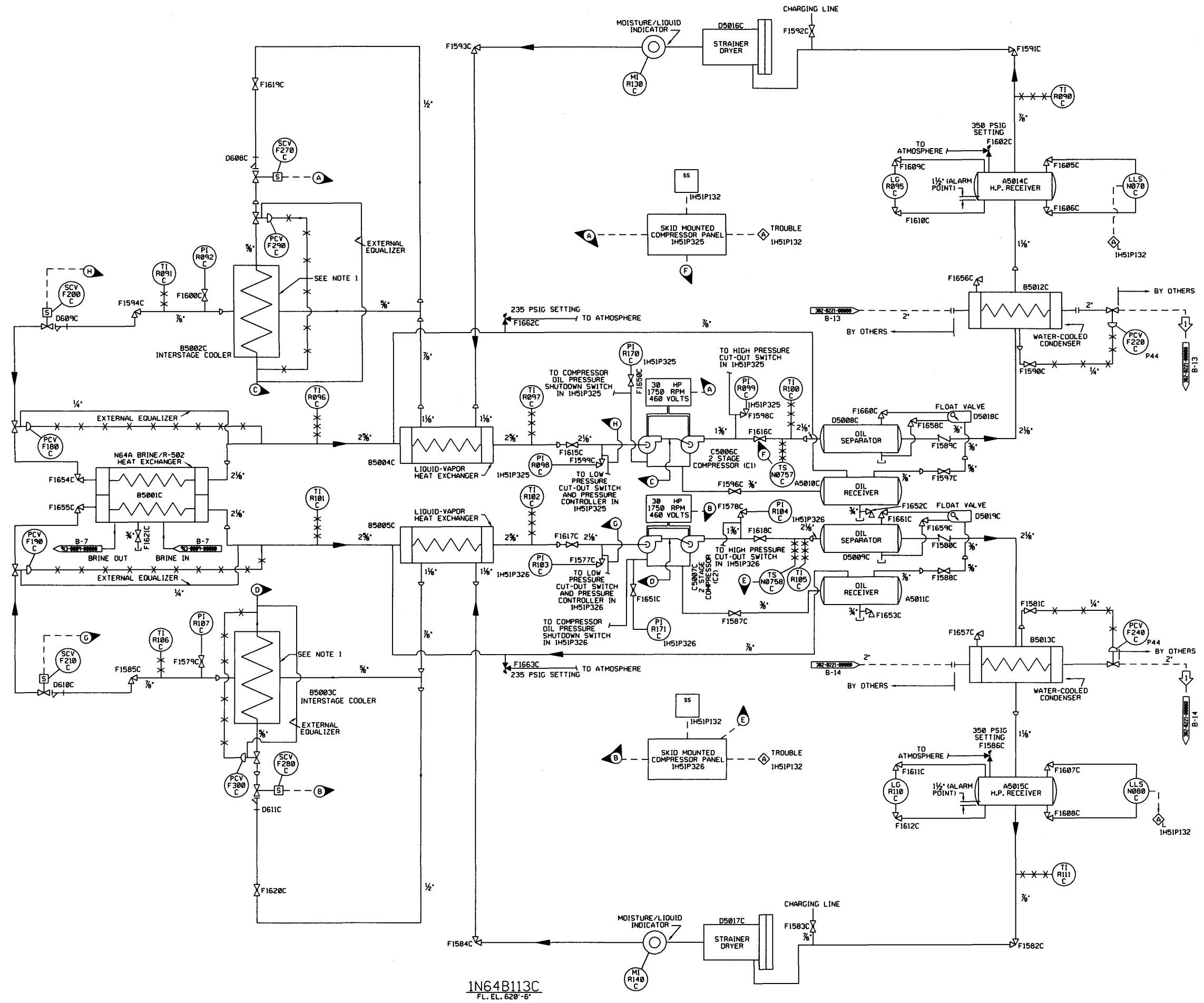
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

OFFGAS CHARCOAL VAULT  
 REFRIGERATION SYSTEM, BRINE  
 COOLING PACKAGE BOILER DIAGRAM  
 FIGURE 9.4-24 (SHEET 4 OF 5)  
 (DWG. D-913-0011-00000)

1N64B113B  
 FL. EL. 620'-6"

OPERATING DATA						
REV	BY	DATE	PSIG	OPH	T°	REV
1				45		



- NOTES:
- INTERSTAGE COOLER AND RELATED PIPING, VALVES AND CONTROLS ARE INCLUDED IN THE COMPRESSOR PACKAGE.
  - SKID MOUNTED COMPRESSOR PANEL HAS THE FOLLOWING INDICATION AND CONTROLS:
    - A. HIGH PRESSURE CUTOFF (MANUAL RESET) WITH CORRESPONDING RED ALARM LIGHT.
    - B. AUTOMATIC RESET LOW PRESSURE CUTOFF FOR PUMPDOWN CONTROL.
    - C. OIL PRESSURE FAILURE SWITCH (MANUAL RESET) WITH CORRESPONDING RED ALARM LIGHT.
    - D. HIGH DISCHARGE TEMPERATURE CUTOFF WITH CORRESPONDING RED ALARM LIGHT.
    - E. CRANKCASE HEATER CONTROL.
    - F. COMPRESSOR ON-OFF SELECTOR SWITCH.
    - G. PRESSURE CONTROL TO ENERGIZE LIQUID LINE SOLENOID AT 15 PSIG OR LOWER.
    - H. SUCTION AND DISCHARGE PRESSURE GAGES.
    - I. OIL PRESSURE GAGE.
    - J. INHERENT PROTECTION MOTOR RELAY WITH CORRESPONDING RED ALARM LIGHT (HIGH WINDING TEMPERATURE).

REFERENCES:  
 302-0221-00000 TURBINE BLOC. CLOSED COOLING SYSTEM-P44  
 913-0009-00000 OFF-GAS VAULT REFRIGERATION SYSTEM-CHILLED LIQUID DIAGRAM

(REV. 19 10/2015)

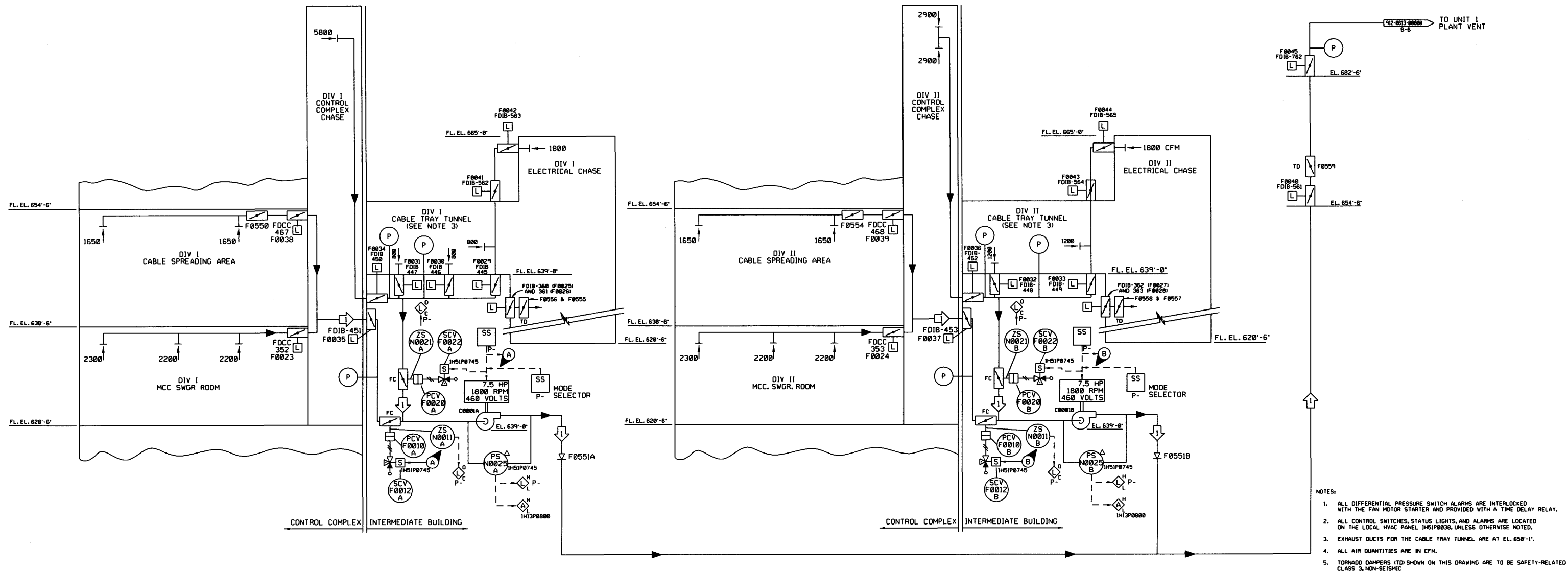
**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

OFFGAS CHARCOAL VAULT  
 REFRIGERATION SYSTEM, BRINE  
 COOLING PACKAGE BOILER DIAGRAM  
 FIGURE 9.4-24 (SHEET 5 OF 5)  
 (DWG. D-913-0012-00000)

1N64B113C  
 FL. EL. 620'-6"



OPERATING DATA				
CFM	H <sub>2</sub> O	'F	REMARKS	
1	10,000			



- NOTES:
1. ALL DIFFERENTIAL PRESSURE SWITCH ALARMS ARE INTERLOCKED WITH THE FAN MOTOR STARTER AND PROVIDED WITH A TIME DELAY RELAY.
  2. ALL CONTROL SWITCHES, STATUS LIGHTS, AND ALARMS ARE LOCATED ON THE LOCAL HVAC PANEL IH5IP0745, UNLESS OTHERWISE NOTED.
  3. EXHAUST DUCTS FOR THE CABLE TRAY TUNNEL ARE AT EL. 658'-1".
  4. ALL AIR QUANTITIES ARE IN CFM.
  5. TORNADO DAMPERS (TD) SHOWN ON THIS DRAWING ARE TO BE SAFETY-RELATED CLASS 3, NON-SEISMIC.

REFERENCES:  
 912-0613-00000 INTERMEDIATE BUILDING VENT SYSTEM M33

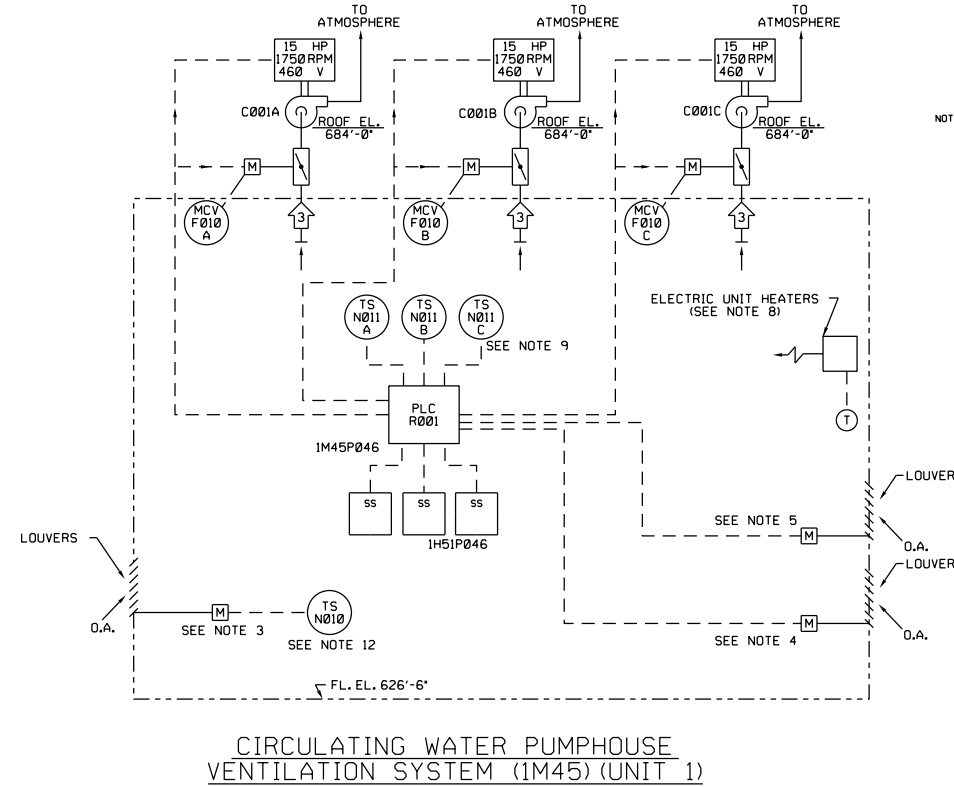
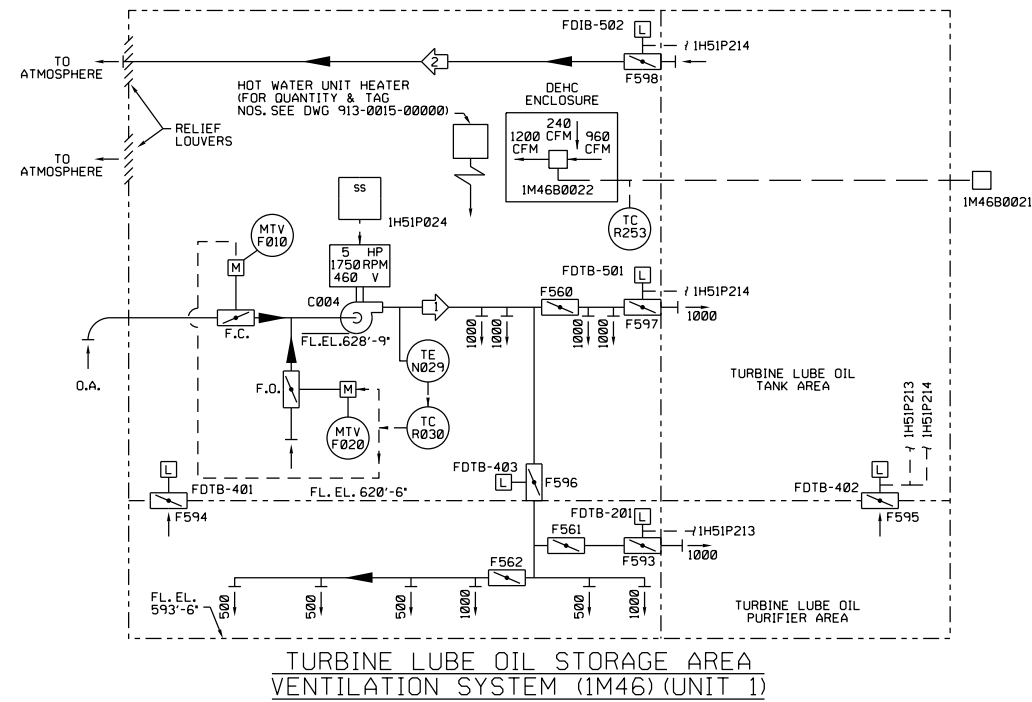
(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

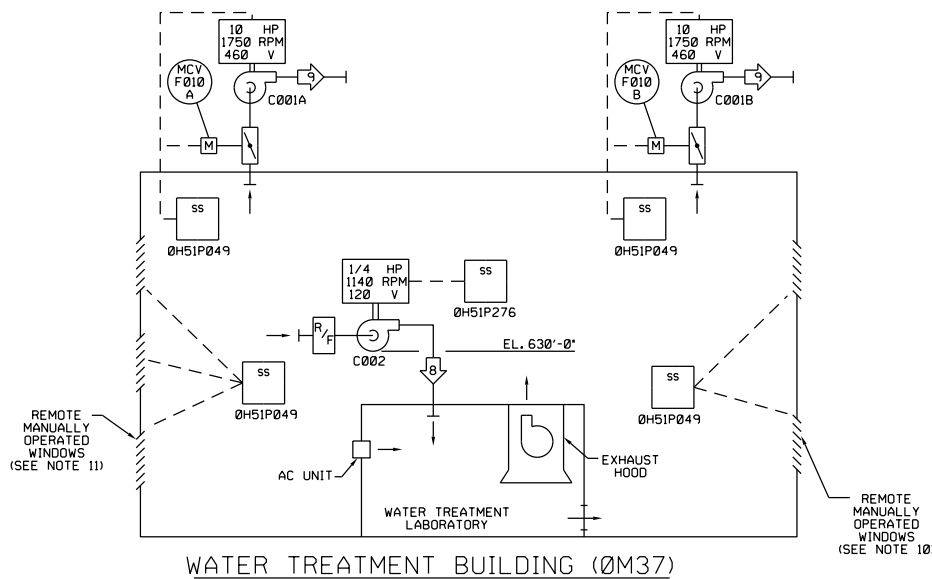
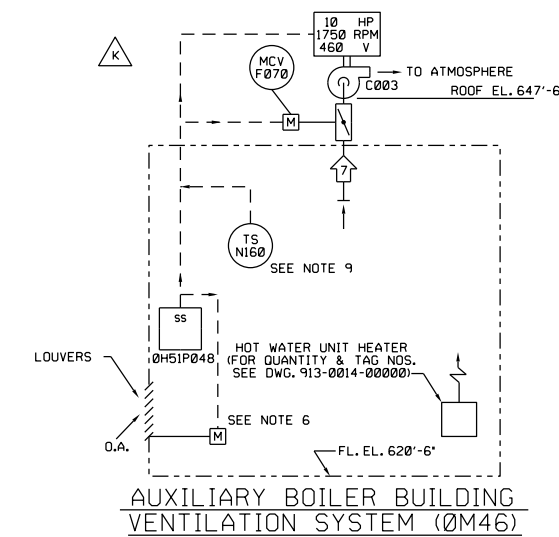
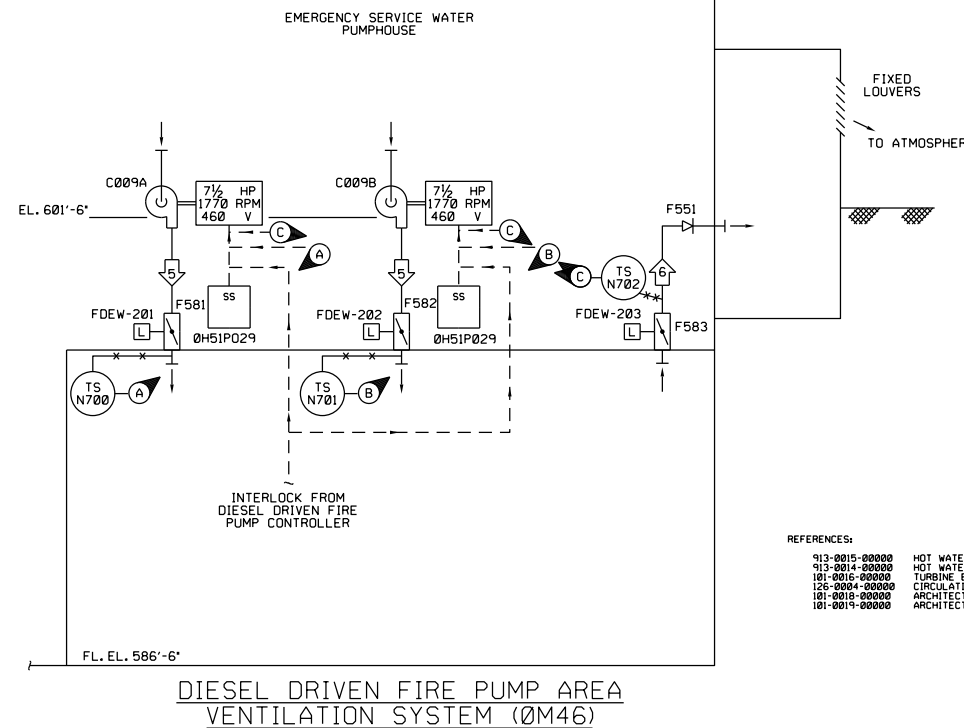
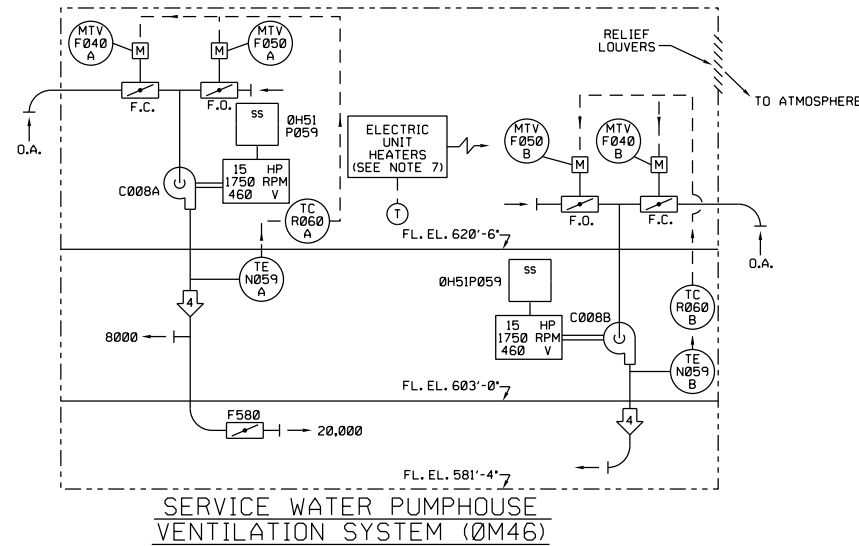
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SMOKE VENTING SYSTEM,  
 MISCELLANEOUS ELECTRICAL AREAS  
 FIGURE 9.4-25  
 (DWG. D-912-0633-00000)

OPERATING DATA					
REV	CFM	BY	REMARKS	REV	
1	10,000				
2	2,000				B
3	81,755				
4	28,000				
5	15,500				
6	15,500				B
7	42,051				
8	960				C
9	42,051				B



- NOTES:
1. SELECTOR SWITCHES AND STATUS LIGHTS TO BE LOCATED ON LOCAL PANEL.
  2. NO INSTRUMENTATION IS REQUIRED IN THE CONTROL ROOM FOR THESE SYSTEMS.
  3. THIS MOTOR SYMBOLIZES THE FOLLOWING MOTORS: IL53E013A/B, IL53E014A/B, IL53E015A/B, AND IL53E016A/B, SEE DWG. 126-0004-00000.
  4. THIS MOTOR SYMBOLIZES THE FOLLOWING MOTORS: IL53E008A/B, IL53E007A/B, IL53E009A/B, AND IL53E010A/B, SEE DWG. 126-0004-00000.
  5. THIS MOTOR SYMBOLIZES THE FOLLOWING MOTORS: IL53E006A/B, IL53E005A/B, IL53E004A/B, AND IL53E003A/B, SEE DWG. 101-0016-00000.
  6. THIS MOTOR SYMBOLIZES THE FOLLOWING MOTORS: IL53E002A/B, IL53E001A/B, AND IL53E000A/B, SEE DWG. 101-0016-00000.
  7. TEN ELECTRIC UNIT HEATERS (10 KW EACH) TAGGED P55-0040A THRU -0040K. LETTER I IS NOT USED.
  8. TWELVE ELECTRIC UNIT HEATERS (10 KW EACH) TAGGED IP55-0039A THRU 0039M. LETTER I IS NOT USED.
  9. TEMPERATURE SWITCHES TO START SEQUENCING OF HVAC EQUIPMENT.
  10. SELECTOR SWITCH OPERATES MOTOR OPERATOR L53E062A AND L53E062B, SEE DWG. 102-0011-00000 AND DWG. 102-0041-00000.
  11. SELECTOR SWITCH OPERATES MOTOR OPERATOR L53E062C, L53E062D, AND L53E062E, SEE DWG. 102-0041-00000 AND 102-0031-00000.
  12. TEMPERATURE SWITCH TO OPEN LOUVERS: IL53E013A/B, IL53E014A/B, IL53E015A/B AND IL53E016A/B.



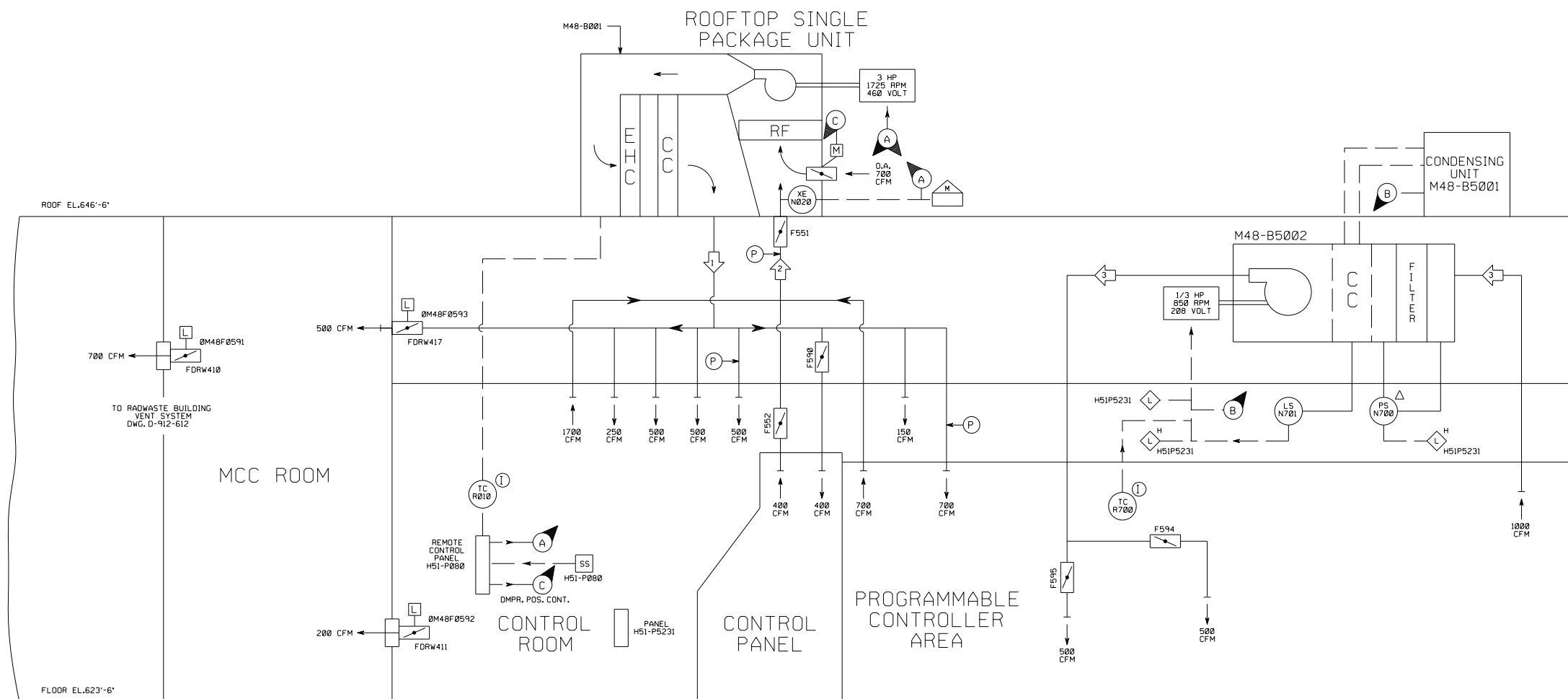
- REFERENCES:
- 913-0015-00000 HOT WATER HEATING SYSTEM P55
  - 913-0014-00000 HOT WATER HEATING SYSTEM P55
  - 101-0016-00000 TURBINE BUILDING COMPLEX FLOOR PLAN-EL. 620'-6"
  - 126-0004-00000 CIRCULATING WATER PUMP HOUSE FLOOR PLANS AND SCHEDULES
  - 101-0018-00000 ARCHITECTURAL-WATER TREATMENT BUILDING-EL. 609'-6" AND EL. 620'-6"
  - 101-0014-00000 ARCHITECTURAL-WATER TREATMENT BUILDING-EL. 604'-6" AND EL. 620'-6"

(REV. 21 10/2019)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

TURBINE LUBE OIL STORAGE AREA, DIESEL DRIVEN  
 FIRE PUMP AREA, SERVICE WATER PUMPHOUSE,  
 WATER TREATMENT BUILDING, AND CIRCULATING  
 WATER PUMPHOUSE AND AUXILIARY BOILER  
 BUILDING VENTILATION SYSTEMS  
 FIGURE 9.4-27  
 (DWG. D-912-0629-00000)

DESIGN DATA						
REV	CFM	GPM	°F	BY	REMARKS	REV
1	3500					
2	2000					
3	1000					



REFERENCES:  
D-912-612 RADWASTE BUILDING VENTILATION SYSTEM, M31

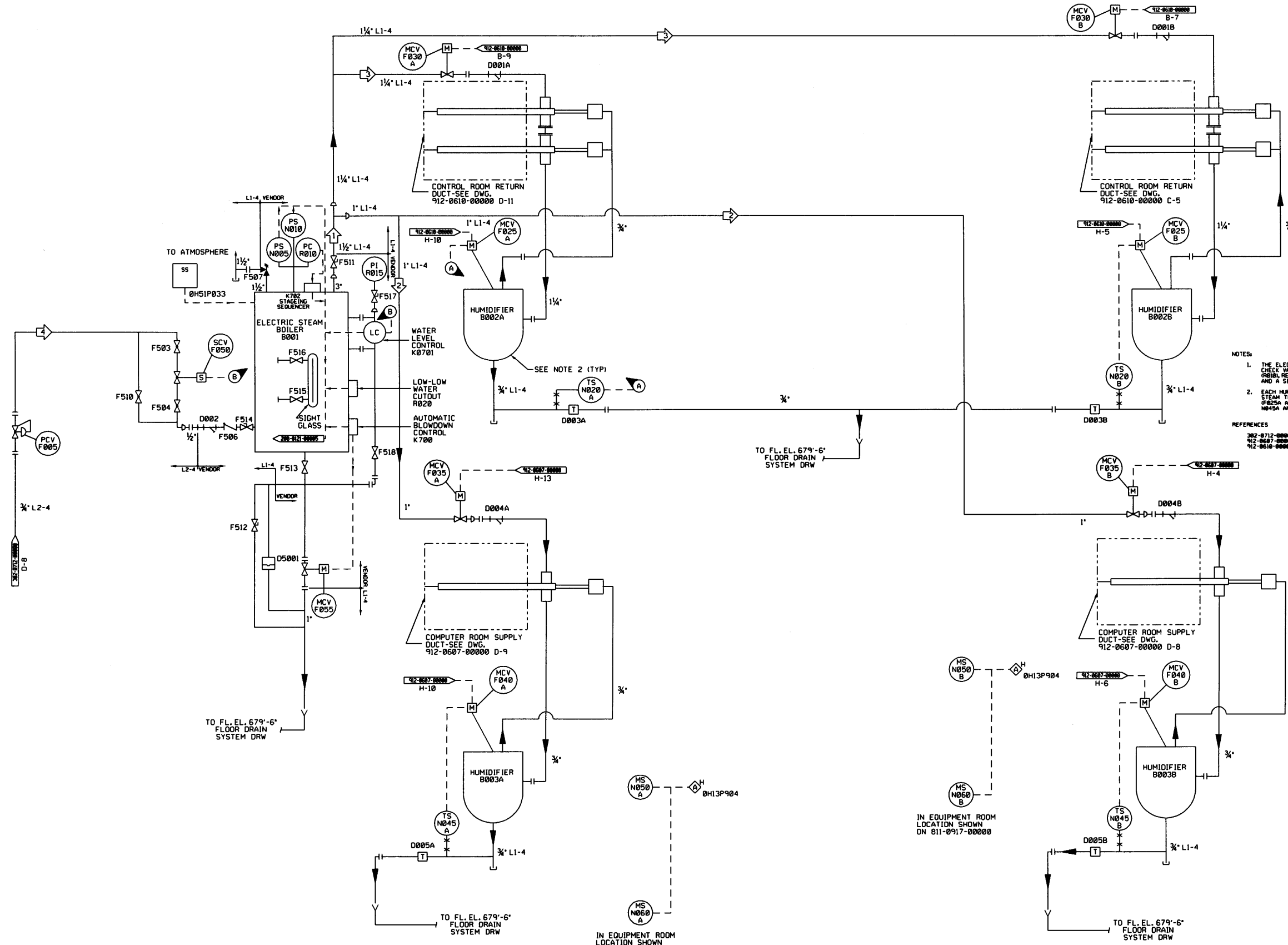
NOTES:  
1. INDICATING TEMPERATURE CONTROLLER AND REMOTE CONTROL PANEL ARE INCLUDED WITH THE ROOFTOP SINGLE PACKAGE UNIT.

(REV. 20 10/2017)

PERRY NUCLEAR POWER PLANT  
10 CENTER RD., PERRY, OHIO 44081

RADWASTE CONTROL ROOM  
HVAC SYSTEM  
FIGURE 9.4-28  
(DWG. D-912-0634-00000)

DESIGN DATA						
NO.	PSIG	lbs/hr	°F	BY	REMARKS	REV
1	5	320				
2	5	120				
3	5	200				
4	20	320				



NOTES:

1. THE ELECTRIC STEAM BOILER IS PROVIDED WITH A STRAINER (D082), CHECK VALVE (F506), PRESSURE INDICATOR (P015), PRESSURE CONTROLLER (PC R010), RELIEF VALVE (F507), MANUAL VALVE (F513), DRAIN VALVE (F055), AND A SIGHT GLASS.
2. EACH HUMIDIFIER IS PROVIDED WITH A STRAINER (D080A AND B), D080A AND B, STEAM TRAP (D083A AND B), D083A AND B, MOISTURE CONTROL VALVE (F025A AND B), F040A AND B, AND A TEMPERATURE SWITCH (N020A AND B; N045A AND B).

REFERENCES

912-0610-00000 TWO BED WATER STORAGE AND DISTRIBUTION SYSTEM (P21)  
 912-0607-00000 COMPUTER ROOMS HVAC SYSTEMS (H27)  
 912-0610-00000 CONTROL ROOM HVAC AND EMERGENCY RECIRCULATION SYSTEMS (H25/26)

(REV. 19 10/2015)

**PERRY NUCLEAR POWER PLANT**  
 10 CENTER RD., PERRY, OHIO 44081

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CONTROL AND COMPUTER  
 ROOMS HUMIDIFICATION SYSTEM  
 FIGURE 9.4-29  
 (DWG. D-913-0018-00000)