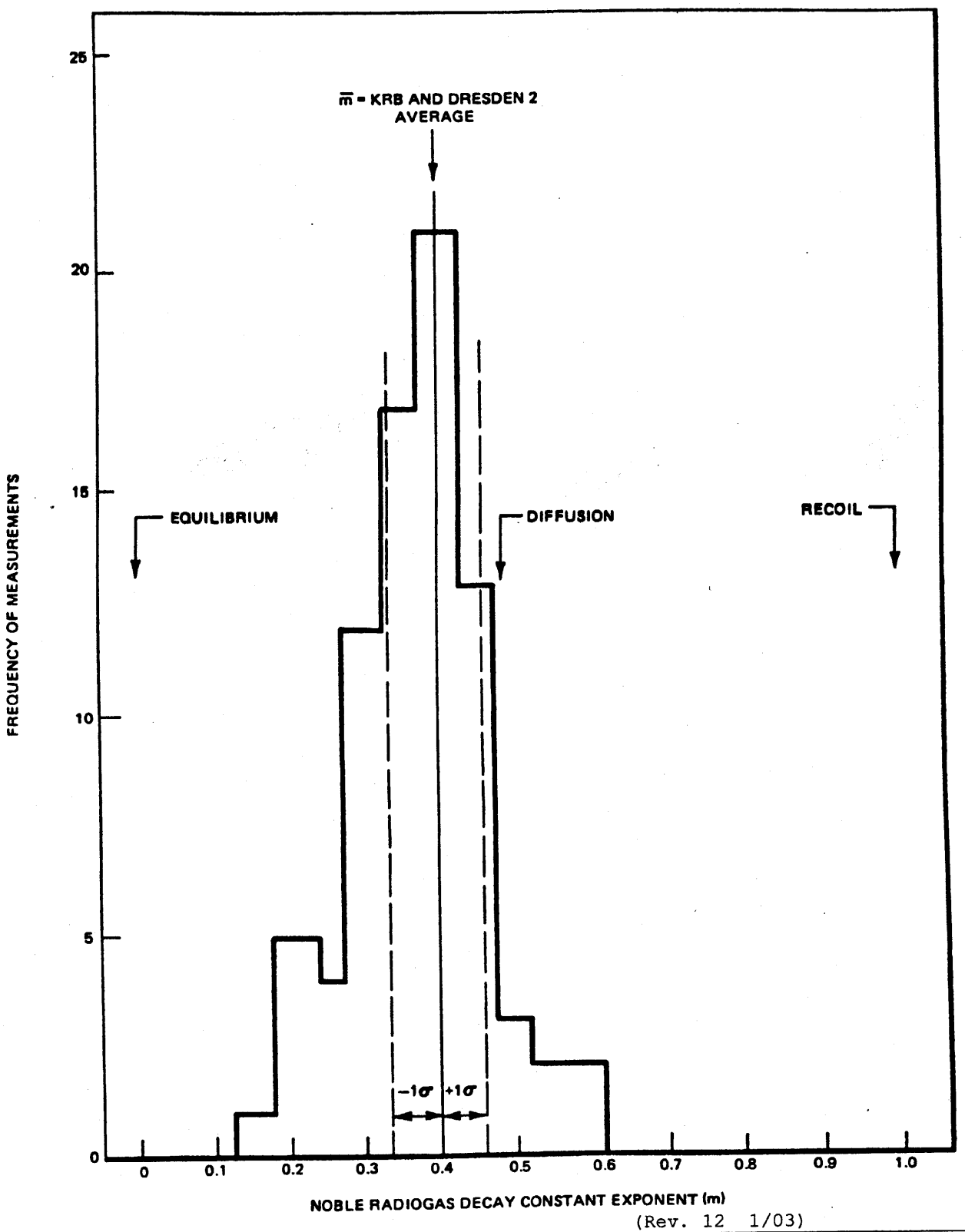

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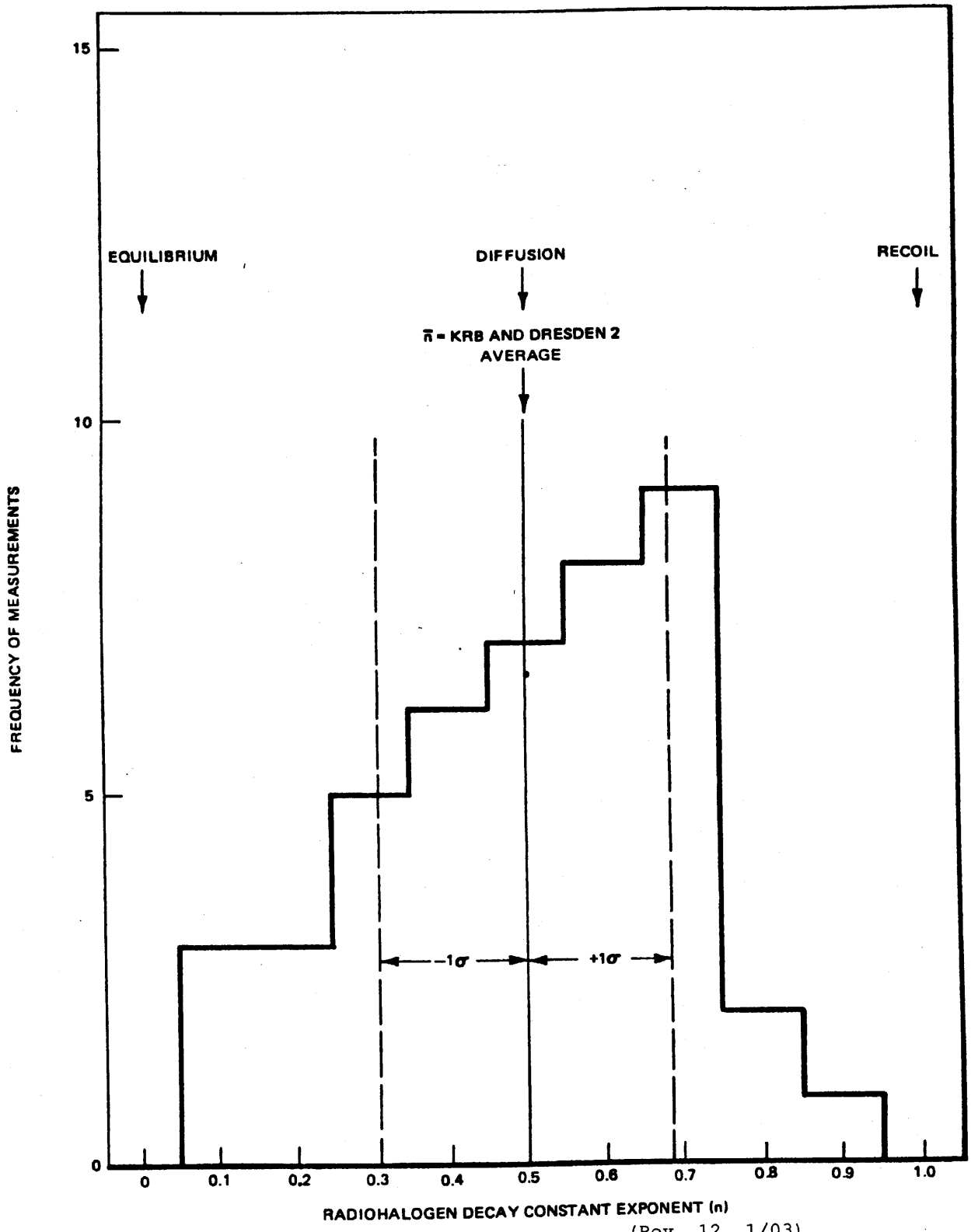
PERRY NUCLEAR POWER PLANT

Noble Radiogas Decay Constant Exponent Frequency Histogram

Figure 11.1-1



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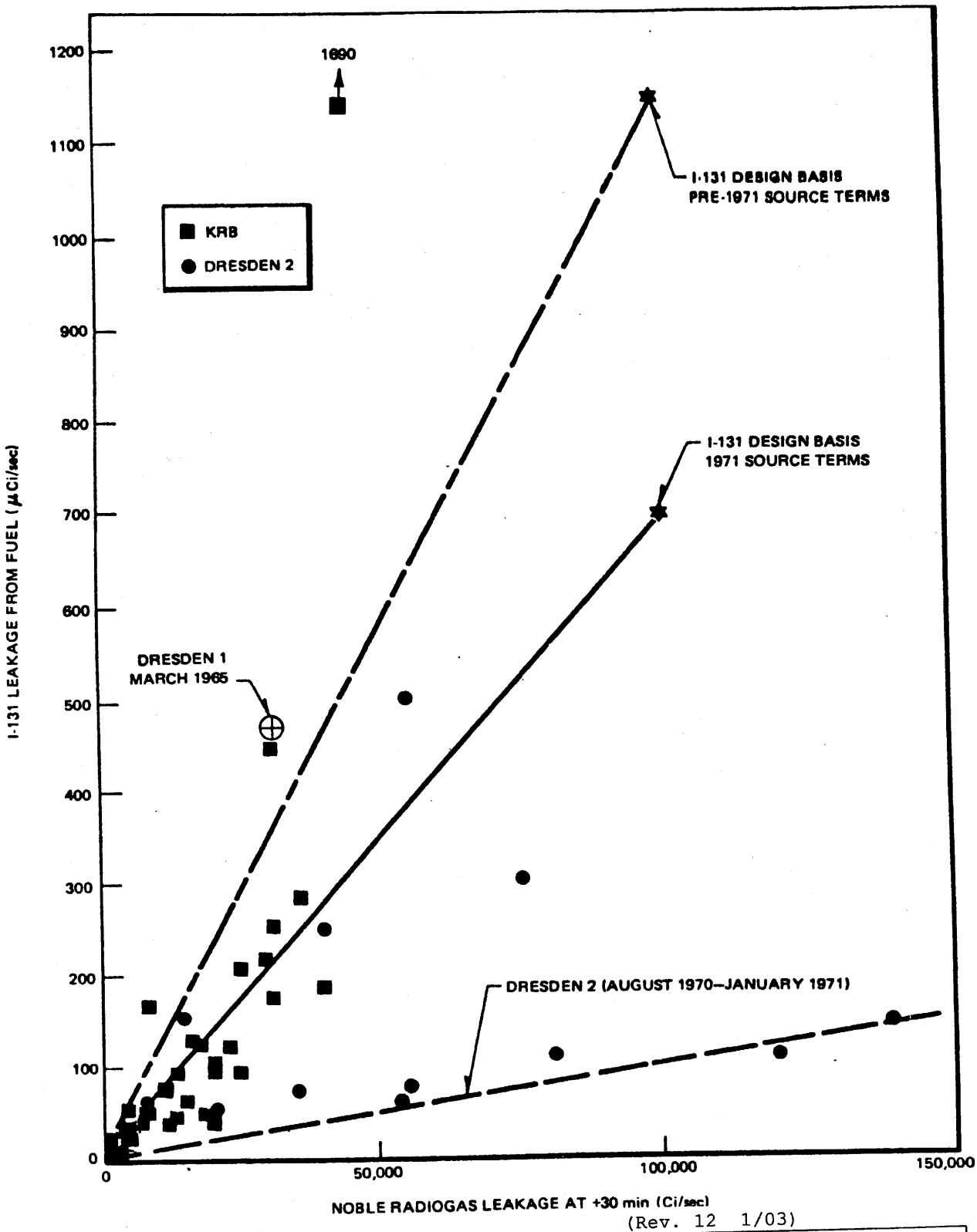
PERRY NUCLEAR POWER PLANT

Radiohalogen Decay Constant
Exponent Frequency Histogram

Figure 11.1-2



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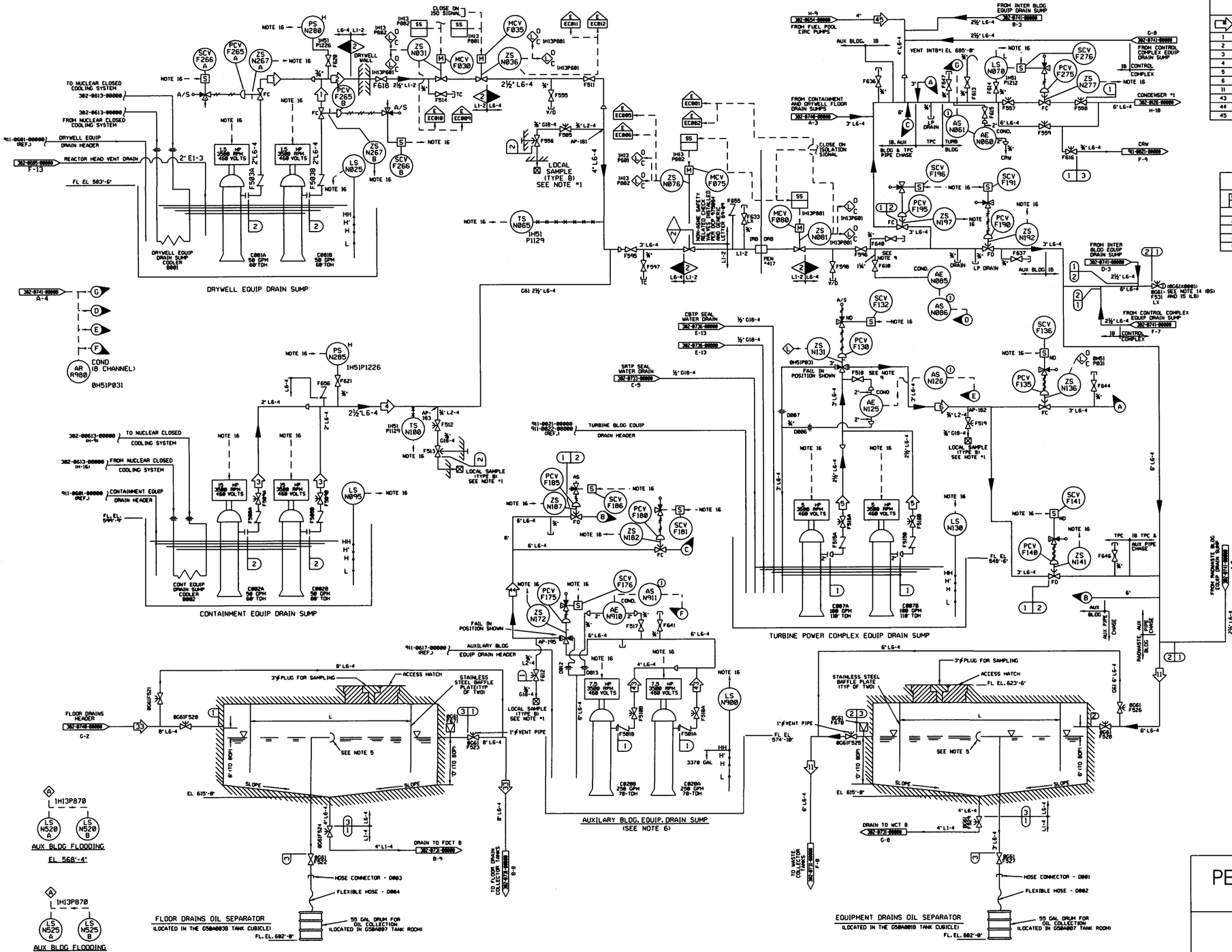
PERRY NUCLEAR POWER PLANT

Noble Radiogas Leakage
vs.
I-131 Leakage

Figure 11.1-3



OPERATING DATA

SEE NOTE 13

#	PSIG	GPM	F	BY	REMARKS	REV
1	25	50	150	CWE		
2	25	50-100	150	CWE		
3	25	50	150	CWE		
4	25	50-100	150	CWE		
5	50	100	70	CWE		
6	50	100-200	70	CWE		
11	5	50-500	70-150	CWE		
43	30	250	70	CWE		
44	30	250-500	70	CWE		
45	100	300	120	DAK	INTERMITTENT	

DESIGN DATA

#	NORMAL		UPSET			BY	CHKD	REMARKS	REV
	PSIG	F	PSIG	F	TIME				
1	100	150	N/A	N/A	N/A	CWE	AML		
2	100	200	N/A	N/A	N/A	CWE	AML		
3	15	150	N/A	N/A	N/A	CWE	AML		
4	100	175	N/A	N/A	N/A	CWE	AML		
5	125	150	N/A	N/A	N/A	JPL			

REFERENCES:

302-0125-00000	MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
302-0126-00000	MAIN, REHEAT, EXTRACTION AND MISCELLANEOUS DRAINS SYSTEM N22
302-0605-00000	NUCLEAR BOILER SYSTEM
302-0613-00000	NUCLEAR CLOSED COOLING SYSTEM P43
302-0654-00000	FUEL POOL COOLING AND CLEAN-UP SYSTEM G41
302-0731-00000	LRW - FLOOR DRAIN COLLECTOR TANKS AND WASTE COLLECTOR TANKS AND WASTE COLLECTOR TANKS SYSTEM G50
302-0733-00000	LRW - CHEMICAL WASTE TANKS AND SPENT RESIN TRANSFER PUMPS G50
302-0736-00000	LRW - CHEMICAL WASTE TANKS AND SPENT RESIN TRANSFER PUMPS G50
302-0740-00000	LIQUID RADWASTE SUMPS SYSTEM - FLOOR DRAIN SUMPS SYSTEM G61
302-0741-00000	LIQUID RADWASTE SUMPS SYSTEM - LAUNDRY, CHEMICAL AND COMMON FLOOR AND EQUIPMENT DRAIN SUMPS SYSTEM G61
302-0771-00000	NUCLEAR SAMPLING SYSTEM P34
302-0964-00000	LEAK DETECTION SYSTEM E31
911-0021-00000	TURBINE POWER COMPLEX, TURBINE BUILDING HEATERBAY AND OFF-GAS DRAINS P68
911-0022-00000	TURBINE POWER COMPLEX, TURBINE BUILDING HEATERBAY AND OFF-GAS DRAINS P68
911-0601-00000	REACTOR BUILDING DRAINS P68
911-0617-00000	AUXILIARY BUILDING DRAINS P68

NOTES:

1. FOR DETAIL OF LOCAL SAMPLES SEE DWG. 302-0771-00000.
2. FOR LEAK DETECTION SYSTEM INSTRUMENTATION SEE DWG. 302-0964-00000.
3. LINE SIDES TOP AND BOTTOM OF EACH OIL SEPARATOR WITH STAINLESS STEEL PLATE.
4. MINIMUM DIMENSIONS OF OIL SEPARATOR CHAMBER SHALL BE 19'L X 22'-3"W X 5'-0"D.
5. CENTER LINE OF ALL SKIMLINE SHALL BE AT NORMAL WATER LINE.
6. SEE SYSTEM DESCRIPTION G61 FOR DETAILS OF OPERATION FOR AUXILIARY BUILDING EQUIPMENT DRAIN SUMPS.
7. DELETED
8. ALL LOW POINT (LP) DRAINS TEST CONNECTIONS (TC'S) AND VENT/DRAIN (V/D) CONNECTIONS SHALL BE ¾" NOMINAL PIPE SIZE UNLESS OTHERWISE NOTED.
9. ROOT VALVES FOR CONDUCTIVITY CELLS WHERE NOTED SHALL BE SUPPLIED WITH CELL AND DESIGNED TO ALLOW REMOVAL OF CELL FROM PROCESS LINE THROUGH BODY OF VALVE. FOR THESE CASES A STAINLESS STEEL 1-¼" NPT CONNECTION SHALL BE PROVIDED ON THE PROCESS PIPE FOR MATING WITH THE SPECIAL ROOT VALVE.
10. DELETED
11. DELETED
12. DELETED
13. PROCESS DATA SHOWN IN THE OPERATING DATA TABLE ON THIS SYSTEM DIAGRAM SHALL BE USED IN CONJUNCITON 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.
14. (BS) UNIT 1/2 BOUNDARY SEPERATION FOR DETAILS SEE TAF 81653.
15. (LB) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED-IN-PLACE SSCs. FOR DETAILS SEE ECP 14-0374.
16. INPUT/OUTPUT TO/FROM THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.

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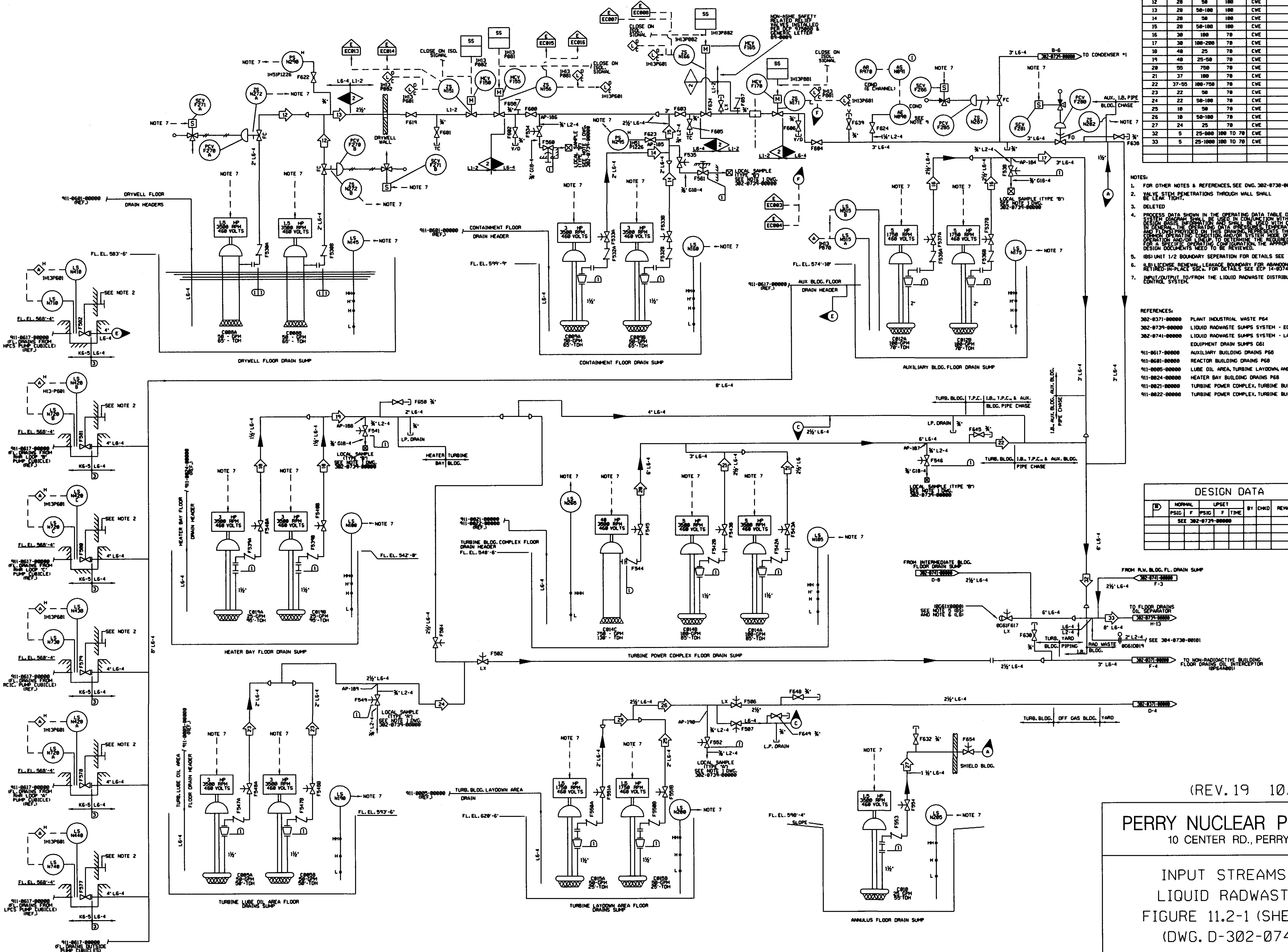
INPUT STREAMS FOR THE
LIQUID RADWASTE SYSTEM
FIGURE 11.2-1 (SHEET 1 OF 4)
(DWG. D-302-0739-00000)



OPERATING DATA
SEE NOTE 4

#	PSIG	GPM	F	BY	REMARKS	REV
12	28	50	100	CWE		
13	28	50-100	100	CWE		
14	28	50	100	CWE		
15	28	50-100	100	CWE		
16	30	100	70	CWE		
17	30	100-200	70	CWE		
18	40	25	70	CWE		
19	40	25-50	70	CWE		
20	55	750	70	CWE		
21	37	100	70	CWE		
22	37-55	100-750	70	CWE		
23	22	50	70	CWE		
24	22	50-100	70	CWE		
25	10	50	70	CWE		
26	10	50-100	70	CWE		
27	24	25	70	CWE		
32	5	25-800	100 TO 70	CWE		
33	5	25-1000	100 TO 70	CWE		

NOTES:

1. FOR OTHER NOTES & REFERENCES, SEE DWG. 302-0738-00000
2. VALVE STEM PENETRATIONS THROUGH WALL SHALL BE LEAK TIGHT.
3. DELETED
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.
5. (BS) UNIT 1/2 BOUNDARY SEPERATION FOR DETAILS SEE TAF 81653.
6. (LB) LICENSE RENEWAL, LEAKAGE BOUNDARY FOR ABANDONED, RETIRED-IN-PLACE SSCs. FOR DETAILS SEE ECP 14-0374.
7. INPUT/OUTPUT TO/FROM THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.

REFERENCES:

302-0371-00000	PLANT INDUSTRIAL WASTE P64
302-0739-00000	LIQUID RADWASTE SUMPS SYSTEM - EQUIPMENT DRAIN SUMPS AND OIL SEPARATORS G61
302-0741-00000	LIQUID RADWASTE SUMPS SYSTEM - LAUNDRY, CHEMICAL, AND COMMON FLOOR AND EQUIPMENT DRAIN SUMPS G61
911-0617-00000	AUXILIARY BUILDING DRAINS P68
911-0601-00000	REACTOR BUILDING DRAINS P68
911-0005-00000	LUBE OIL AREA, TURBINE LAYDOWN, AND WATER TREATMENT BUILDING DRAINS P68
911-0024-00000	HEATER BAY BUILDING DRAINS P68
911-0021-00000	TURBINE POWER COMPLEX, TURBINE BUILDING HEATER BAY AND OFF-GAS DRAINS P68
911-0022-00000	TURBINE POWER COMPLEX, TURBINE BUILDING, AND OFF-GAS DRAINS P68

DESIGN DATA

#	NORMAL		UPSET			BY	CHKD	REMARKS	REV
	PSIG	F	PSIG	F	TIME				
	SEE 302-0739-00000								

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PERRY NUCLEAR POWER PLANT
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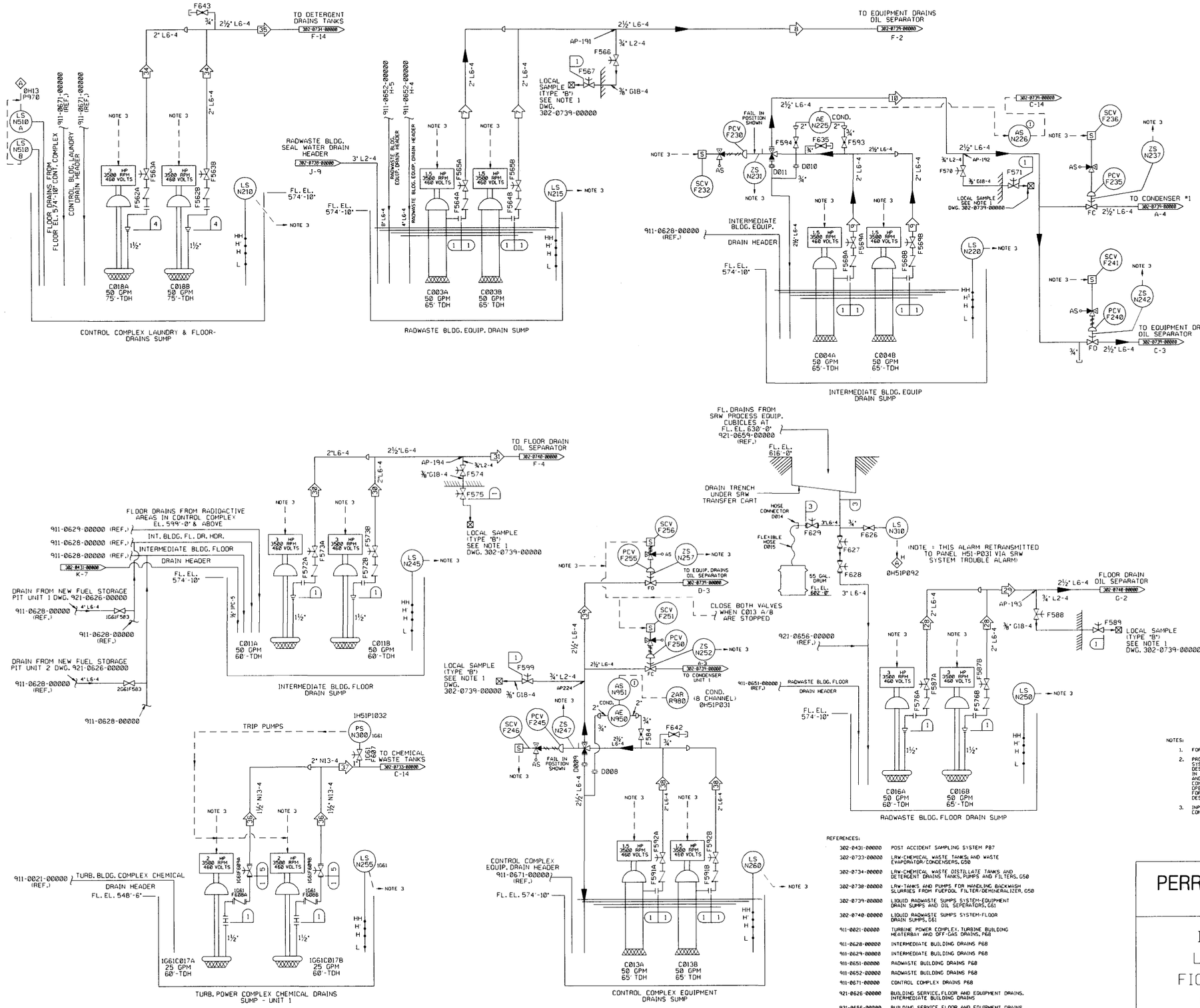
INPUT STREAMS FOR THE LIQUID RADWASTE SYSTEM
FIGURE 11.2-1 (SHEET 2 OF 4)
(DWG. D-302-0740-00000)



OPERATING DATA

SEE NOTE 2

	PSIG	GPM	F	BY	REMARKS	REV
7	28	50	70	CWE		
8	28	50-100	70	CWE		
9	28	50	70	CWE		
10	28	50-100	70	CWE		
28	25	50	70	CWE		
29	25	50-100	70	CWE		
30	25	50	70	CWE		
31	25	50-100	70	CWE		
34	28	50	150	CWE		
35	28	50-100	150	CWE		
36	25	25	70	CWE		
37	25	25-50	70	CWE		
38	32	50	70	CWE		
39	32	50-100	70	CWE		

DESIGN DATA

	NORMAL		UPSET					
	PSIG	F	PSIG	F	TIME	BY	CHKD	REMARKS	REV
SEE 302-0739-00000									

NOTES:

1. FOR NOTES SEE DRAWING 302-0739-00000.
2. 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.
3. INPUT/OUTPUT TO/FROM THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.

REFERENCES:

302-0431-00000	POST ACCIDENT SAMPLING SYSTEM P87
302-0733-00000	LRW-CHEMICAL WASTE TANKS AND WASTE EVAPORATOR/CONDENSERS, G50
302-0734-00000	LRW-CHEMICAL WASTE DISTILLATE TANKS AND DETERGENT DRAINS TANKS, PUMPS AND FILTERS, G50
302-0738-00000	LRW-TANKS AND PUMPS FOR HANDLING BACKWASH SLURRIES FROM FUEPOOL FILTER/DEMINERALIZER, G50
302-0739-00000	LIQUID RADWASTE SUMPS SYSTEM-EQUIPMENT DRAIN SUMPS AND OIL SEPERATORS, G61
302-0740-00000	LIQUID RADWASTE SUMPS SYSTEM-FLOOR DRAIN SUMPS, G61
911-0021-00000	TURBINE POWER COMPLEX, TURBINE BUILDING HEATERBAY AND OFF-GAS DRAINS, P68
911-0628-00000	INTERMEDIATE BUILDING DRAINS P68
911-0629-00000	INTERMEDIATE BUILDING DRAINS P68
911-0651-00000	RADWASTE BUILDING DRAINS P68
911-0652-00000	RADWASTE BUILDING DRAINS P68
911-0671-00000	CONTROL COMPLEX DRAINS P68
921-0626-00000	BUILDING SERVICE, FLOOR AND EQUIPMENT DRAINS. INTERMEDIATE BUILDING DRAINS
921-0656-00000	BUILDING SERVICE, FLOOR AND EQUIPMENT DRAINS. RADWASTE BUILDING DRAINS
921-0659-00000	BUILDING SERVICE, FLOOR AND EQUIPMENT DRAINS. RADWASTE BUILDING DRAINS

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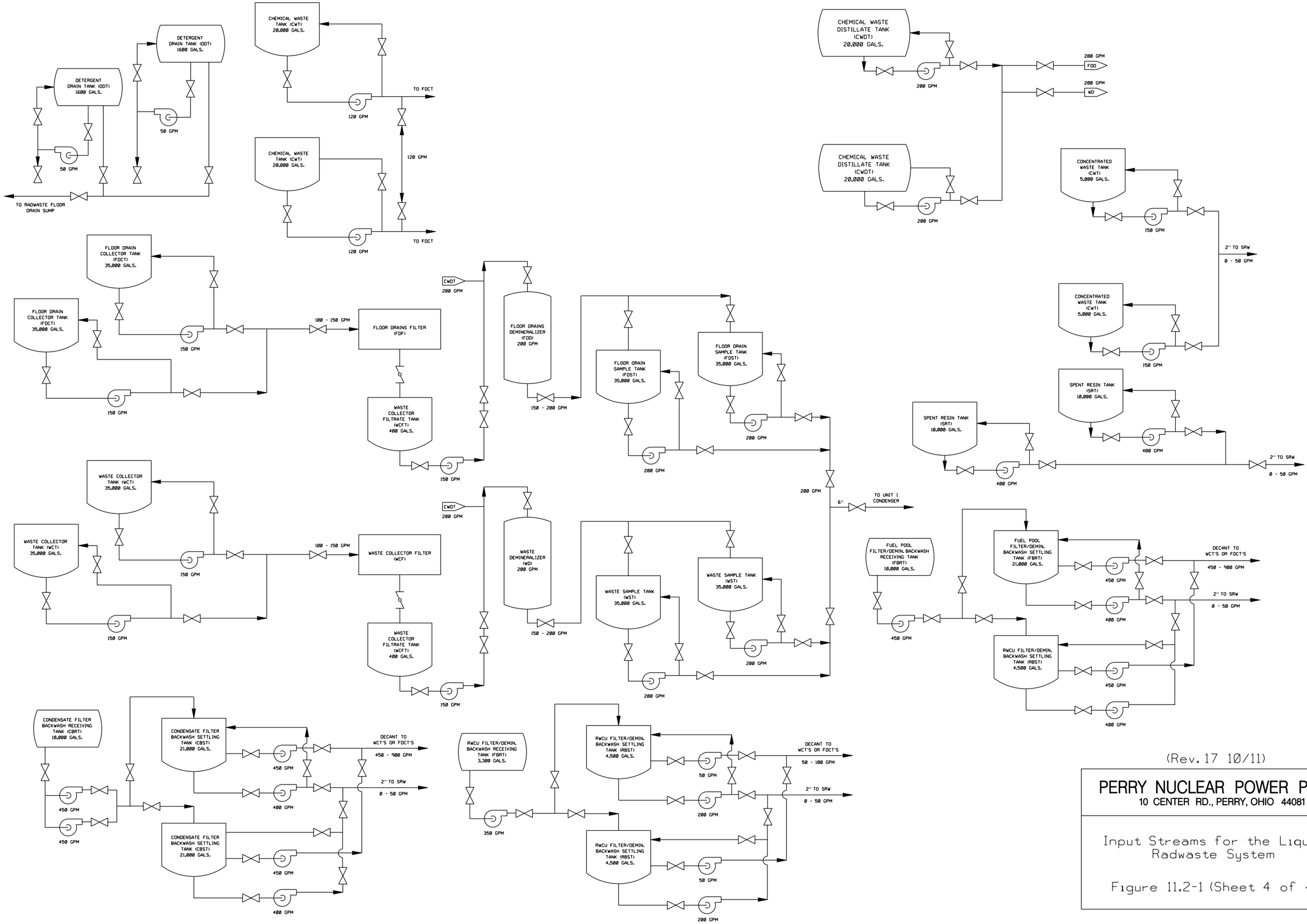
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

INPUT STREAMS FOR THE LIQUID RADWASTE SYSTEM FIGURE 11.2-1 (SHEET 3 OF 4) (DWG. D-302-0741-00000)



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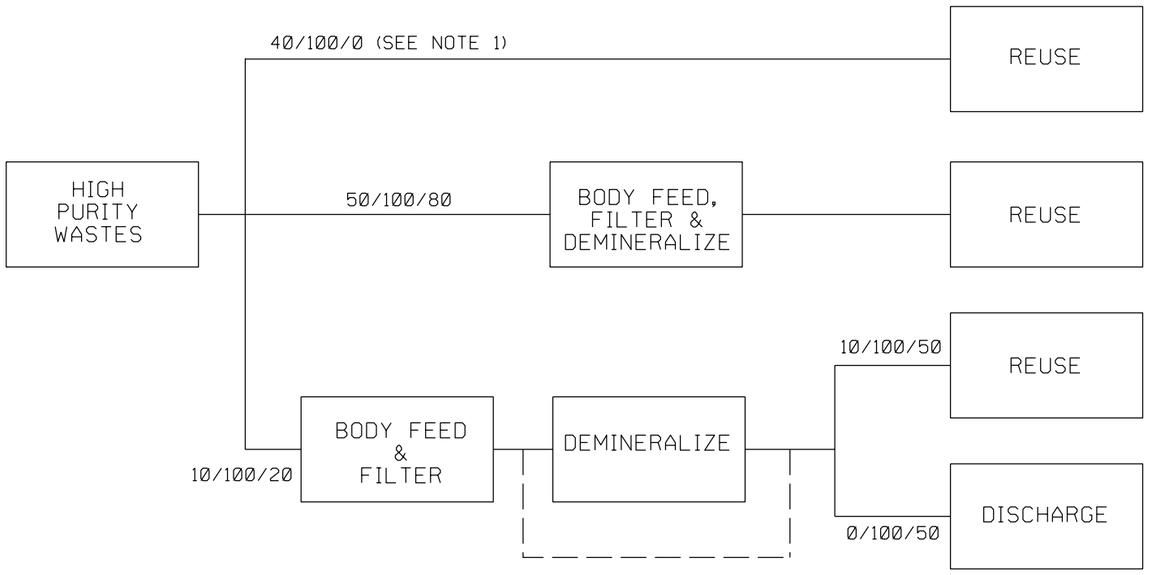
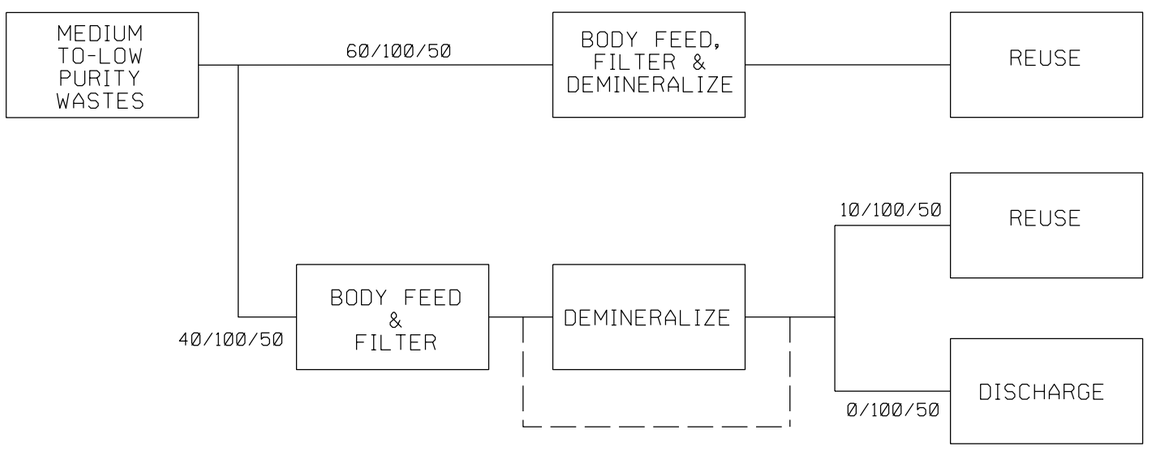
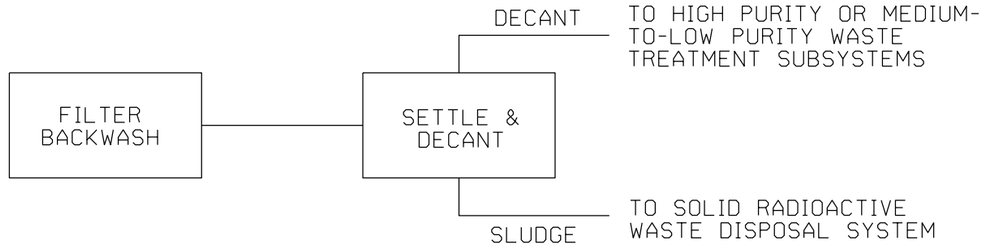
Input Streams for the Liquid Radwaste System

Figure 11.2-1 (Sheet 4 of 4)







NOTES:

1. THE THREE PERCENTAGES GIVEN FOR EACH FLOW PATH REPRESENT, IN ORDER, a) THE PERCENTAGE OF THE TOTAL FLOW NORMALLY EXPECTED TO USE THAT FLOW PATH, b) THE PERCENTAGE OF THE TOTAL FLOW USED TO DESIGN AND SIZE EQUIPMENT AND PIPING FOR THAT FLOW PATH, AND c) THE PERCENTAGE OF THE TOTAL FLOW USED TO CALCULATE THE QUANTITY OF RADIOACTIVE ISOTOPES DISCHARGED BY WAY OF THAT FLOW PATH.

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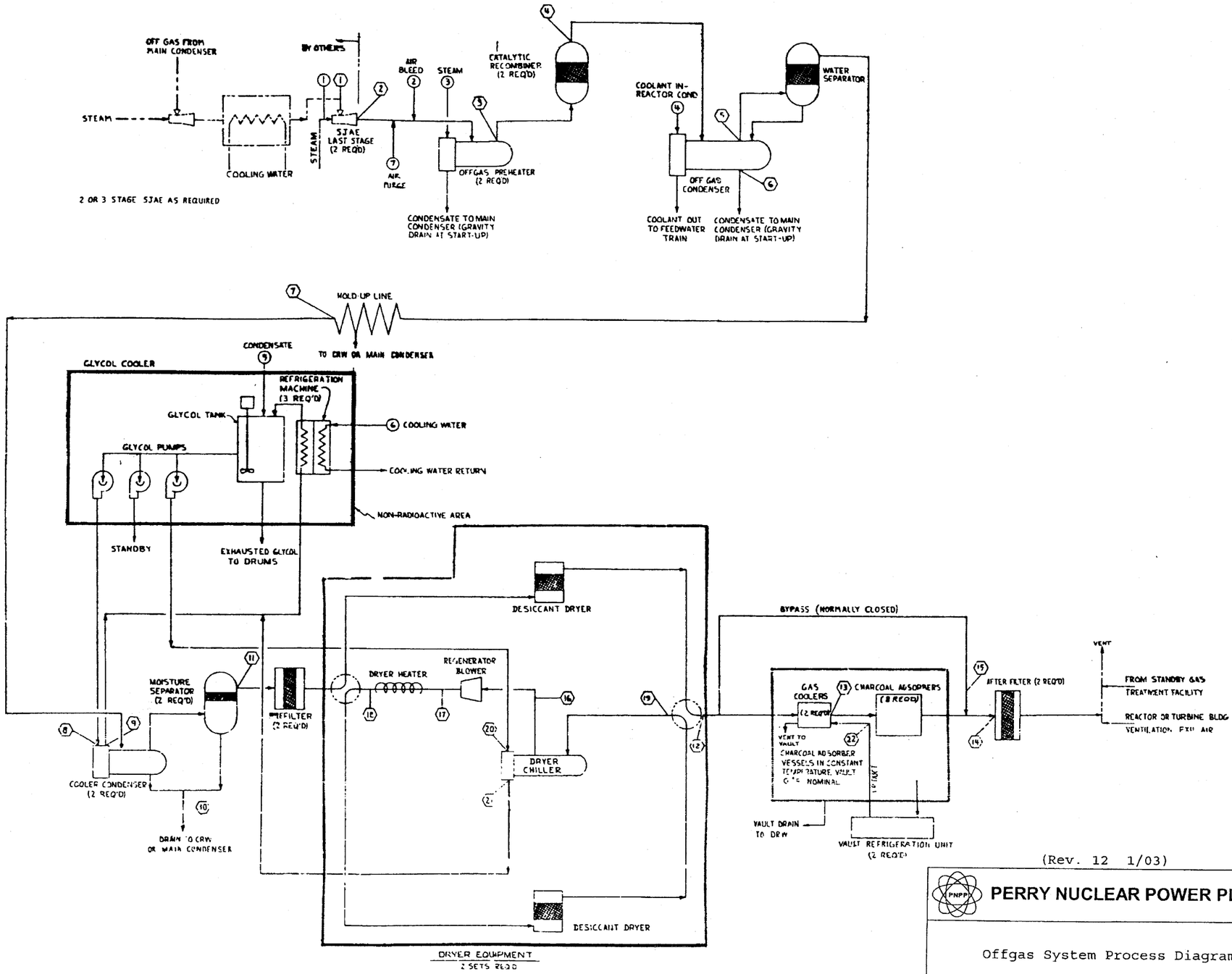
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

Process Flow Paths for the Liquid Radwaste System

Figure 11.2-2



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PERRY NUCLEAR POWER PLANT

Offgas System Process Diagram

Figure 11.3-1 (Sheet 1 of 2)

			①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	㉒
	STREAM NUMBER		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	㉒
	STREAM DESCRIPTION		DISCH. FROM INTERMEDIATE STAGE OF SJAE	STEAM DILUTED OFF GAS	PREHEATER DISCHARGE	RECOMBINER DISCHARGE	CONDENSER DISCHARGE	CONDENSER CONDENSATE	HOLD-UP PIPE DISCHARGE (NOTE 8)	GLYCOL SOLUTION INLET	GLYCOL SOLUTION DISCHARGE	COOLER CONDENSATE	MOISTURE SEPARATOR DISCHARGE	DRYER DISCHARGE	CHARCOAL BED FEED	CHARCOAL BED DISCHARGE	BYPASS (NOTE 2)	VAULT REFRIGERATION AIR
NORMAL OPERATION	FLOW RATE, POUNDS PER HOUR	AIR	138	138	138	138	143	- - -	143	- - -	- - -	- - -	143	143	143	143	143	18300
		HYDROGEN (RADIOLYTIC ONLY)	45.2	45.2	45.2	0.002	0.002	- - -	0.002	- - -	- - -	- - -	0.002	0.002	0.002	0.002	0.002	---
		OXYGEN (RADIOLYTIC ONLY) (NOTE 13)	361.0	361.0	361.0	0.016	0.016	- - -	0.016	- - -	- - -	- - -	0.016	0.016	0.016	0.016	0.016	---
		WATER (OR GLYCOL SOLUTION)	~124.0	9,624.0	9,624.0	10,030.2	32.7	7995.5	32.7	33,250	33,250	31.9	0.89	0.003	0.003	0.003	0.003	---
		TOTAL -	668.2	10,168.2	10,168.2	10,168.2	175.7	7995.5	175.7	33,250	33,250	31.9	143.8	143.0	143.0	143.0	143.0	18300
	FLOW RATE, GALLONS/MINUTE		- - -	- - -	- - -	- - -	- - -	20.0	- - -	65	65	0.064	- - -	- - -	- - -	- - -	- - -	4000SCFM (TOTAL FOR 1 COOLERS)
	RADIOACTIVITY, µC/SEC	RARE GASES, KRYPTON & XENON	$\sim 1.27 \times 10^{6}$	$\sim 1.27 \times 10^{6}$	$\sim 1.27 \times 10^{6}$	$\sim 1.27 \times 10^{6}$	$\sim 1.27 \times 10^{6}$	NEGL.	1.9×10^{5}	- - -	- - -	NEGL.	1.9×10^{5}	1.9×10^{5}	1.9×10^{5}	50	(NOTE 2)	-------
		NITROGEN-13	3.6×10^{3}	3.6×10^{3}	3.6×10^{3}	3.6×10^{3}	3.6×10^{3}	NEGL.	1.8×10^{3}	- - -	- - -	NEGL.	1.8×10^{3}	1.8×10^{3}	1.8×10^{3}	NEGL.	(NOTE 2)	-------
	TEMPERATURE, DEGREES F		- - -	~228	350	~830	154	~154	~154	35	36	~45	45	90	-3	0	90	-7
	PRESSURE, PSIA (NOTE 7)		- - -	16.8	16.4	15.9	15.6	15.6	15.5	65	55	- - -	15.5	15.4	15.4 (NOTE 6)	14.8	14.8	
STARTUP OPERATION	FLOW RATE, POUNDS PER HOUR	AIR	1,150	1,150	1,150	1,150	1,150	- - -	1,150	- - -	- - -	- - -	1,150	1,150	1,150	1,150	1,150	~36600
		HYDROGEN (RADIOLYTIC)	2.3	2.3	2.3	0.02	0.02	- - -	0.02	- - -	- - -	- - -	0.02	0.02	0.02	0.02	0.02	---
		OXYGEN	18.1	18.1	18.1	0.16	0.16	- - -	0.16	- - -	- - -	- - -	0.18	0.16	0.16	0.15	0.18	---
		WATER	~133	9,633	9,633	9,653.2	90.9	9,562.3	90.9	33,250	33,250	85.3	5.6	0.021	0.021	0.021	0.021	---
		TOTAL	1,303.4	10,803.4	10,803.4	10,803.4	1,241.1	9,562.3	1,241.1	33,250	33,250	85.3	1,155.8	1,150.2	1,150.2	1,150.2	1,150.2	~36600
	TEMPERATURE, DEGREES F.		- - -	~228	350	374	130	~130	~130	35	40	45	45	90	3	3	90	-7
	PRESSURE, PSIA (NOTE 7)		- - -	20.8	20.6	20.1	19.7	19.7	19.2	65	55	- - -	18.9	18.3	17.9 (NOTE 6)	18.0	18.0	---

			⑯	⑰	⑱	⑲	⑳	㉑
	STREAM NUMBER		⑯	⑰	⑱	⑲	⑳	㉑
	STREAM DESCRIPTION		DRYER CHILLER DISCHARGE	REGENERATION BLOWER DISCHARGE	DRYER HEATER DISCHARGE	DRYER DISCHARGE	GLYCOL INLET	GLYCOL DISCHARGE
REGEN-ERATION OPERATION	FLOW RATE, POUNDS PER HOUR	AIR	962/1220 *	962/1220 *	962/1220 *	962/1220 *	- - -	- - -
		HYDROGEN (RADIOLYTIC ONLY)	0.05	0.05	0.05	0.05	- - -	- - -
		OXYGEN (RADIOLYTIC ONLY)	0.41	0.41	0.41	0.41	- - -	- - -
		WATER (OR GLYCOL SOLUTION)	~3.2	~3.2	~3.2	<60 (NOTE 11)	33,250	33,250
		TOTAL -	966/1225 *	966/1225 *	966/1225 *	966/1225 *	33,250	33,250
	FLOW RATE, GALLONS/MINUTE		- - -	- - -	- - -	- - -	65	65
	TEMPERATURE, DEGREES F		45	75	495	70-425/425-90 *	35	37
	PRESSURE, PSIA (NOTE 7)		15.5/18.9 *	17.2/18.6 *	17.1/20.5 *	16.2/19.8 *	- - -	- - -

* HEATING/COOLING MODE

			①	②	③	④	⑤	⑥	⑦
	UTILITY STREAM NUMBER		①	②	③	④	⑤	⑥	⑦
	STREAM DESCRIPTION		DILUTION STEAM (NOTE 4)	AIR BLEED (NOTE 1)	PREHEATER STEAM (NOTE 4)	REACTOR CONDENSATE	DILUTION CONDENSATE (NOTE 10)	COOLING WATER	AIR PURGE (NOTE 1)
NORMAL OPERATION	FLOW RATE, POUNDS PER HOUR	AIR	- - -	28	- - -	- - -	- - -	- - -	5
		HYDROGEN (RADIOLYTIC ONLY)	- - -	- - -	- - -	- - -	- - -	- - -	- - -
		OXYGEN (RADIOLYTIC ONLY)	- - -	- - -	- - -	- - -	- - -	- - -	- - -
		WATER (OR GLYCOL SOLUTION)	9,500		832	1.09×10^{7}	- - -	40,000	- - -
		TOTAL -	9,500	28	832	1.09×10^{7}	- - -	40,000	5
	FLOW RATE, GALLONS/MINUTE		- - -	- - -	- - -	2.18×10^{4}	- - -	80	- - -
	RADIOACTIVITY, µC/SEC	RARE GASES, KRYPTON & XENON	- - -	- - -	- - -	- - -	- - -	- - -	- - -
		NITROGEN-13	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	TEMPERATURE, DEGREES F		338	70	406	134MAX	- - -	110	70
	PRESSURE, PSIA (NOTE 7)		114.7	50 (NOTE 12)	265	140 (NOTE 3)	- - -	~65	50 (NOTE 12)
STARTUP OPERATION	FLOW RATE, POUNDS PER HOUR	AIR	- - -	276	- - -	- - -	- - -	- - -	5
		HYDROGEN (RADIOLYTIC)	- - -	- - -	- - -	- - -	- - -	- - -	- - -
		OXYGEN (RADIOLYTIC)	- - -	- - -	- - -	- - -	- - -	- - -	- - -
		WATER	9,500		836	3.64×10^{6}	25,000	60,000	- - -
		TOTAL -	9,500	276	836	3.64×10^{6}	25,000	60,000	5
	TEMPERATURE, DEGREES F		338	70	406	110MAX	~ 85	110	70
	PRESSURE, PSIA (NOTE 7)		114.7	25	265	140	~ 45	~ 65	25

NOTES:

1. COMPRESSED AIR USED FOR PRE-STARTUP AND SYSTEM PURGING ONLY. SUPPLY AIR TO BE OIL FREE, DERIVED FROM A NON-OIL LUBRICATED COMPRESSOR.
2. USE BYPASS ONLY FOR INITIAL PLANT STARTUP AND DURING PERIOD OF LOW FUEL LEAKAGE.
3. FOR M-CYCLE FORWARD PUMPED PLANT. CONDENSATE SHUTOFF PRESSURE ~ 176 PSIG: DESIGN PRESSURE 250 PSIG.
4. NUCLEAR STEAM USED FOR NORMAL OPERATION AND STARTUP. SIZE PREHEATER AND CONDENSER FOR 115% STEAM FLOW.
5. DELETED
6. CHARCOAL ADSORBER BED SYSTEM DIFFERENTIAL PRESSURE AT NORMAL AND STARTUP BASED ON 2 PARALLEL, ADSORBER TRAINS EACH WITH 4 ADSORBERS, AND EACH ADSORBER 4.0' DIAMETER X 19' PACKED BED WITH 8 - 14 MESH CHARCOAL.
7. EJECTOR TO BE PROVIDED TO PERFORM AGAINST 6.7 PSIG. BACK PRESSURE AT CITED STARTUP AIR RATE TO ASSURE PROCESS FLEXIBILITY. SUB-SYSTEM DIFFERENTIAL PRESSURE TO BE MAINTAINED AS SHOWN IN DATA SHEETS.
8. HOLDUP PIPE TO BE DESIGNED FOR TURBULENT FLOW WITH 10 MINUTE DELAY OF BULK GAS AT DESIGN BASIS NORMAL FLOW RATE.
9. SUPPORTING DOCUMENT NO. 1 SHALL BE USED WITH & FORM A PART OF THIS PROCESS DATA. IF THERE ARE ANY CONFLICTS BETWEEN THE PROCESS DIAGRAM AND THIS PROCESS DATA, THE PROCESS DATA SHALL GOVERN.
10. A TOTAL OF 2,100 GALLONS REQUIRED FOR MAKING NEW SOLUTION. NEW SOLUTION REQUIRED LESS THAN ONCE EVERY 5 YEARS. AT THAT TIME THE REQUIRED DELIVERY CAPACITY FOR REPILLING THE GLYCOL TANK IS THE CITED STARTUP FLOW RATE.
11. WATER TO BE REMOVED IS ABOUT 60 POUNDS AND THE REACTIVATION TIME IS ABOUT 12 HOURS.
12. MINIMUM SUPPLY PRESSURE ON UPSTREAM SIDE OF RESTRICTING ORIFICE TO ENSURE SONIC FLOW.
13. LISTED RADIOLYTIC OXYGEN VALUES ARE BASED ON NORMAL WATER CHEMISTRY. DURING OPERATION OF HYDROGEN WATER CHEMISTRY (HWC) RADIOLYTIC OXYGEN LEVELS ARE SIGNIFICANTLY REDUCED.

SUPPORTING DOCUMENTS:

1. OFF GAS SYSTEM LOW TEMP. PROCESS DIAGRAM - - - - - - - - - 761E918

DESIGN BASIS:

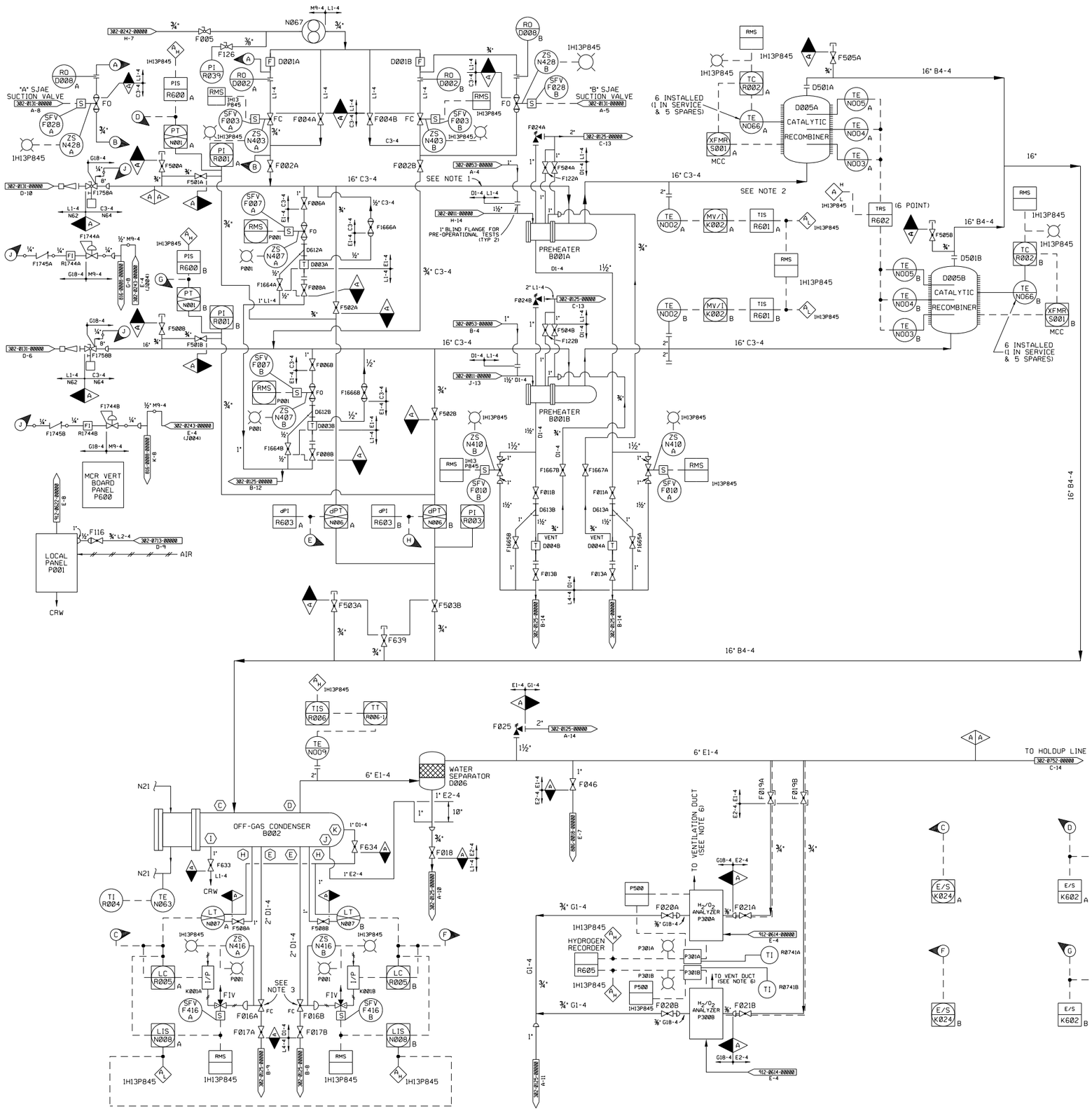
100,000 µC/SEC 1971 GAS MIXTURE AFTER 30 MINUTES
0°F. CHARCOAL TEMPERATURE.
30 STD CU FT (60°F., 1 ATM)/MIN AIR FLOW AT NORMAL OPERATION.

(Rev. 14 10/05)

PERRY NUCLEAR POWER PLANT

Offgas System Process Diagram

Figure 11.3-1 (Sheet 2 of 2)



NOTES:

1. INSULATED PIPING FROM STEAM JET AIR EJECTORS UP TO OFF-GAS CONDENSER AND FROM COOLER CONDENSER TO CHARCOAL VAULT.
2. PIPE FROM AIR EJECTOR TO BE SLOPED SO CONDENSATE CAN BE DRAINED AND NOT ENTER RECOMBINER.
3. THESE VALVES TO BE LOCATED PHYSICALLY CLOSE TO THE MAIN CONDENSER TO MINIMIZE THE EFFECT OF FLASHING.
4. THIS SYSTEM DIAGRAM IS A PHOTOGRAPHIC REPRODUCTION OF G.E. DWG. NO. 761E908, SHEET 1. THIS DWG. WAS SUBSEQUENTLY REPLACED BY G.E. DWG. 796E375.
5. FOR CONTROL ROOM, LOCAL OR REMOTE PANEL AND RACK I.D. NUMBERS FOR INSTRUMENTS, SEE THE INSTRUMENT INDEX.
6. ANALYZER EXHAUST PROVIDED BY M36 SYSTEM.
7. THE SYMBOL (A) DESIGNATES THOSE NON-SAFETY AREAS OF THE SYSTEM WHERE THE AUGMENTED QUALITY OF ASSURANCE PROGRAM REQUIREMENTS DEFINED IN SP-45 APPLY. THE INTERFACING INSTRUMENT AIRLINES AND INSTRUMENTATION ARE NOT PART OF THE DEFINED D.A. PROGRAM.
8. NO IMPACT TESTS ARE REQUIRED FOR PIPING (C3-4) BETWEEN SJAE AND RECOMBINERS.

REFERENCES:

302-0011-00000	MAIN STEAM SYSTEM N11
302-0053-00000	AUXILIARY STEAM SYSTEM P61
302-0101-00000	CONDENSATE SYSTEM N21
302-0131-00000	CONDENSER AIR REMOVAL SYSTEM N62
302-0125-00000	MAIN, REHEAT, EXTRACTION, AND MISCELLANEOUS DRAINS SYSTEM N22
302-0242-00000	SERVICE AIR DISTRIBUTION SYSTEM P51
302-0713-00000	MIXED BED DEMINERALIZER AND DISTRIBUTION SYSTEM MIXED BED EXCHANGER, STORAGE, AND NORTH ZONE DISTRIBUTION SYSTEM P22
302-0752-00000	OFF-GAS SYSTEM N64
806-0018-00000	PLANT RADIATION MONITORING SYSTEM D17
912-0614-00000	TURBINE BUILDING VENTILATION M35
912-0622-00000	OFF-GAS BUILDING EXHAUST M36

SUPPORTING DOCUMENTS:

MPL. NO.	
A42-1010	PIPING AND INSTRUMENT SYMBOLS
A62-4030	PRESSURE INTEGRITY OF PIPING EQUIPMENT PRESSURE RATING

(REV. 20 10/2017)

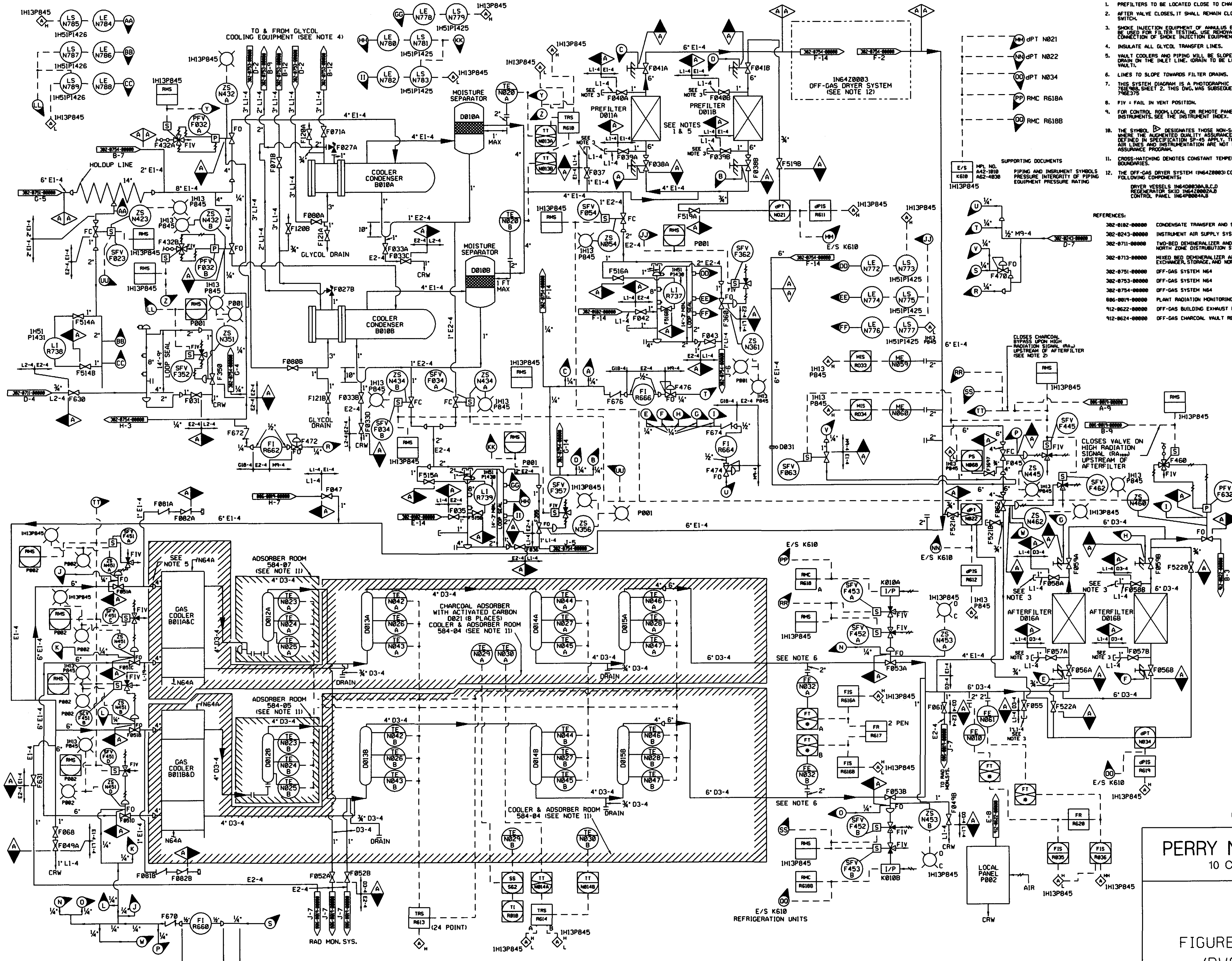
PERRY NUCLEAR POWER PLANT

10 CENTER RD., PERRY, OHIO 44081

OFFGAS SYSTEM

FIGURE 11.3-2 (SHEET 1 OF 4)

(DWG. D-302-0751-00000)



SUPPORTING DOCUMENTS

E/S K610	MPL NO.	
	A42-1010	PIPING AND INSRUMENT SYMBOLS
	A62-4030	PRESSURE INTERGRITY OF PIPING
		EQUIPMENT PRESSURE RATING

NOTES:

1. PREFILTERS TO BE LOCATED CLOSE TO CHARCOAL ADSORBERS.
2. AFTER VALVE CLOSES, IT SHALL REMAIN CLOSED UNTIL RESET BY MANUAL SWITCH.
3. SMOKE INJECTION EQUIPMENT OF ANNULUS EXHAUST GAS TREATMENT SYSTEM TO BE USED FOR FILTER TESTING. USE REMOVABLE THREADED CAPS PROVIDED FOR CONNECTION OF SMOKE INJECTION EQUIPMENT.
4. INSULATE ALL GLYCOL TRANSFER LINES.
5. VAULT COOLERS AND PIPING WILL BE SLOPED TO DRAIN MOISTURE OUT THE DRAIN ON THE INLET LINE. (DRAIN TO BE LOCATED OUTSIDE THE REFRIGERATED VAULT).
6. LINES TO SLOPE TOWARDS FILTER DRAINS.
7. THIS SYSTEM DIAGRAM IS A PHOTOGRAPHIC REPRODUCTION OF G.E. DWG. 761E908, SHEET 2. THIS DWG. WAS SUBSEQUENTLY REPLACED BY G.E. DWG. 796E375
8. FIV = FAIL IN VENT POSITION.
9. FOR CONTROL ROOM, LOCAL OR REMOTE PANEL AND RACK I.D. NUMBERS FOR INSTRUMENTS. SEE THE INSTRUMENT INDEX.
10. THE SYMBOL ▷ DESIGNATES THOSE NON-SAFETY AREAS OF THE SYSTEM WHERE THE AUGMENTED QUALITY ASSURANCE PROGRAM REQUIREMENTS DEFINED IN SPECIFICATION SP-45 APPLY. THE INTERFACING INSTRUMENT AIR LINES AND INSTRUMENTATION ARE NOT PART OF THE DEFINED QUALITY ASSURANCE PROGRAM.
11. CROSS-HATCHING DENOTES CONSTANT TEMPERATURE SHIELDED VAULT BOUNDARIES.
12. THE OFF-GAS DRYER SYSTEM (1N64Z0003) CONSISTS OF THE FOLLOWING COMPONENTS:
    DRYER VESSELS 1N64D0030A,B,C,D
    REGENERATOR SKID 1N64Z0002A,B
    CONTROL PANEL 1N64P0004A,B

REFERENCES:

302-0102-00000	CONDENSATE TRANSFER AND STORAGE SYSTEM P11
302-0243-00000	INSTRUMENT AIR SUPPLY SYSTEM P52
302-0711-00000	TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM AND NORTH ZONE DISTRUBUTION SYSTEM P21
302-0713-00000	MIXED BED DEMINERALIZER AND DISTRIBUTION SYSTEM MIXED BED EXCHANGER, STORAGE, AND NORTH ZONE DISTRIBUTION SYSTEM P22
302-0751-00000	OFF-GAS SYSTEM N64
302-0753-00000	OFF-GAS SYSTEM N64
302-0754-00000	OFF-GAS SYSTEM N64
806-0019-00000	PLANT RADIATION MONITORING SYSTEM D17
912-0622-00000	OFF-GAS BUILDING EXHAUST M37
912-0624-00000	OFF-GAS CHARCOAL VAULT REFRIGERATION SYSTEM N64A

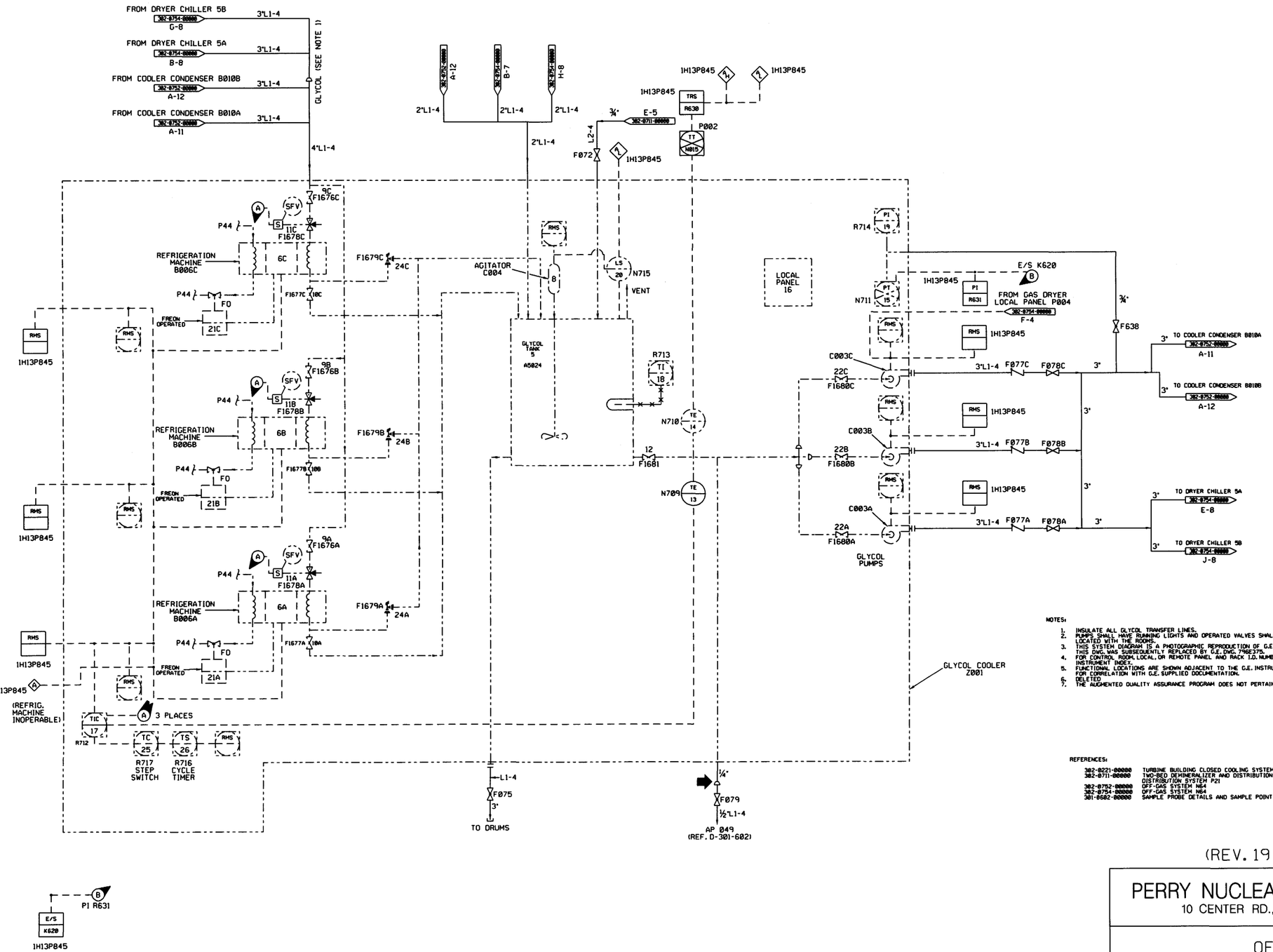
(REV. 19 10/2015)

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

OFFGAS SYSTEM

FIGURE 11.3-2 (SHEET 2 OF 4)

(DWG. D-302-0752-00000)



NOTES:

1. INSULATE ALL GLYCOL TRANSFER LINES.
2. PUMPS SHALL HAVE RUNNING LIGHTS AND OPERATED VALVES SHALL HAVE POSITION INDICATING LIGHT LOCATED WITH THE PUMPS.
3. THIS SYSTEM DIAGRAM IS A PHOTOGRAPHIC REPRODUCTION OF G.E. DWG. NO. 761E988, SHEET 3. THIS DWG. WAS SUBSEQUENTLY REPLACED BY G.E. DWG. 796E375.
4. FOR CONTROL ROOM, LOCAL, OR REMOTE PANEL AND RACK I.D. NUMBERS FOR INSTRUMENTS, SEE THE INSTRUMENT INDEX.
5. FUNCTIONAL LOCATIONS ARE SHOWN ADJACENT TO THE G.E. INSTRUMENT, VALVE, AND EQUIPMENT DESIGNATORS FOR CORRELATION WITH G.E.-SUPPLIED DOCUMENTATION.
6. DELETED
7. THE AUGMENTED QUALITY ASSURANCE PROGRAM DOES NOT PERTAIN TO THIS DWG.

REFERENCES:

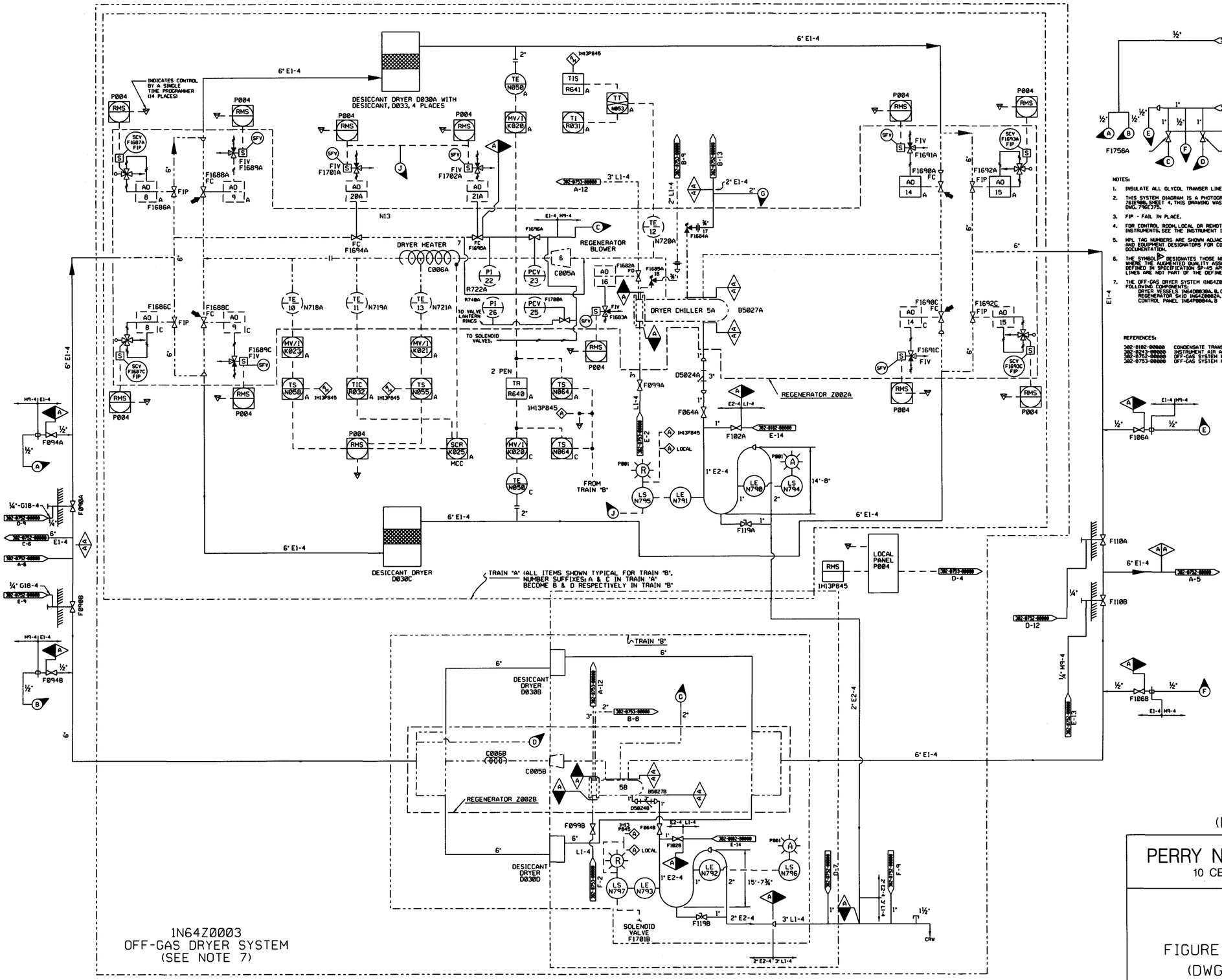
382-0221-00000	TURBINE BUILDING CLOSED COOLING SYSTEM P44
382-0711-00000	TWO-BED DEMINERALIZER AND DISTRIBUTION SYSTEM AND NORTH ZONE DISTRIBUTION SYSTEM P21
382-0752-00000	OFF-GAS SYSTEM N64
382-0754-00000	OFF-GAS SYSTEM N64
381-8682-00000	SAMPLE PROBE DETAILS AND SAMPLE POINT SCHEDULE

(REV. 19 10/2015)

PERRY NUCLEAR POWER PLANT

10 CENTER RD., PERRY, OHIO 44081

OFFGAS
SYSTEM
FIGURE 11.3-2 (SHEET 3 OF 4)
(DWG. D-302-0753-00000)



NOTES:

1. INSULATE ALL GLYCOL TRANSER LINES.
2. THIS SYSTEM DIAGRAM IS A PHOTOGRAPHIC REPRODUCTION OF G.E. DWG. NO. 761E788, SHEET 4. THIS DRAWING WAS SUBSEQUENTLY REPLACED BY G.E. DWG. 79GE375.
3. FIP - FAIL IN PLACE.
4. FOR CONTROL ROOM, LOCAL OR REMOTE PANEL AND RACK I.D. NUMBERS FOR INSTRUMENTS, SEE THE INSTRUMENT INDEX.
5. MPL TAG NUMBERS ARE SHOWN ADJACENT TO THE G.E. INSTRUMENT, VALVE, AND EQUIPMENT DESIGNATORS FOR CORRELATION WITH G.E. SUPPLIED DOCUMENTATION.
6. THE SYMBOL ▷ DESIGNATES THOSE NON-SAFETY AREAS OF THE SYSTEM WHERE THE AUGMENTED QUALITY ASSURANCE PROGRAM REQUIREMENTS DEFINED IN SPECIFICATION SP-45 APPX. Y, THE INTERFACING INSTRUMENT AIR LINES ARE NOT PART OF THE DEFINED QUALITY ASSURANCE PROGRAM.
7. THE OFF-GAS DRYER SYSTEM (1N64Z0003) CONSISTS OF THE FOLLOWING COMPONENTS:
   DRYER VESSELS 1N64D0030A, B, C, D
   REGENERATOR SKID 1N64Z0002A, B
   CONTROL PANEL 1N64P0004A, B

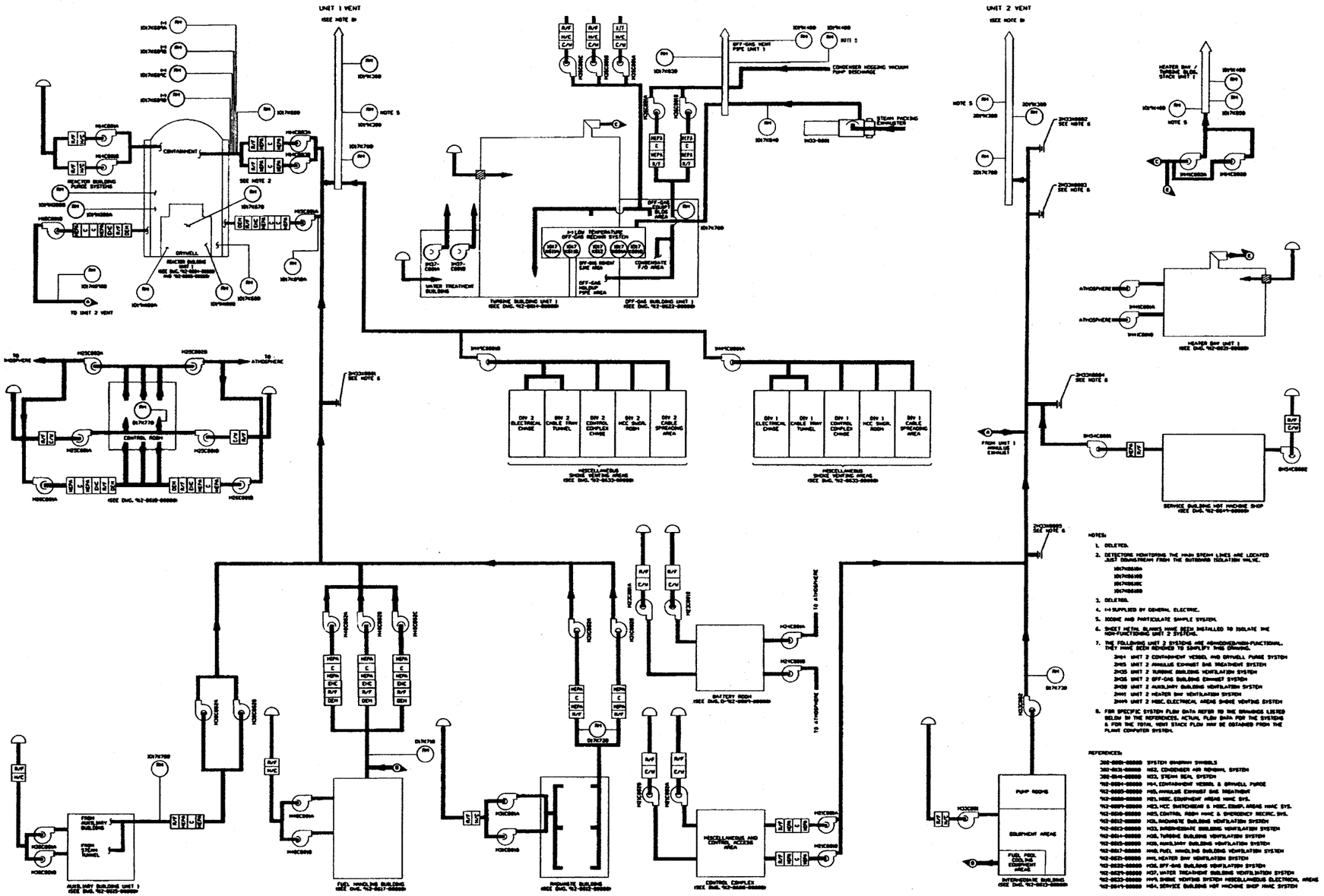
REFERENCES:

302-0102-00000	CONDENSATE TRANSFER AND STORAGE SYSTEM P11
302-0243-00000	INSTRUMENT AIR SUPPLY SYSTEM P52
302-0752-00000	OFF-GAS SYSTEM N64
302-0753-00000	OFF-GAS SYSTEM N64

(REV. 19 10/2015)

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

OFFGAS
SYSTEM
FIGURE 11.3-2 (SHEET 4 OF 4)
(DWG. D-302-0754-00000)



NOTES:

1. DELETED.
2. DETECTORS MONITORING THE MAIN STEAM LINES ARE LOCATED JUST DOWNSTREAM FROM THE OUTBOARD ISOLATION VALVE.
   - 1D17H6588A
   - 1D17H6588B
   - 1D17H6588C
   - 1D17H6588D
3. DELETED.
4. ** SUPPLIED BY GENERAL ELECTRIC.
5. IODINE AND PARTICULATE SAMPLE SYSTEM.
6. SHEET METAL BLANKS HAVE BEEN INSTALLED TO ISOLATE THE NON-FUNCTIONING UNIT 2 SYSTEMS.
7. THE FOLLOWING UNIT 2 SYSTEMS ARE ABANDONED/NON-FUNCTIONAL. THEY HAVE BEEN REMOVED TO SIMPLIFY THIS DRAWING.
   - 2H54 UNIT 2 CONTAINMENT VESSEL AND DRYWELL PURGE SYSTEM
   - 2H55 UNIT 2 ANNULUS EXHAUST GAS TREATMENT SYSTEM
   - 2H56 UNIT 2 TURBINE BUILDING VENTILATION SYSTEM
   - 2H58 UNIT 2 OFF-GAS BUILDING EXHAUST SYSTEM
   - 2H59 UNIT 2 AUXILIARY BUILDING VENTILATION SYSTEM
   - 2H61 UNIT 2 HEATER BAY VENTILATION SYSTEM
   - 2H64 UNIT 2 MISC. ELECTRICAL AREAS SHORE VENTING SYSTEM
8. FOR SPECIFIC SYSTEM FLOW DATA REFER TO THE DRAWINGS LISTED BELOW IN THE REFERENCES. ACTUAL FLOW DATA FOR THE SYSTEMS & FOR THE TOTAL VENT STACK FLOW MAY BE OBTAINED FROM THE PLANT COMPUTER SYSTEM.

REFERENCES:

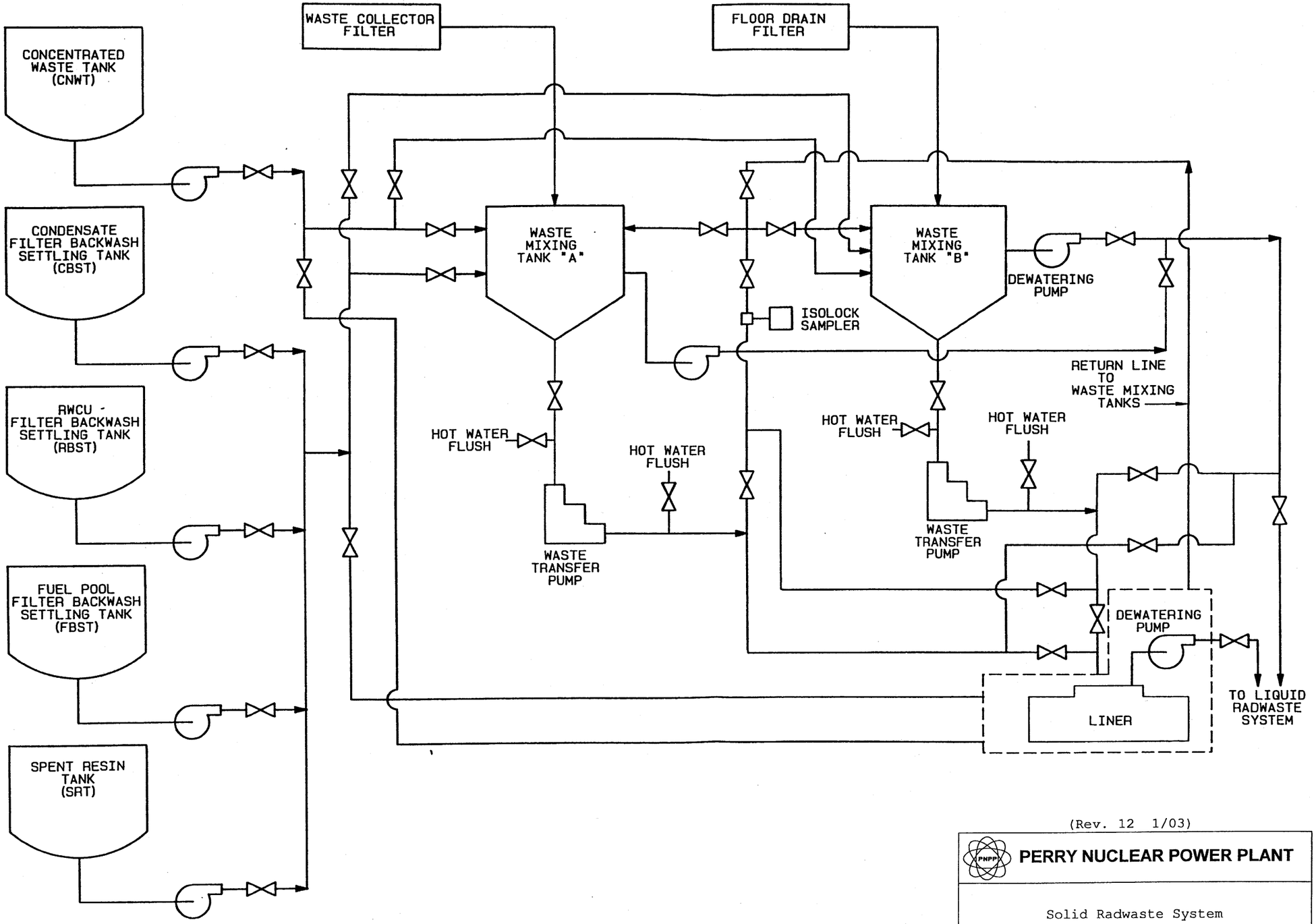
302-0005-000000	SYSTEM SYMBOL SYMBOLS
302-0006-000000	M52, CONDENSER AIR REMOVAL SYSTEM
302-0014-000000	M23, STEAM SEAL SYSTEM
102-0004-000000	H14, CONTAINMENT VESSEL & DRYWELL PURGE
102-0005-000000	H15, ANNULUS EXHAUST GAS TREATMENT
102-0008-000000	H21, MISC. EQUIPMENT AREAS HVAC SYS.
102-0009-000000	H23, HCU SWITCHGEAR & MISC. EQUIP. AREAS HVAC SYS.
102-0010-000000	H25, CONTROL ROOM HVAC & EMERGENCY RECIRC. SYS.
102-0012-000000	H28, RADWASTE BUILDING VENTILATION SYSTEM
102-0013-000000	H29, TURBINE BUILDING VENTILATION SYSTEM
102-0014-000000	H30, TURBINE BUILDING VENTILATION SYSTEM
102-0015-000000	H28, AUXILIARY BUILDING VENTILATION SYSTEM
102-0017-000000	H49, FUEL HANDLING BUILDING VENTILATION SYSTEM
102-0023-000000	H36, HEATER BAY VENTILATION SYSTEM
102-0030-000000	H38, OFF-GAS BUILDING VENTILATION SYSTEM
102-0029-000000	H37, WATER TREATMENT BUILDING VENTILATION SYSTEM
102-0035-000000	H49, SHORE VENTING SYSTEM MISCELLANEOUS ELECTRICAL AREAS
102-0041-000000	H54, SERVICE BUILDING HOT MACHINE SHOP HVAC SYSTEM

(Rev. 15 10/07)

PERRY NUCLEAR POWER PLANT

Plant Airborne
Radiation Monitoring

Figure 11.3-3
(Dwg. D-806-001)

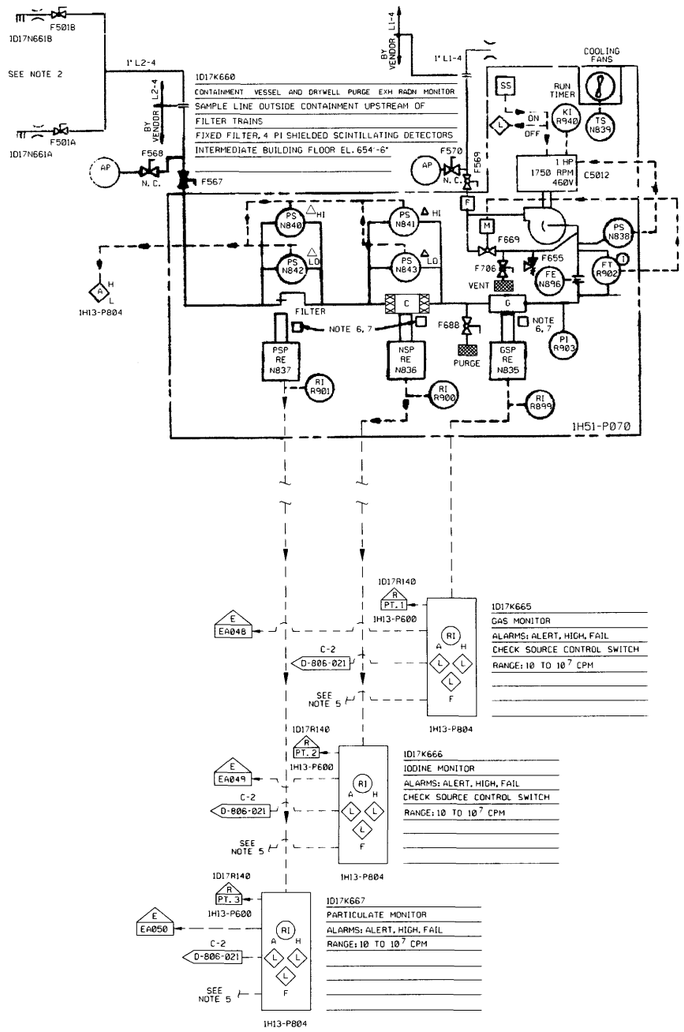


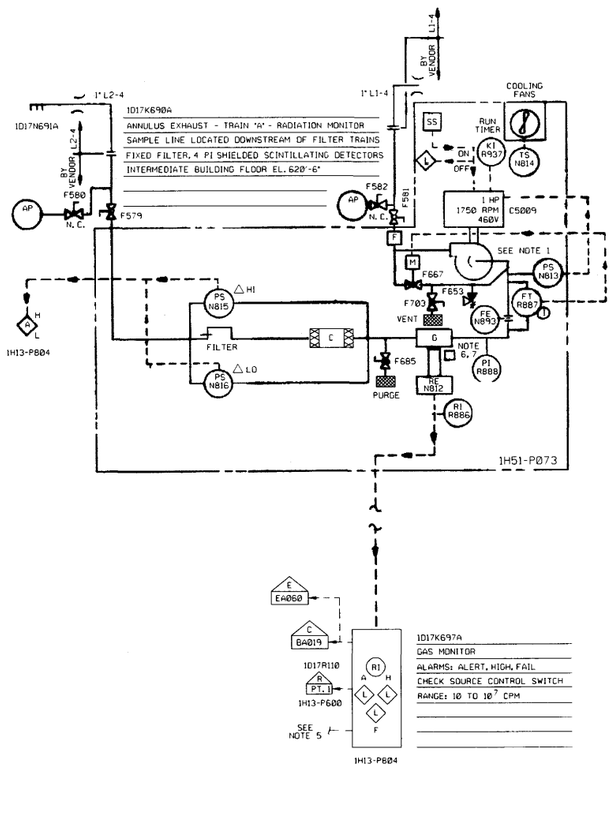
(Rev. 12 1/03)

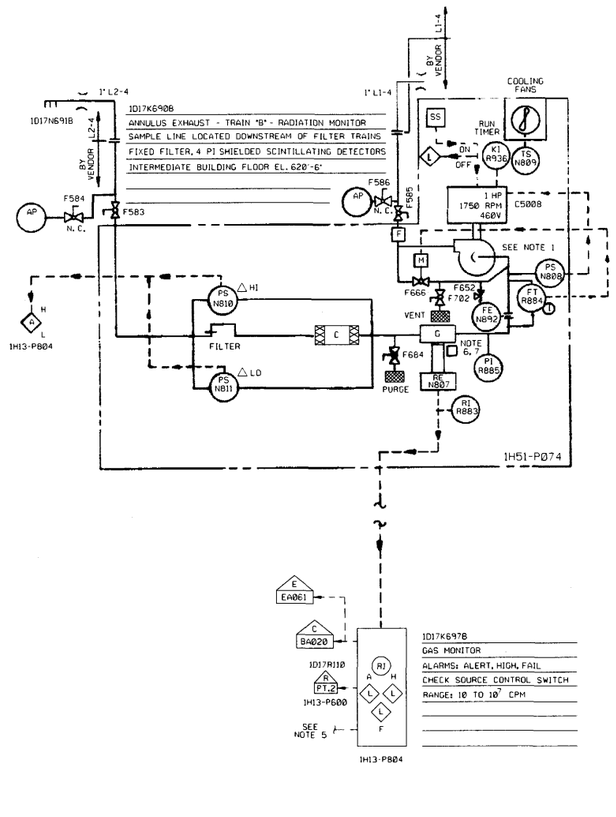
PERRY NUCLEAR POWER PLANT

Solid Radwaste System

Figure 11.4-1







NOTES:

1. SUPPLIED FROM ELECTRIC POWER BUS F1C08.
2. PROBE 1D17N661A IS SIZED FOR 5,000 CFM DUCT FLOW RATE.
   PROBE 1D17N661B IS SIZED FOR 30,000 CFM DUCT FLOW RATE.
3. EQUIPMENT ENCLOSURES ARE SUPPLIED BY VICTOREEN SP-440.
4. FLOW RATE OF ALL SUBSYSTEMS IS 1.0 SCFM.
5. FOR COMMON ALARMS, SEE DWGS. 240-0088-00000; 240-0089-00000; 240-0090-00000; 240-0105-00000.
6. CHECK SOURCES - VICTOREEN
   a. MODEL 844-38 (β,c Cs^{137}) FOR GAS & PARTICULATE B CHANNELS.
   b. MODEL 844-3 (β,c Cs^{133}) FOR IODINE γ CHANNEL
7. CHECK SOURCES ABANDONED IN PLACE PER ECP 04-0274.

REFERENCES:

D-302-0001-00000 SYSTEM DIAGRAM SYMBOLS

(REV. 19 10/2015)

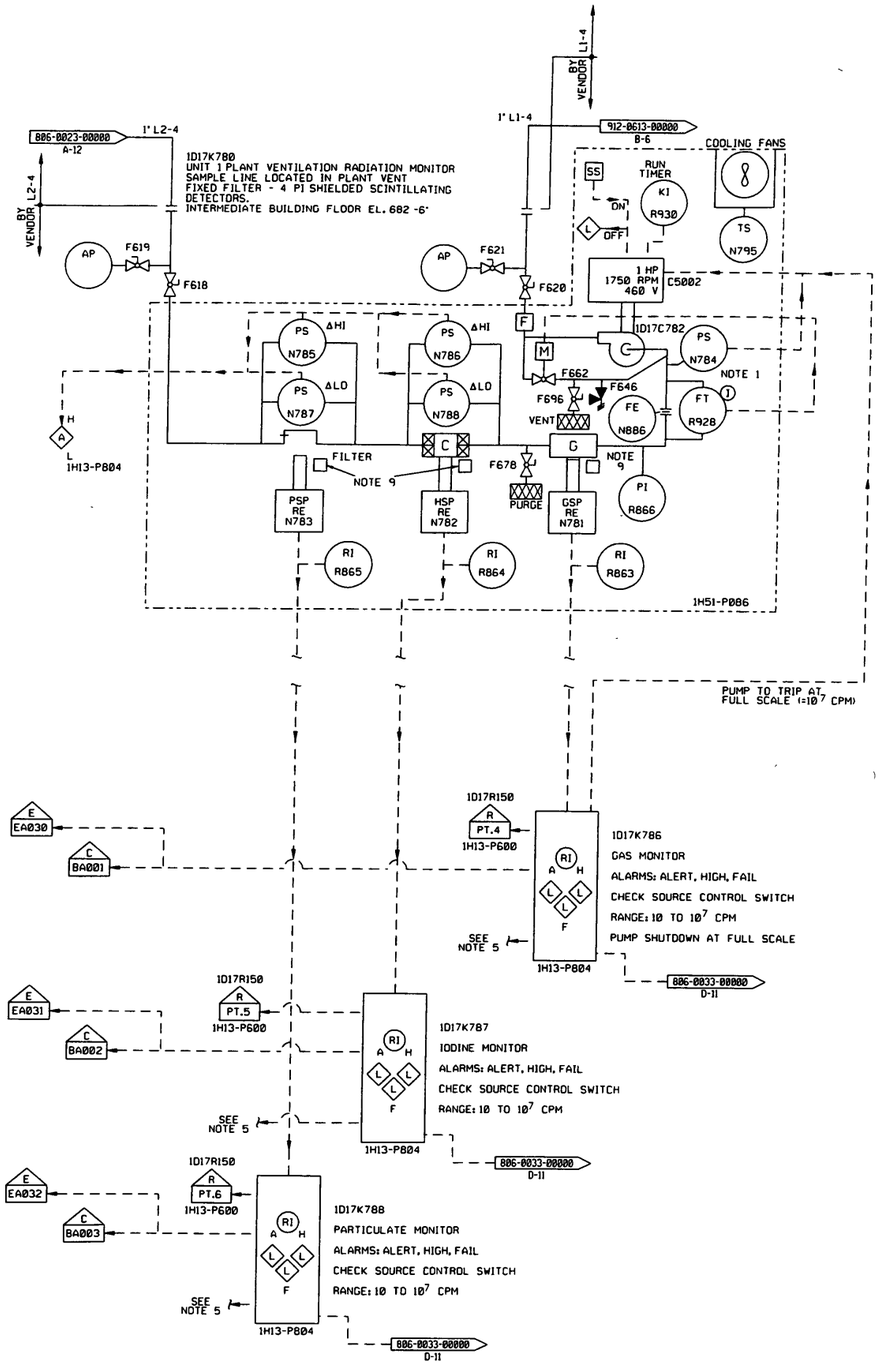
PERRY NUCLEAR POWER PLANT

10 CENTER RD., PERRY, OHIO 44081

PLANT RADIATION MONITORING

FIGURE 11.5-1 (SHEET 1 OF 12)

(DWG. D-806-0006-00000)



NOTE:

1. SUPPLIED FROM ELECTRIC POWER BUS F1C08
2. ANY HIGH ALARM FROM 1D17K680 CONTAINMENT ATMOSPHERE RADIATION MONITOR WILL ALARM THE DRYWELL/CONTAINMENT EVACUATION ALARM SYSTEM.
3. EQUIPMENT ENCLOSURES ARE SUPPLIED BY VICTOREEN SP-440.
4. FLOW RATE OF ALL SUBSYSTEMS IS 1.0 SCFM.
5. FOR COMMON ALARMS, SEE DWGS. 240-0088-00000; 240-0089-00000; 240-0090-00000; 240-0105-00000.
6. REMOVABLE SPOOL PIECE FOR LEAK TEST.
7. LEAVE OPEN AFTER LEAK TEST.
8. DELETED.
9. CHECK SOURCES ABANDONED IN PLACE PER ECP 04-0274.
10. DELETED.

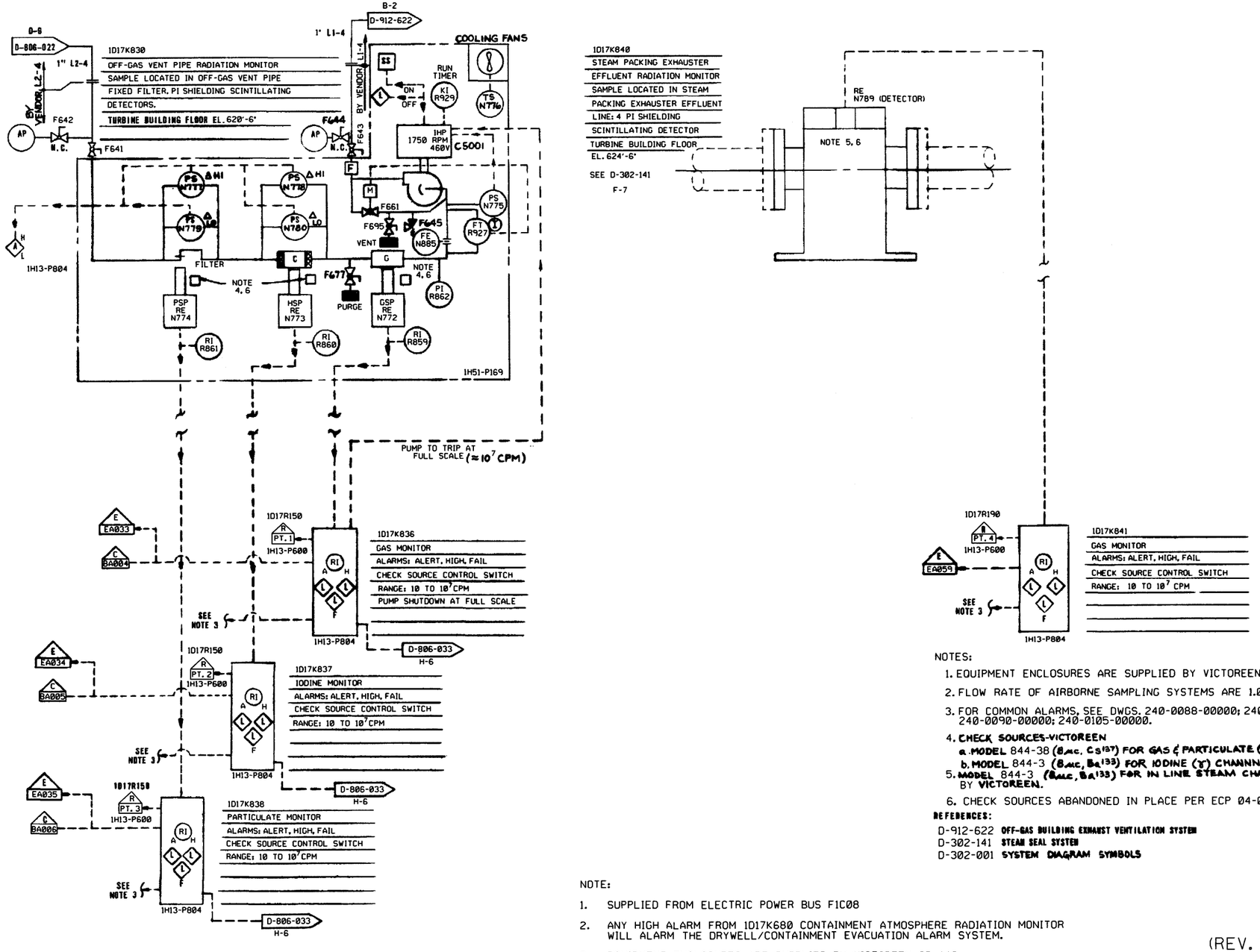
REFERENCES:

912-0613-00000	INTERMEDIATE BUILDING VENTILATION SYSTEM
302-0001-00000	SYSTEM DIAGRAM SYMBOLS
806-0021-00000	PLANT RADIATION MONITORING (EVACUATION ALARM)
806-0023-00000	PLANT RADIATION MONITORING AUTOMATIC ISOKINETIC SAMPLING SYSTEM
806-0033-00000	POST ACCIDENT RAD MONITORING SYSTEM

(REV. 19 10/2015)

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

PLANT
RADIATION MONITORING
FIGURE 11.5-1 (SHEET 2 OF 12)
(DWG. D-806-0007-00000-PARTIAL)



NOTES:

1. EQUIPMENT ENCLOSURES ARE SUPPLIED BY VICTOREEN SP-440.
2. FLOW RATE OF AIRBORNE SAMPLING SYSTEMS ARE 1.0 SCFM.
3. FOR COMMON ALARMS, SEE DWGS. 240-0088-00000; 240-0089-00000; 240-0090-00000; 240-0105-00000.
4. CHECK SOURCES-VICTOREEN
   a. MODEL 844-38 (8 μc, Cs^{137}) FOR GAS & PARTICULATE (β) CHANNELS.
   b. MODEL 844-3 (8 μc, Ba^{133}) FOR IODINE (γ) CHANNNEL.
5. MODEL 844-3 (8 μc, Ba^{133}) FOR IN LINE STEAM CHANNEL BY VICTOREEN.
6. CHECK SOURCES ABANDONED IN PLACE PER ECP 04-0274.

REFERENCES:

D-912-622 OFF-GAS BUILDING EXHAUST VENTILATION SYSTEM
D-302-141 STEAM SEAL SYSTEM
D-302-001 SYSTEM DIAGRAM SYMBOLS

NOTE:

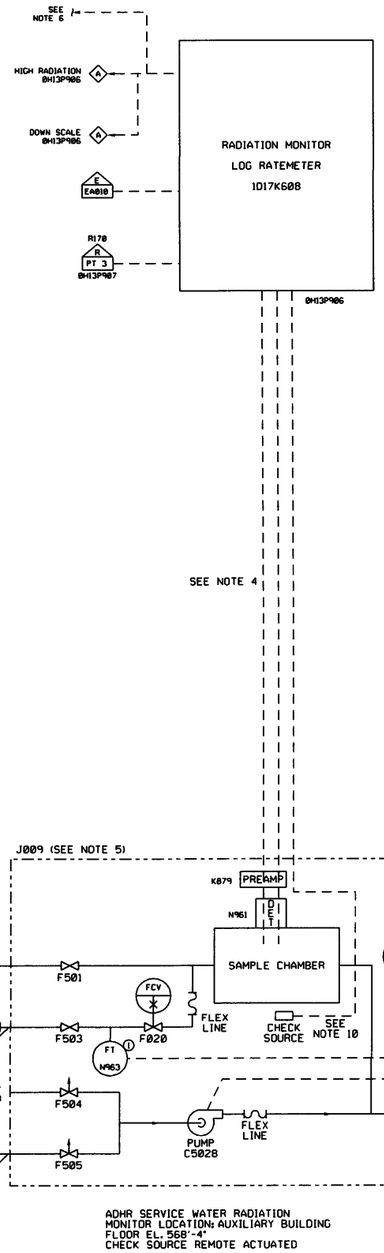
1. SUPPLIED FROM ELECTRIC POWER BUS F1C08
2. ANY HIGH ALARM FROM 1D17K680 CONTAINMENT ATMOSPHERE RADIATION MONITOR WILL ALARM THE DRYWELL/CONTAINMENT EVACUATION ALARM SYSTEM.
3. EQUIPMENT ENCLOSURES ARE SUPPLIED BY VICTOREEN SP-440.
4. FLOW RATE OF ALL SUBSYSTEMS IS 1.0 SCFM.
5. FOR COMMON ALARMS, SEE DWGS. 240-0088-00000; 240-0089-00000; 240-0090-00000; 240-0105-00000.
6. REMOVABLE SPOOL PIECE FOR LEAK TEST.
7. LEAVE OPEN AFTER LEAK TEST.
8. CHECK SOURCES - VICTOREEN
   a. MODEL 844-38 (8μc Cs) FOR GAS & PARTICULATE (β) CHANNELS.
   b. MODEL 844-3 (8μc Ba) FOR IODINE (δ) CHANNEL.
9. CHECK SOURCES ABANDONED IN PLACE PER ECP 04-0274.
10. DELETED.

(REV. 19 10/2015)

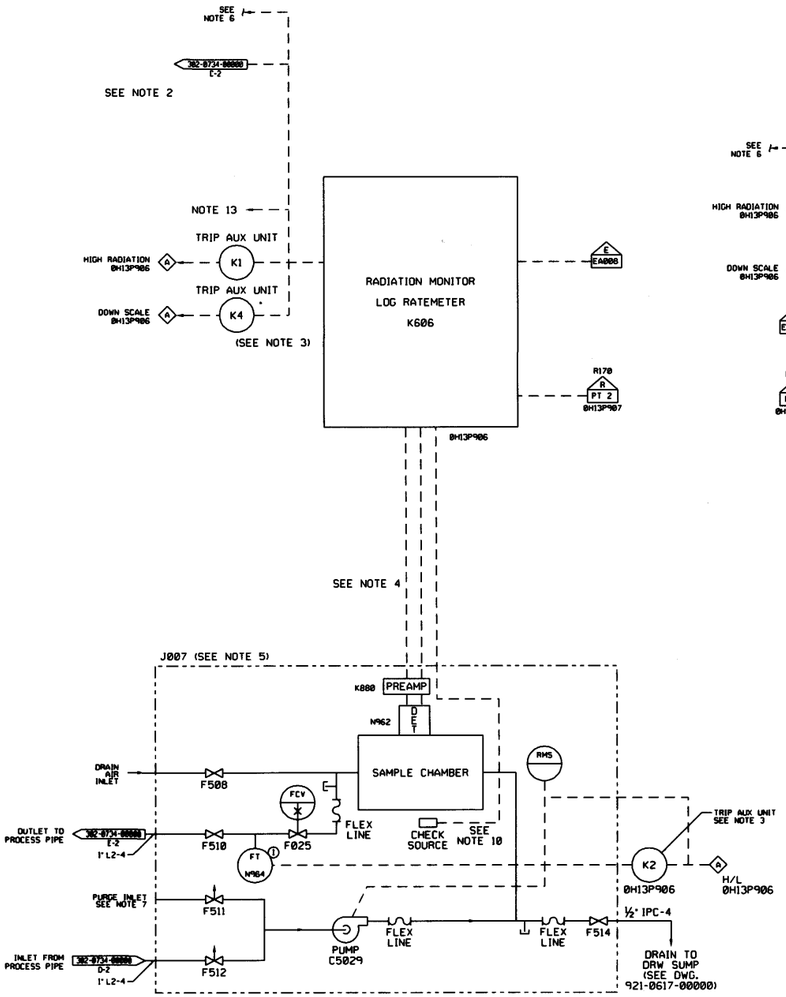
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

PLANT RADIATION MONITORING

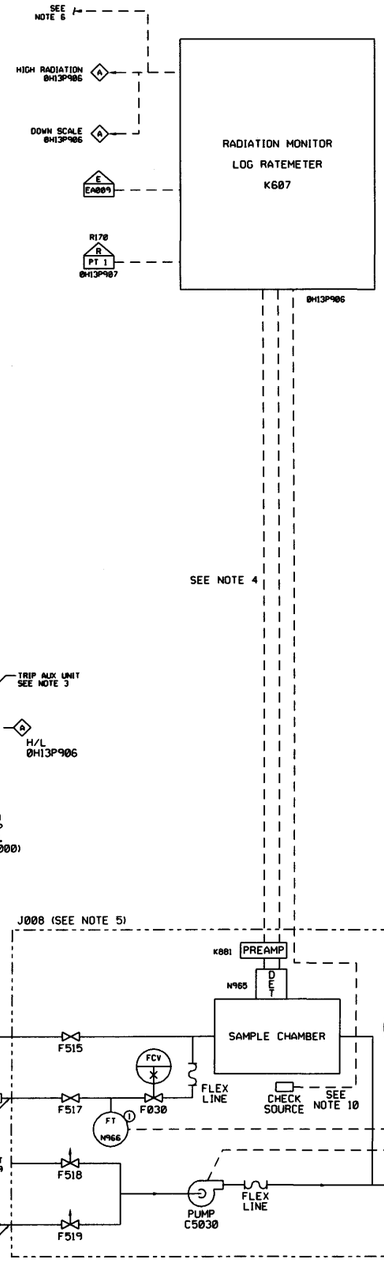
FIGURE 11.5-1 (SHEET 3 OF 12)
(DWG. D-806-0008-00000)



ADHR SERVICE WATER RADIATION
MONITOR LOCATION: AUXILIARY BUILDING
FLOOR EL. 568'-4"
CHECK SOURCE REMOTE ACTUATED



RADWASTE EFFLUENT TO ESW RADIATION
MONITOR LOCATION: AUXILIARY BUILDING
FLOOR EL. 620'-6" - EAST
CHECK SOURCE REMOTE ACTUATED



NUCLEAR CLOSED COOLING SYSTEM RADIATION
MONITOR LOCATION: CONTROL COMPLEX
FLOOR EL. 599'-0"
CHECK SOURCE REMOTE ACTUATED

NOTE:

1. DELETED
2. HIGH RADIATION INOP, DOWNSCALE, HI/LOW FLOW SHUTS LIQUID RADWASTE DISCHARGE VALVES VIA INTERLOCK IN THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.
3. ALARMS ARE ACTUATED BY RELAYS IN TRIP AUXILIARY UNIT.
4. ALL CABLES SHALL COMPLY WITH G.E. SPECIFICATION A62-4010.
5. EQUIPMENT ENCLOSURE SUPPLIED BY GENERAL ELECTRIC SPECIFICATION SP-301.
6. FOR COMMON ALARMS, SEE DWG. 806-0020-00000.
7. FLUSH CAPABILITY PROVIDED AS SHOWN ON DWG. 302-0734-00000, B-3. THIS CONNECTION NOT USED.
8. FLUSH CAPABILITY PROVIDED AS SHOWN ON DWG. 302-0212-00000. THIS CONNECTION NOT USED.
9. FLUSH WATER PROVISISIONS ARE AVAILABLE FROM VALVE 0P21F698 (SEE DWG. 302-0712-00000, E-8) USING TEMPORARY HOSE HOOKUP.
10. CHECK SOURCE ASSEMBLY SUPPLIED BY G.E.
11. DELETED
12. ALL MPL NO's TO BE PREFIXED BY 0D17XXXX.
13. INPUT TO THE LIQUID RADWASTE DISTRIBUTED CONTROL SYSTEM.

REFERENCES:

814-0717-00000	HOOKUP DIAGRAM - D17K606
302-0734-00000	LIQUID RADWASTE SYSTEM
302-0611-00000	NUCLEAR CLOSED COOLING
302-0001-00000	SYSTEM DIAGRAM SYMBOLS
302-0002-00000	G.E. SYSTEM DIAGRAM SYMBOLS
814-0922-00000	HOOKUP DIAGRAM - D17K607 AND D17K608
302-0212-00000	SERVICE WATER SYSTEM
921-0617-00000	PLANT RADIATION MONITORING D17
921-0629-00000	INTERMEDIATE BUILDING FLOOR & EQUIPMENT

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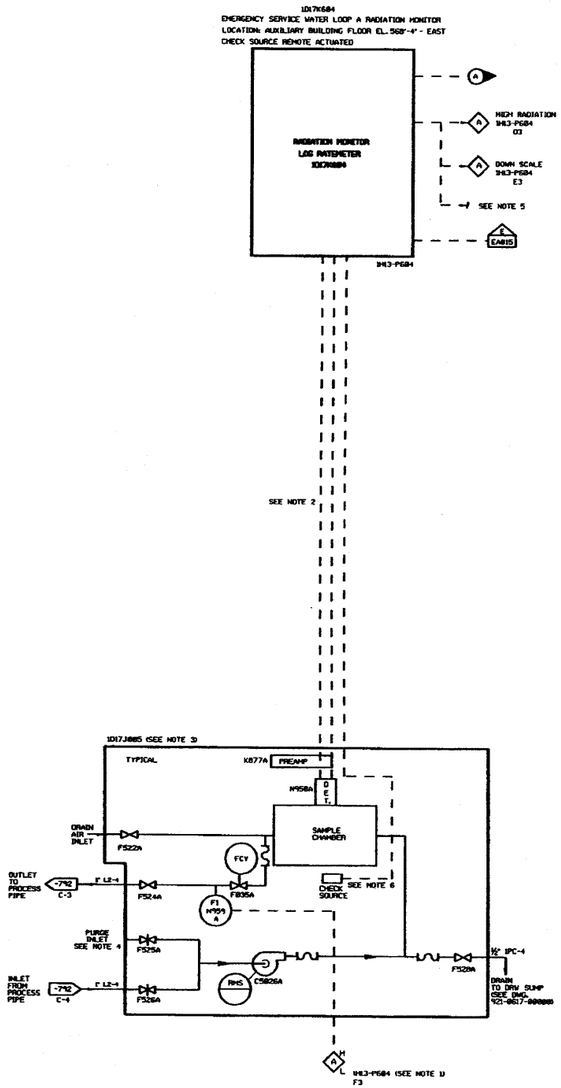
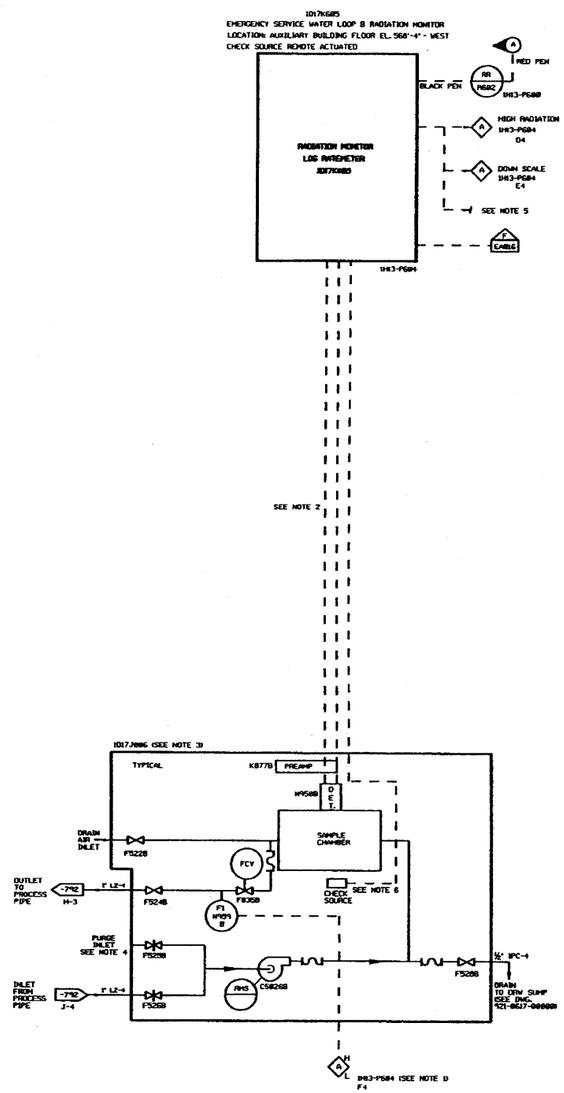
PERRY NUCLEAR POWER PLANT

10 CENTER RD., PERRY, OHIO 44081

PLANT
RADIATION MONITORING
FIGURE 11.5-1 (SHEET 4 OF 12)
(DWG. D-806-0009-00000)





NOTES:

1. ALARMS ARE ACTUATED BY RELAYS IN TRIP AUXILIARY UNIT.
2. ALL CABLES SHALL COMPLY WITH G.E. SPECIFICIATION A62-4010.
3. EQUIPMENT ENCLOSURES SUPPLIED BY GENERAL ELECTRIC SP-301.
4. FLUSH WATER PROVISIONS ARE AVAILABLE FROM VALVE P21-F882 (SEE DWG. 302-0711-00000, H-12) USING TEMPORARY HOSE HOOKUP.
5. FOR COMMON ALARMS, SEE DWG. 806-0014-00000.
6. CHECK SOURCE ASSEMBLY SUPPLIED BY G.E.

814-0721-00000	HOOKUP DIAGRAM - 1D17K604
814-0722-00000	HOOKUP DIAGRAM - 1D17K605
302-0792-00000	EMERGENCY SERVICE WATER SYSTEM
302-0001-00000	P & ID SYMBOLOGY
302-0002-00000	P & ID SYMBOLOGY

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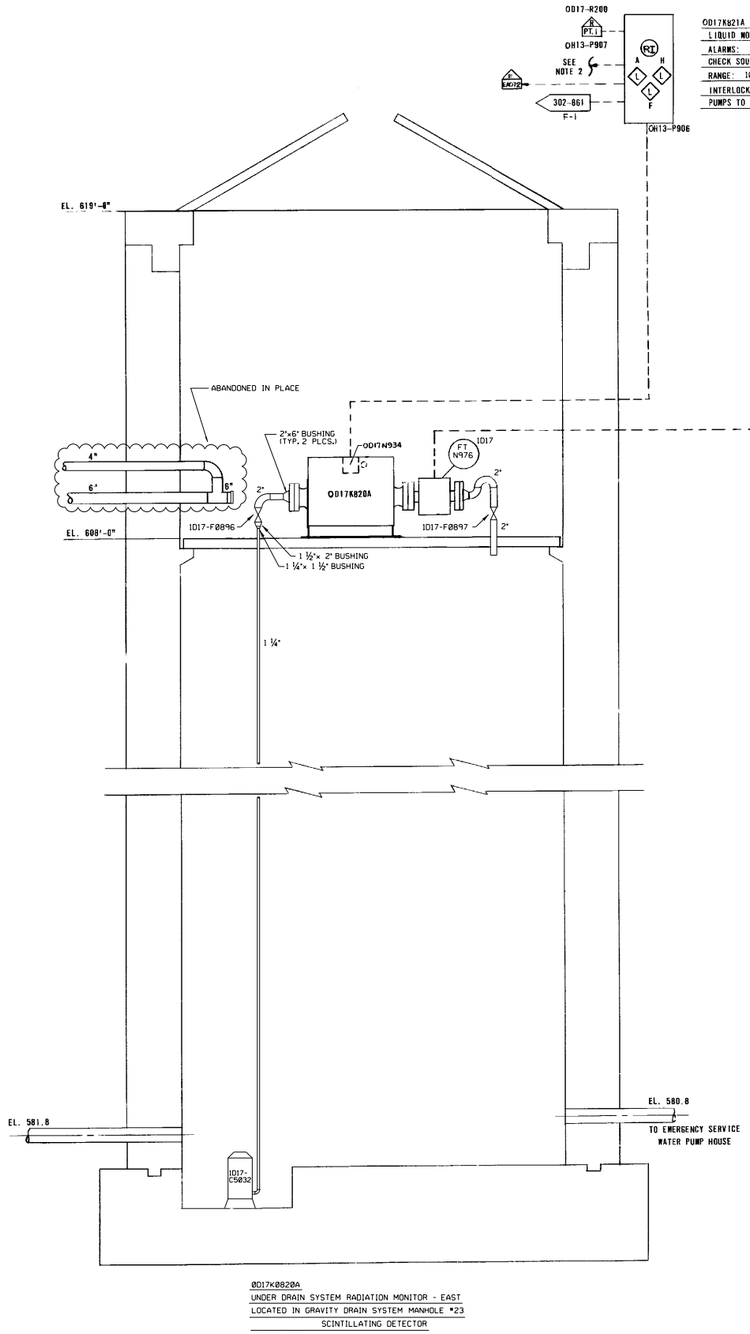
PERRY NUCLEAR POWER PLANT

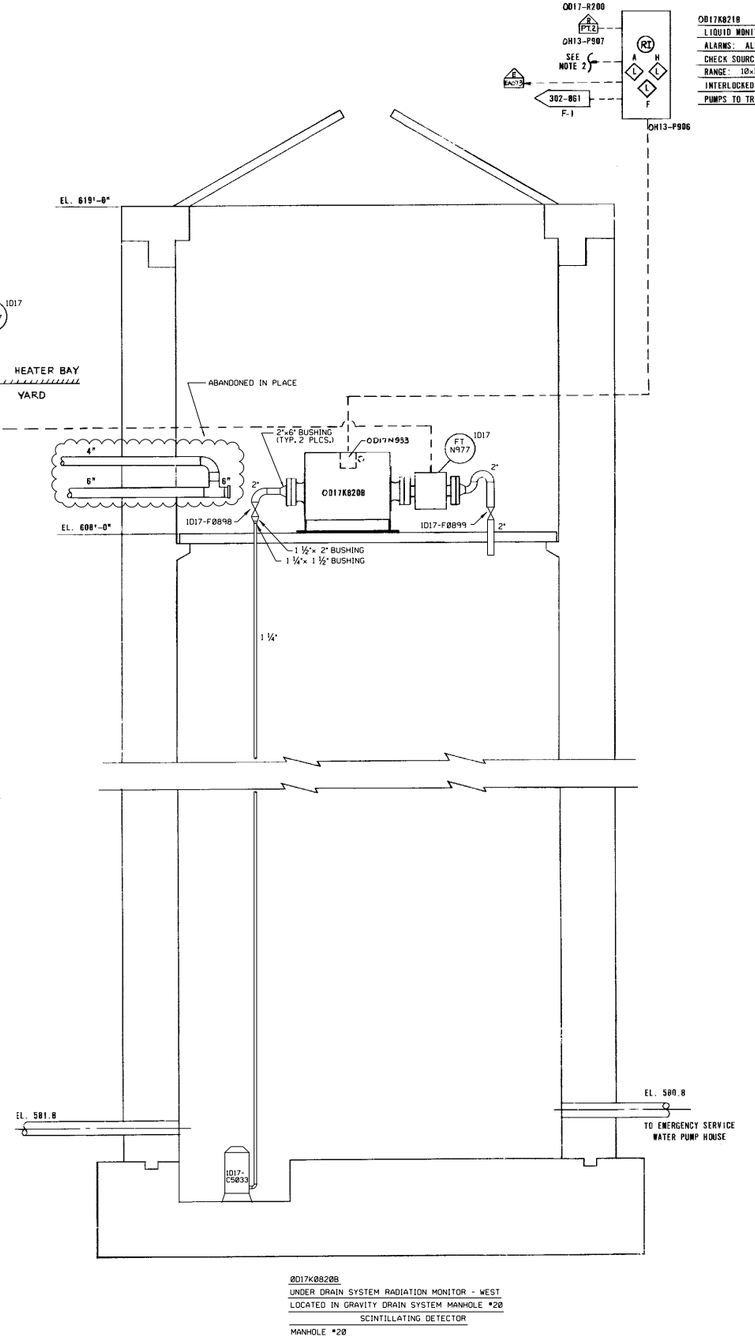
Plant Radiation Monitoring

Figure 11.5-1 (Sheet 5 of 12)

(Dwg. D-806-010)



0D17K0820A
UNDER DRAIN SYSTEM RADIATION MONITOR - EAST
LOCATED IN GRAVITY DRAIN SYSTEM MANHOLE *23
SCINTILLATING DETECTOR
MANHOLE *23



0D17K0820B
UNDER DRAIN SYSTEM RADIATION MONITOR - WEST
LOCATED IN GRAVITY DRAIN SYSTEM MANHOLE *20
SCINTILLATING DETECTOR
MANHOLE *20

NOTES:

1. FOR COMMON ALARMS, SEE DWG. 240-0084-00000.
2. DIMENSIONAL SUPPORT CLAMPS AND PIPE STRAPS ARE INSTALLED BY THE FIELD TO SUPPORT PIPING ON THE SOUTH WALL OF MANHOLES *20 AND *23.

REFERENCES:

302-0861-00000 PLANT UNDERDRAIN SYSTEM
303-0019-00000 YARD PIPING
302-0001-00000 SYSTEM DIAGRAM SYMBOLS
806-0017-00101 PLANT UNDERGROUND RADIATION DETECTOR

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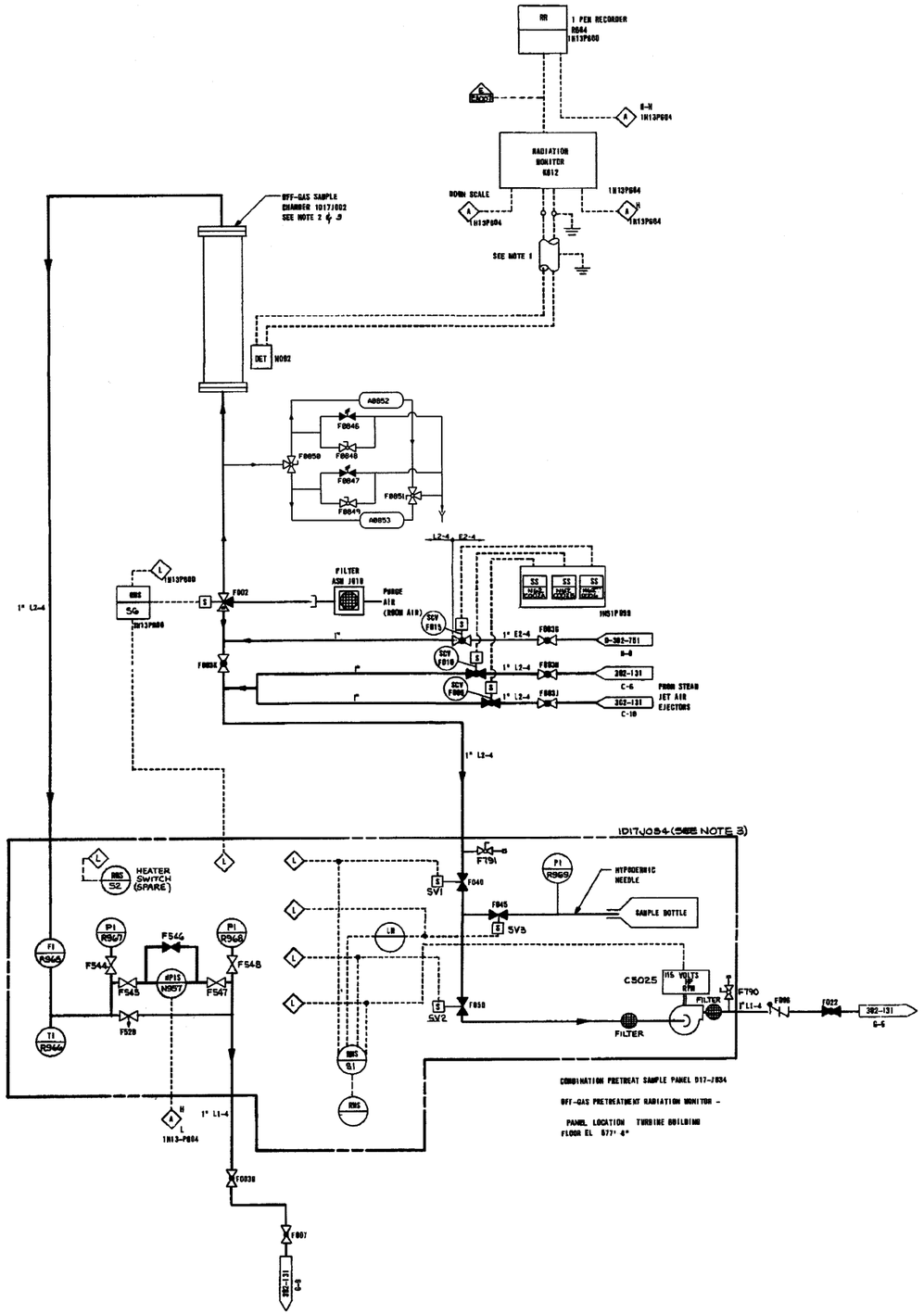
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

PLANT RADIATION MONITORING

FIGURE 11.5-1 (SHEET 6 OF 12)
(DWG. D-806-0017-00000)



NOTES

1 ALL CABLES SHALL COMPLY WITH G.E ENGINEERING SPECIFICATION J62-4010
2 THE OFF-GAS SAMPLE CHAMBER SHALL BE MOUNTED VERTICALLY, AND THE TUBING SHALL SLOPE AWAY FROM THE CHAMBER SO THAT THE CONDENSATE WILL RETURN TO THE PROCESS
3 SAMPLE PANEL 1017J034 AND CHAMBER 1017J002 SUPPLIED BY GENERAL ELECTRIC SP-301

REFERENCES:

614-0010-000000	HOOKUP DIAGRAM - 1017K612
302-0131-000000	CONDENSER AIR REMOVAL SYSTEM
302-0751-000000	OFF-GAS SYSTEM
302-0001-000000	SYSTEM DIAGRAM SYMBOLS
302-0002-000000	G.E. SYSTEM DIAGRAM SYMBOLS
304-0751-000113	PIPING ISOMETRIC

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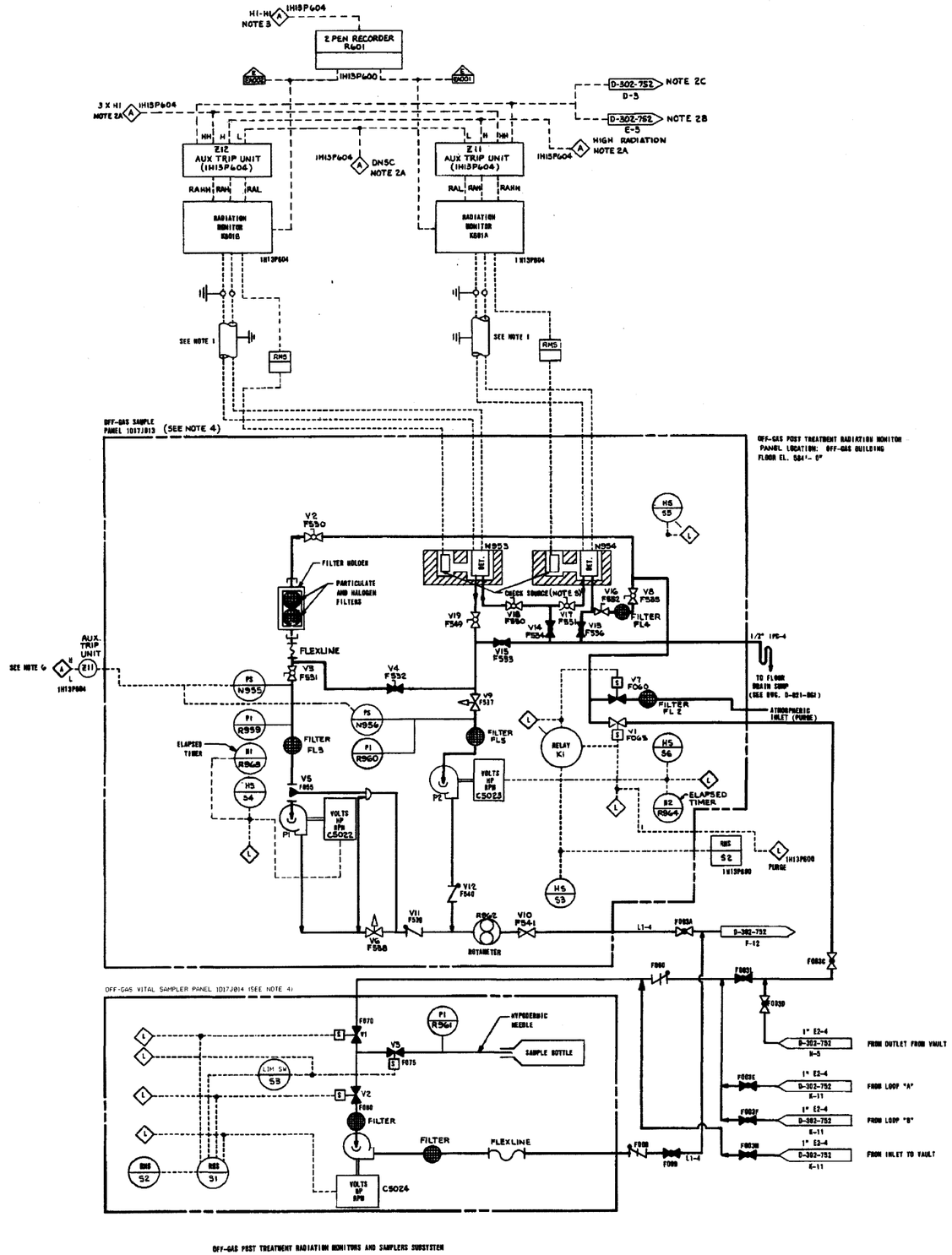
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

PLANT RADIATION MONITORING
FIGURE 11.5-1 (SHEET 7 OF 12)
(DWG. D-806-0018-00000)



OFF-GAS POST TREATMENT RADIATION MONITORS AND SAMPLERS SUBSYSTEM

NOTES:

1. ALL CABLES SHALL COMPLY WITH G.E. ENGINEERING SPECIFICATION 452-4018.
2. EACH RATEMETER HAS TWO UP-SCALE HIGH RADIATION TRIPS AND A DOWN-SCALE INOPERATIVE TRIP AS FOLLOWS:
   A. ANY ONE TRIP WILL ALARM IN THE CONTROL ROOM.
   B. ANY ONE UP-SCALE HIGH RADIATION TRIP CLOSES THE CARBON BED FILTER BYPASS VALVE, IF OPEN, AND OPENS THE OFF-GAS LINE TO THE CARBON BED, IF CLOSED.
   C. TWO UP-SCALE HIGH-HIGH RADIATION TRIPS, OR ONE UP-SCALE HIGH-HIGH RADIATION TRIP AND ONE DOWN-SCALE TRIP, OR TWO DOWN-SCALE TRIPS, WILL ISOLATE THE OFF-GAS SYSTEM OUTLET AND DRAIN VALVES
3. ALARM IS ACTUATED BY RELAYS IN RECORDER.
4. 1D17J013 AND 1D17J014 SUPPLIED BY GENERAL ELECTRIC SPECIFICATION 22-301.
5. CHECK SOURCE ASS'Y SUPPLIED BY G.E.
6. HIGH/LOW FLOW ALARM ACTUATED BY RELAYS IN Z11 AUX TRIP UNIT.

REFERENCES:

B-814-200	HOOKUP DIAGRAM - 1D17B814-B
D-302-752	OFF-GAS SYSTEM
D-821-864	TURBINE POWER COMPLEX AND PIPE TUNNEL - FLOOR AND EQUIPMENT DRAINS
D-302-001	SYSTEM DIAGRAM SYMBOLS
D-302-002	G.E. SYSTEM DIAGRAM SYMBOLS

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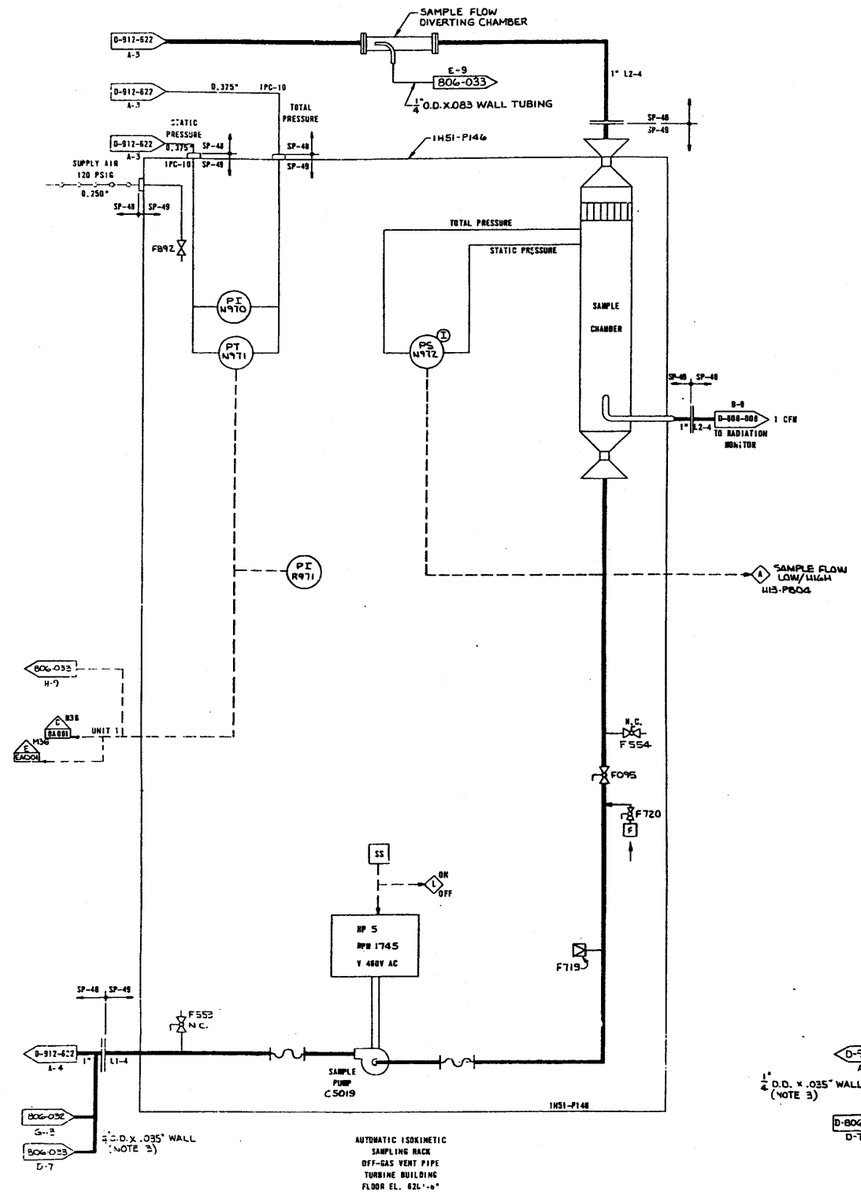
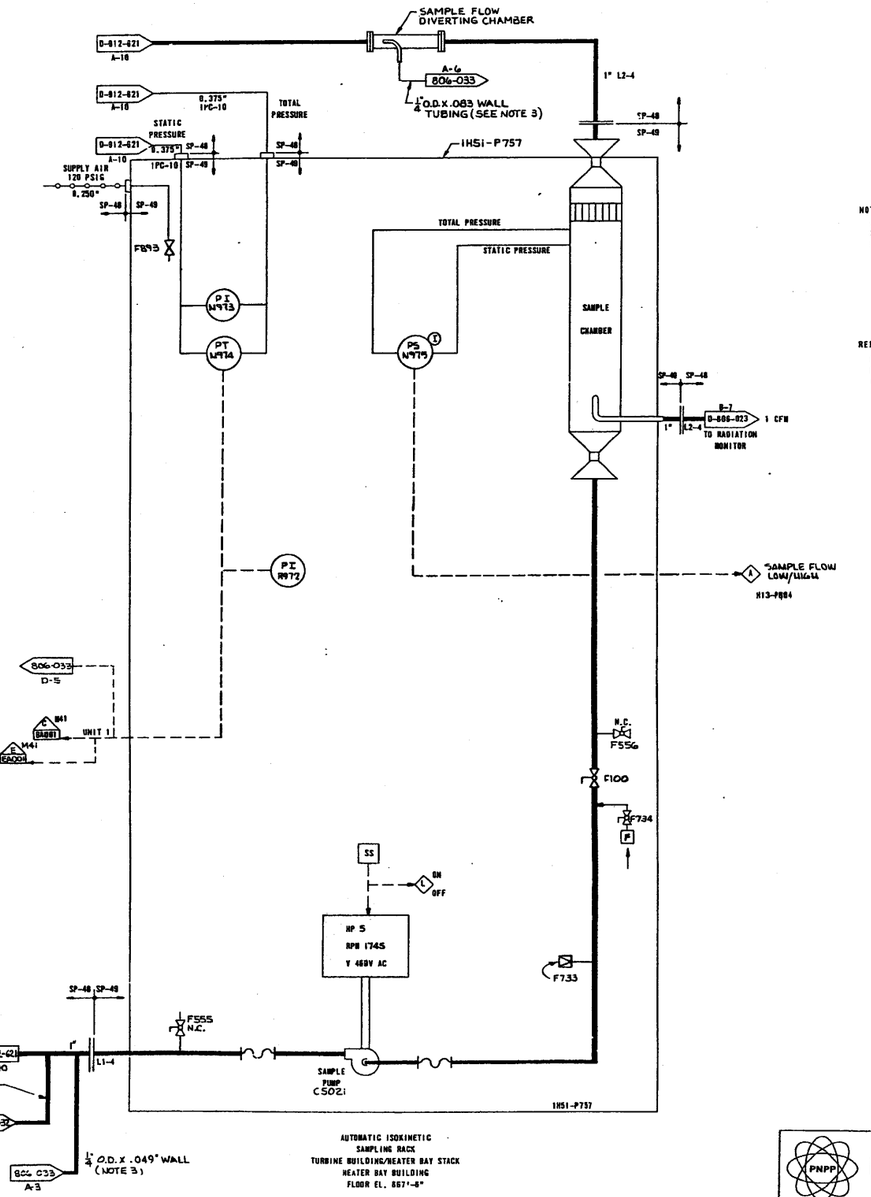
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

PLANT
RADIATION MONITORING
FIGURE 11.5-1 (SHEET 8 OF 12)
(DWG. D-806-0019-00000)





NOTES:-

1. SAMPLING RACKS SUPPLIED BY SP-48.
2. DELETED
3. TUBING NOT DESIGNATED BY LINE SPEC. TO BE SEAMLESS STAINLESS STEEL A213 GR TP316, SOFT ANNEALED AND SUITABLE FOR BENDING.

REFERENCES:-

D-812-621 HEATER BAY VENTILATION SYSTEMS
D-812-622 OFF-GAS BUILDING EXHAUST VENTILATION SYSTEM
D-302-001 SYSTEM DIAGRAM SYMBOLS

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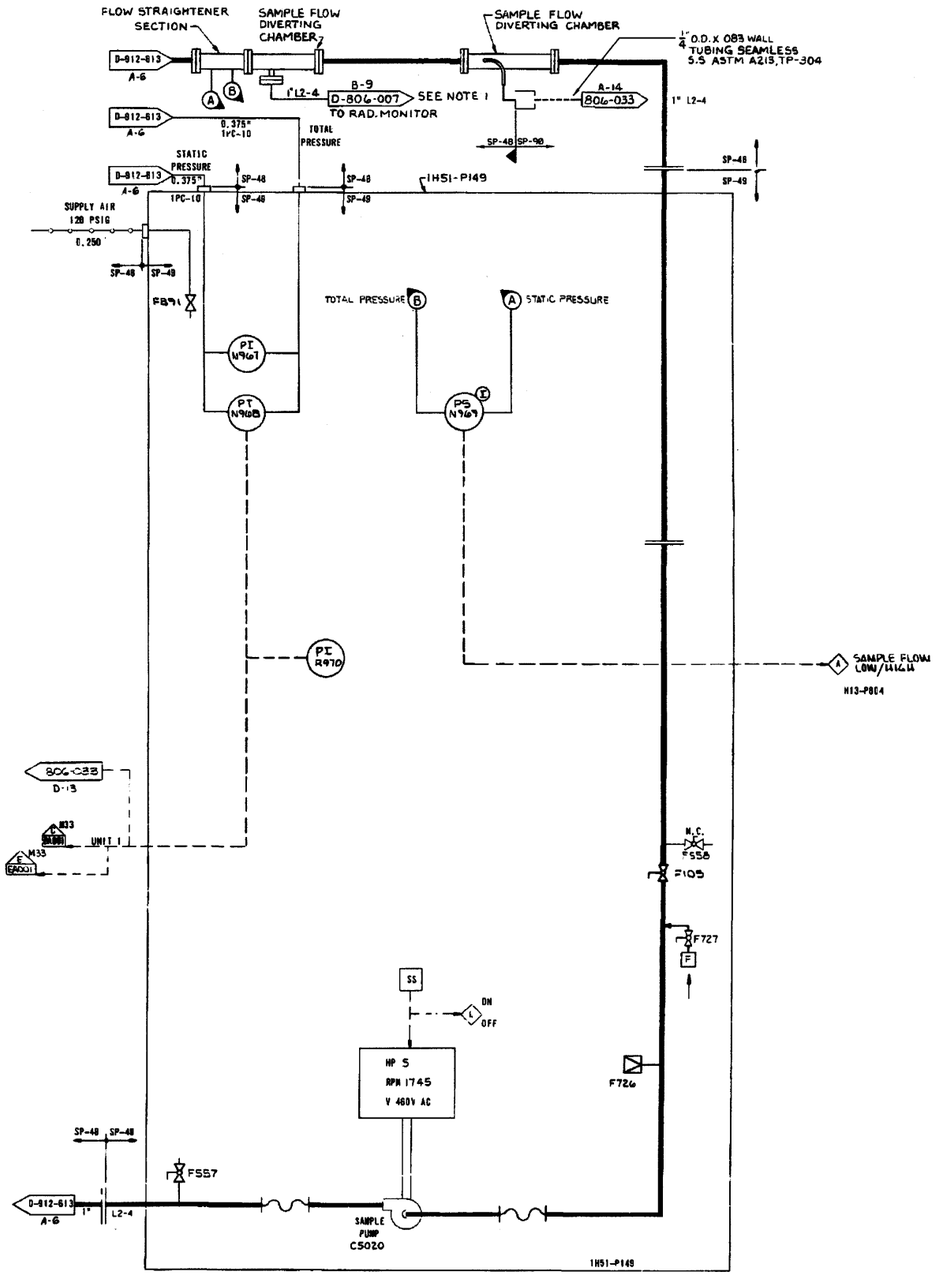
PERRY NUCLEAR POWER PLANT

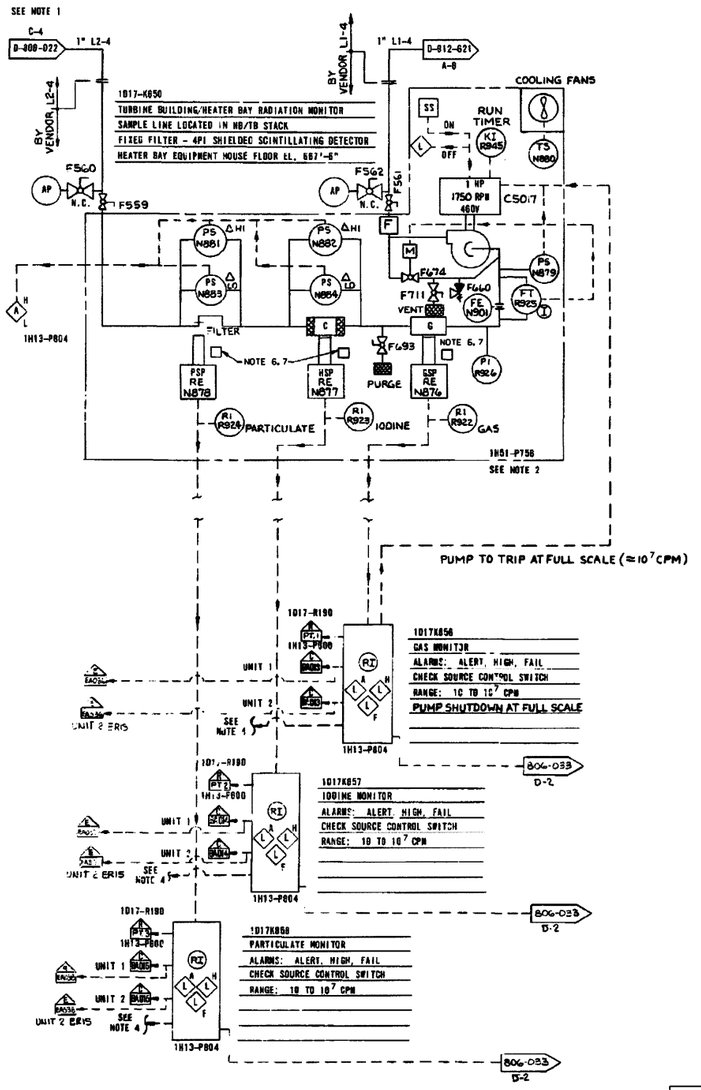
Plant Radiation Monitoring

Figure 11.5-1 (Sheet 9 of 12)

(Dwg. D-806-022)



AUTOMATIC ISOKINETIC SAMPLING RACK
UNIT 1 PLANT VENT
INTERMEDIATE BUILDING
FLOOR EL. 882'-8"



NOTES:-

1. FLOWRATE IS 1.0 SCFM.
2. RADIATION MONITOR EQUIPMENT ENCLOSURE SUPPLIED BY VICTOREEN SP-440.
3. SAMPLING RACK SUPPLIED BY SP-48.
4. FOR COMMON ALARM, SEE DWG. D-888-013.
5. DELETED
6. CHECK SOURCES - VICTOREEN
   a. MODEL 844-38 (8uc Cs^{137}) FOR GAS & PARTICULATE (8) CHANNELS
   b. MODEL 844-3 (8uc Ba^{133}) FOR IODINE 1 CHANNEL.
7. CHECK SOURCES TO BE ABANDONED IN PLACE PER ECP 84-0274.

REFERENCES:-

D-812-613 INTERMEDIATE BUILDING VENTILATION SYSTEM
D-812-621 HEATER BAY VENTILATION SYSTEM
D-302-001 SYSTEM DIAGRAM SYMBOLS

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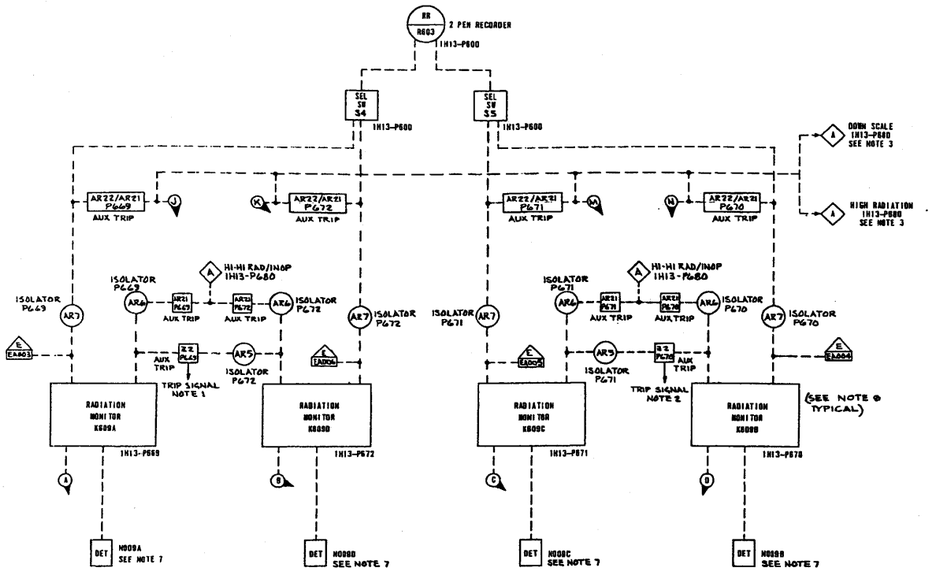
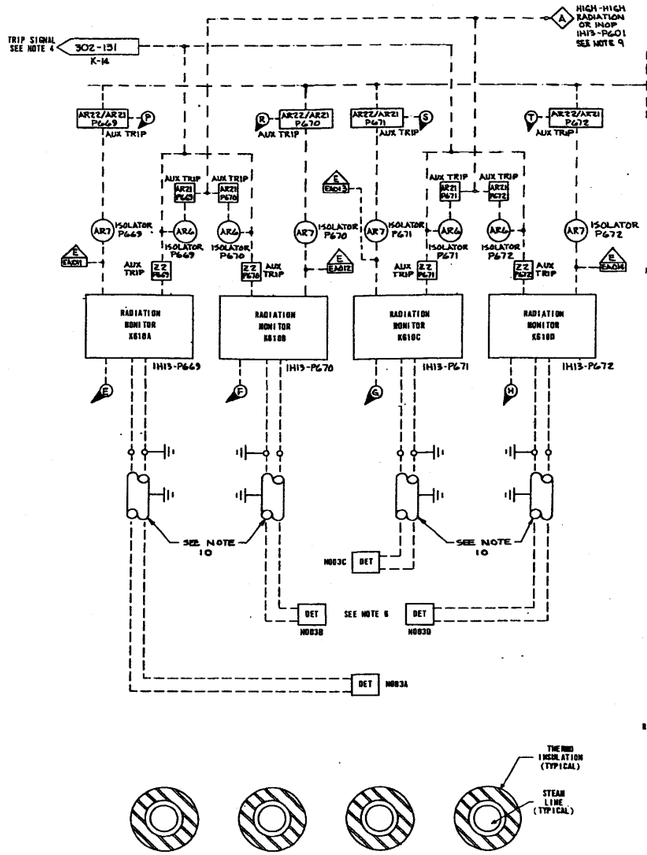
PERRY NUCLEAR POWER PLANT
10 CENTER RD., PERRY, OHIO 44081

PLANT RADIATION MONITORING
AUTOMATIC ISOKINETIC SAMPLING SYSTEM
FIGURE 11.5-1 (SHEET 10 OF 12)
(DWG. D-806-0023-00000)



CONTAINMENT VENTILATION EXHAUST RADIATION MONITORING SUBSYSTEM

SEE REFERENCE 3
1017K8108A, B, C, & D



NOTES: -

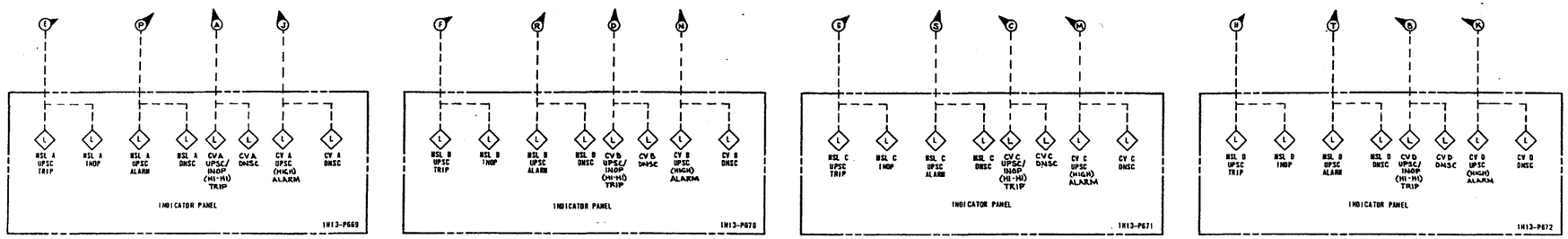
1. TWO OUT OF TWO HIGH-HIGH RADIATION OR INOPERATIVE TRIPS ON CHANNEL "A" AND "B" WILL:
   a. CLOSE OUTBOARD CONTAINMENT PURGE VENTILATION SYSTEM VALVES
   b. CLOSE OUTBOARD DRYWELL PURGE VENTILATION SYSTEM VALVES
2. TWO OUT OF TWO HIGH-HIGH RADIATION OR INOPERATIVE TRIPS ON CHANNEL "B" AND "C" WILL:
   a. CLOSE INBOARD CONTAINMENT PURGE VENTILATION SYSTEM VALVES
   b. CLOSE INBOARD DRYWELL PURGE VENTILATION SYSTEM VALVES
3. ANY ONE HIGH RADIATION OR DOWN SCALE TRIP WILL ALARM.
4. ONE HIGH-HIGH RADIATION OR INOPERATIVE TRIP OUT OF TWO ON CHANNEL "A" OR "C" WILL TURN OFF CONDENSER HOGGING PUMPS AND CLOSE CONDENSER HOGGING PUMP ISOLATION VALVES. ONE HIGH-HIGH RADIATION OR INOPERATIVE TRIP OUT OF TWO ON CHANNEL "A" OR "D" AND ONE OF THE SAME SIGNALS OUT OF TWO ON CHANNEL "B" OR "C" WILL CLOSE THE REACTOR WATER SAMPLE VALVES B33F020 (OUTBOARD) AND B33F019 (INBOARD) RESPECTIVELY.
5. ALL EQUIPMENT AND INSTRUMENTS ARE PREFIXED BY SYSTEM NO. 817 UNLESS OTHERWISE SPECIFIED.
6. THE DETECTORS (K003) ARE LOCATED WITHIN THE STEAM LINE TUNNEL IMMEDIATELY DOWNSTREAM OF THE OUTER ISOLATION VALVE. THE DETECTORS ARE IN PIPE WELLS (PHYSICALLY SEPARATED FROM ONE ANOTHER).
7. THE DETECTORS (K003) WILL BE MOUNTED ON THE VENTILATION DUCT DOWNSTREAM OF THE CONTAINMENT ISOLATION VALVE B14F080.
8. RADIATION MONITORS K609A-D HAVE ASSOCIATED POWER SUPPLY UNITS K614A-D, RESPECTIVELY, WHICH PROVIDE ALL POWER AND GENERATE A HIGH-VOLTAGE FAIL ANNUNCIATOR ON 1H13-P604.
9. ANY ONE HIGH-HIGH OR INOP WILL ALARM.
10. ALL CABLES SHALL COMPLY WITH G.E. SPECIFICATIONS A62-4010.

REFERENCES: -

817-4010	PROCESS RADIATION MONITORING SYSTEM DESIGN SPECIFICATION (DOCUMENT NO. 22A3787)
817-1010	PROCESS RADIATION MONITORING SYSTEM IED
D-812-604	CONTAINMENT VESSEL AND DRYWELL PURGE VENTILATION SYSTEM
D-302-131	CONDENSER AIR REMOVAL
D-302-001	SYSTEM DIAGRAM SYMBOLS
D-302-002	G.E. SYSTEM DIAGRAM SYMBOLS

MAIN STEAM LINE RADIATION MONITORING SUBSYSTEM

1017K8108A, B, C, & D



NUCLEAR SAFETY RELATED

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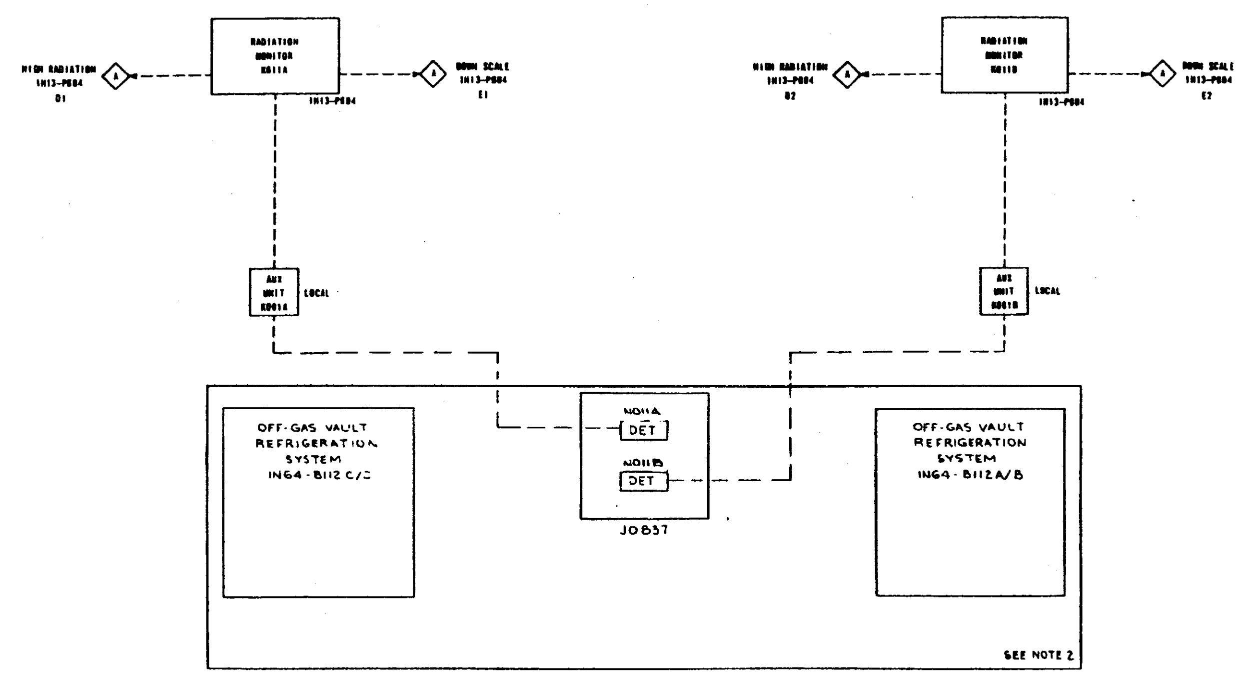
PERRY NUCLEAR POWER PLANT

Plant Radiation Monitoring

Figure 11.5-1 (Sheet 11 of 12)

(Dwg. D-806-024)



CARBON BED VAULT RADIATION MONITORING SUBSYSTEM

NOTES:-

1. ALL EQUIPMENT AND INSTRUMENT ARE PREFIXED BY SYSTEM NO. 017, UNLESS OTHERWISE SPECIFIED.
2. DETECTORS ARE LOCATED IN THE REFRIGERATION ROOM ADJACENT TO THE CARBON BED VAULTS.

REFERENCES:-

D-302-001 SYSTEM DIAGRAM SYMBOLS
D-302-002 G.E. SYSTEM DIAGRAM SYMBOLS

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PERRY NUCLEAR POWER PLANT

Plant Radiation Monitoring

Figure 11.5-1 (Sheet 12 of 12)

(Dwg. D-806-025)