

REFERENCES:

1. PROCESS FLOW DIAGRAM (PFD) DWG.
2. DEFINITION OF SYMBOLS
  - ⊕ E SPEC. 6675176 REV. 2 AND
  - ⊕ E SPEC. 6675164 REV. 0
3. INSTALLATION OF INSTRUMENTATION
  - ⊕ PROC. SPEC. CAP 294367 REV. 1
  - ⊕ E SPEC. 6675164 REV. 0
4. MATERIAL SPEC. PIPE AND FITTINGS
  - ⊕ E SPEC. 6569866 REV. 2 AND
  - ⊕ E SPEC. 6676398 REV. 0

REFERENCE DRAWINGS:

- 9321-F-27193 WDS - WASTE DISPOSAL SYSTEM (SH. 1 & SH. 2)
- 27303 WDS - WASTE DISPOSAL SYSTEM GAS
- 27383 RCS - REACTOR COOLANT SYSTEM
- 27473 RCS - REACTOR COOLANT SYSTEM
- 27353 SIS - SAFETY INJECTION SYSTEM
- 27203 ACS - AUXILIARY COOLANT SYSTEM
- 27513 ACS - AUXILIARY COOLANT SYSTEM (SHT. 1)
- 27373 CVCS - CHEMICAL & VOLUME CONTROL SYSTEM
- 27233 NS - NITROGEN TO NUCLEAR EQUIP.
- 27243 PW - PRIMARY MAKE-UP WATER SYSTEM
- 27283 DH - NUCLEAR EQUIPMENT DRAINS
- 27453 SS - SAMPLING SYSTEM
- 27273 GA - AUX. STEAM & CONDENSATE FOR P. A. BLDG.
- 27253 GA - AUTOMATIC GAS ANALYZER SYSTEM
- 27253 GA - NUCLEAR LINE SCHEDULE

LEGEND:

- V - LOCAL VENT
- PW - PRIMARY MAKE-UP WATER
- DH - DRAIN HEADER (WDS)
- WHT - WASTE HOLDUP TANK
- CSA - CONTAINMENT ISOLATION SIGNAL
- D - LOCAL DRAIN
- DT - REACTOR COOLANT DRAIN TANK (WDS)
- HSC - HAND SEPC CONTROL
- GA - GAS ANALYZER (WDS)
- FAI - FAIL AS IS
- FC - FAIL CLOSED
- FO - FAIL OPEN
- LO - LOCKED OPEN
- LC - LOCKED CLOSED
- ATM - ATMOSPHERE
- IVSWS - ISOLATION VALVE SEAL WATER SYSTEM
- PRT - PRESSURIZER RELIEF TANK
- WHT - WASTE HOLDUP TANK
- TR - TEMPORARY STRAINER
- SRST - SPENT RESIN STORAGE TANK
- HU - HOLDUP TANK
- WGCP - WASTE GAS COMPRESSOR PACKAGE (WDS)
- CONTAINMENT PENETRATIONS
- ⊕ - SEISMIC CLASSIFICATION

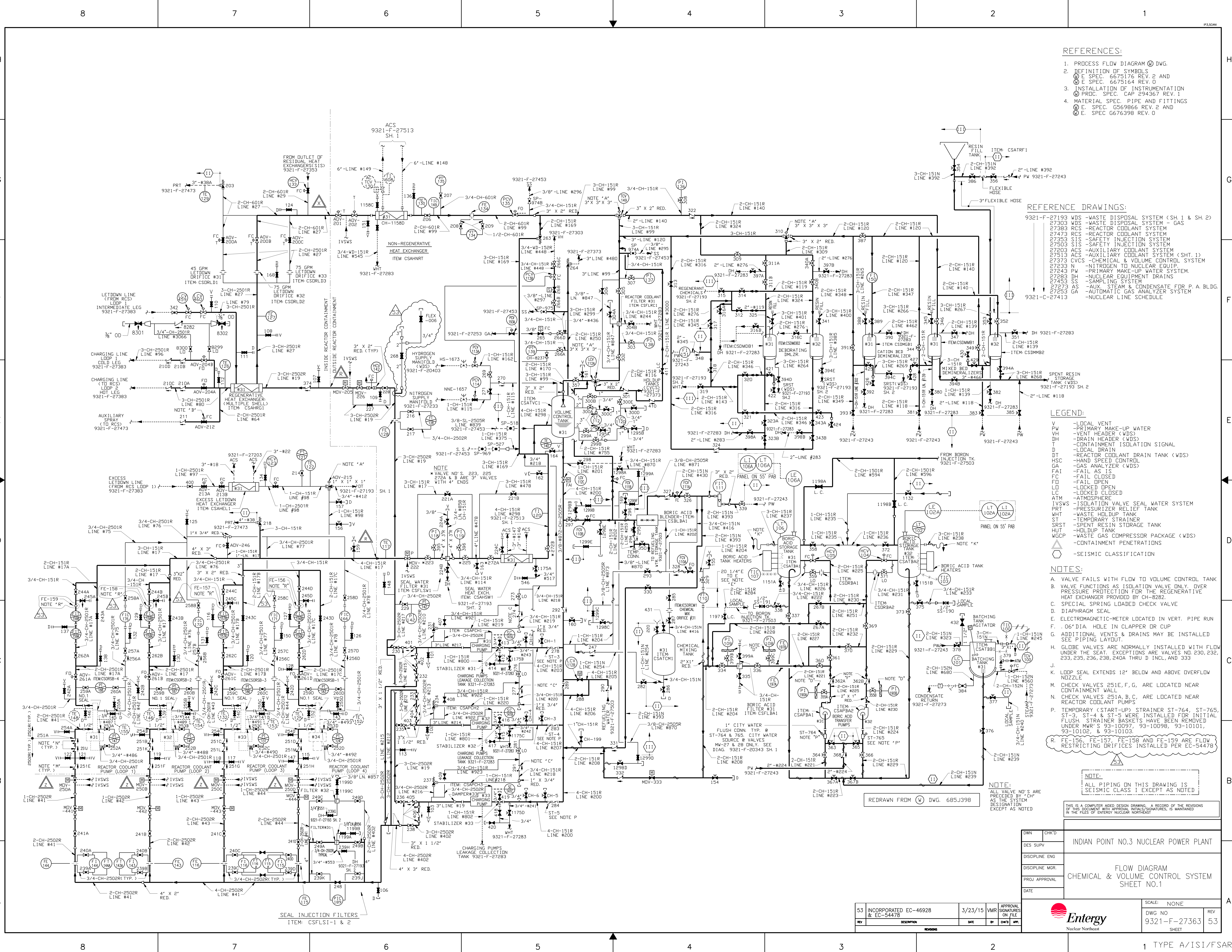
NOTES:

- VALVE FAILS WITH FLOW TO VOLUME CONTROL TANK
- VALVE FUNCTIONS AS ISOLATION VALVE ONLY. OVER PRESSURE PROTECTION FOR THE REGENERATIVE HEAT EXCHANGER PROVIDED BY CH-8282.
- SPECIAL SPRING LOADED CHECK VALVE
- DIAPHRAGM SEAL
- ELECTROMAGNETIC-METER LOCATED IN VERT. PIPE RUN
- ADDITIONAL VENTS & DRAINS MAY BE INSTALLED SEE PIPING LAYOUT.
- GLOBE VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER THE SEAT. EXCEPTIONS ARE VALVES NO. 230, 232, 233, 235, 236, 238, 240A THRU D INCL. AND 333
- LOOP SEAL EXTENDS 12" BELOW AND ABOVE OVERFLOW NOZZLE
- CHECK VALVES 251E, F, G, ARE LOCATED NEAR CONTAINMENT WALL
- CHECK VALVES 251A, B, C, ARE LOCATED NEAR REACTOR COOLANT PUMPS
- TEMPORARY (START-UP) STRAINER ST-764, ST-765, ST-766, ST-4 & ST-5 WERE INSTALLED FOR INITIAL FLUSH. STRAINER BASKETS HAVE BEEN REMOVED UNDER MWR'S 93-10097, 93-10098, 93-10101, 93-10102, & 93-10103.
- FE-156, FE-157, FE-158 AND FE-159 ARE FLOW RESTRICTING TRICES INSTALLED PER EC-54478

NOTE:  
ALL VALVE NO'S ARE PRECEDED BY 'CH' AS THE SYSTEM DESIGNATION EXCEPT AS NOTED

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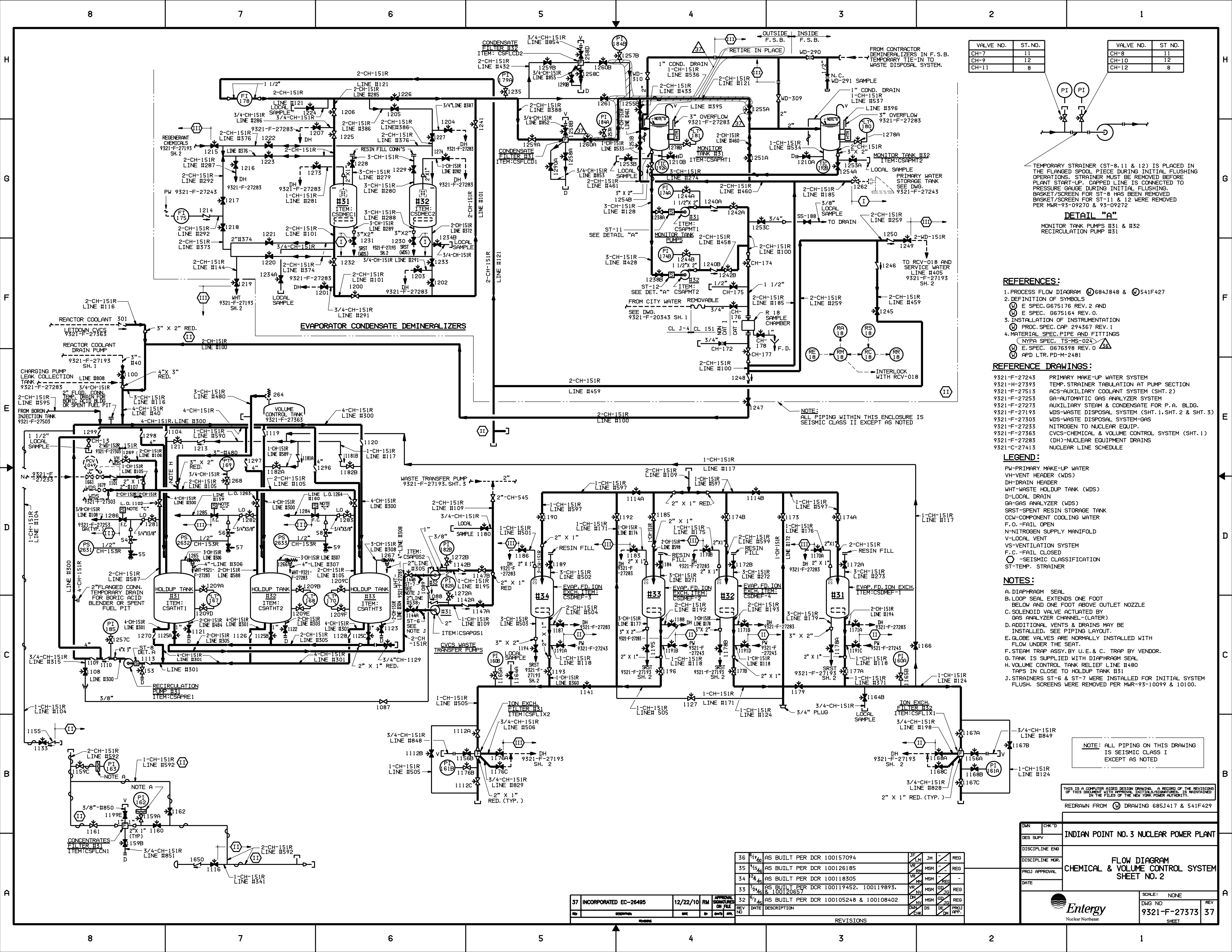
DWN	CHK'D	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENGR		
DISCIPLINE MGR.		FLOW DIAGRAM
PROJ APPROVAL		CHEMICAL & VOLUME CONTROL SYSTEM
DATE		SHEET NO.1
		SCALE: NONE
		DWG NO 9321-F-27363
		REV 53
		SHEET



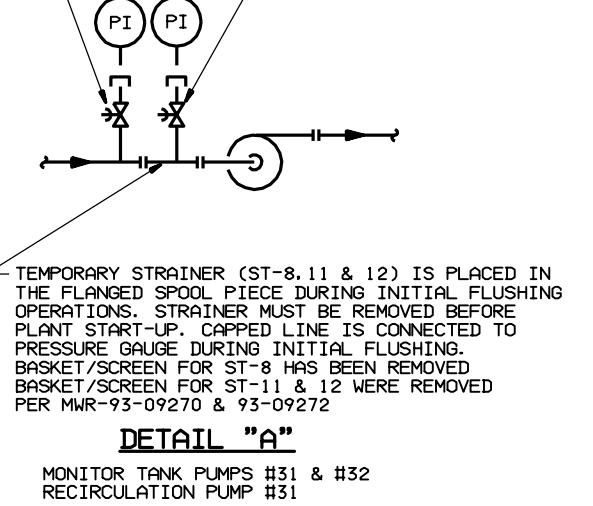
REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK'D	APP.
53	INCORPORATED EC-46928 & EC-54478	3/23/15	VMR		





VALVE NO.	ST. NO.	VALVE NO.	ST. NO.
CH-7	11	CH-8	11
CH-9	12	CH-10	12
CH-11	8	CH-12	8



- REFERENCES:**
- PROCESS FLOW DIAGRAM (M) 684J848 & (M) 541F427
  - DEFINITION OF SYMBOLS  
(M) E SPEC. G675176 REV. 2 AND  
(M) E SPEC. G675164 REV. 0
  - INSTALLATION OF INSTRUMENTATION  
(M) PROC. SPEC. CAP 294367 REV. 1
  - MATERIAL SPEC. PIPE AND FITTINGS  
(M) NYPA SPEC. TS-MS-024  
(M) E. SPEC. G676398 REV. 0  
(M) APD LTR. PD-M-2481
- REFERENCE DRAWINGS:**
- 9321-F-27243 PRIMARY MAKE-UP WATER SYSTEM
  - 9321-H-27393 TEMP. STRAINER TABULATION AT PUMP SECTION
  - 9321-F-27513 ACS-AUXILIARY COOLANT SYSTEM (SHT. 2)
  - 9321-F-27255 GA-AUTOMATIC GAS ANALYZER SYSTEM
  - 9321-F-27273 AUXILIARY STEAM & CONDENSATE FOR P.A. BLDG.
  - 9321-F-27193 WDS-WASTE DISPOSAL SYSTEM (SHT. 1, SHT. 2 & SHT. 3)
  - 9321-F-27305 WDS-WASTE DISPOSAL SYSTEM-GAS
  - 9321-F-27235 NITROGEN TO NUCLEAR EQUIP.
  - 9321-F-27363 CVCS-CHEMICAL & VOLUME CONTROL SYSTEM (SHT. 1)
  - 9321-F-27283 (DH)-NUCLEAR EQUIPMENT DRAINS
  - 9321-C-27413 NUCLEAR LINE SCHEDULE
- LEGEND:**
- PW-PRIMARY MAKE-UP WATER
  - VH-VENT HEADER (WDS)
  - DH-DRAIN HEADER
  - WHT-WASTE HOLDUP TANK (WDS)
  - D-LOCAL DRAIN
  - GA-GAS ANALYZER (WDS)
  - SRST-SPENT RESIN STORAGE TANK
  - CCW-COMPONENT COOLING WATER
  - F.O.-FAIL OPEN
  - N-NITROGEN SUPPLY MANIFOLD
  - V-LOCAL VENT
  - VS-VENTILATION SYSTEM
  - F.C.-FAIL CLOSED
  - SEISMIC CLASSIFICATION
  - ST-TEMP. STRAINER
- NOTES:**
- DIAPHRAGM SEAL
  - LOOP SEAL EXTENDS ONE FOOT BELOW AND ONE FOOT ABOVE OUTLET NOZZLE
  - SOLENOID VALVE ACTUATED BY GAS ANALYZER CHANNEL-(LATER)
  - ADDITIONAL VENTS & DRAINS MAY BE INSTALLED. SEE PIPING LAYOUT.
  - GLOBE VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER THE SEAT.
  - STEAM TRAP ASSY. BY U.E. & C. TRAP BY VENDOR.
  - G.TANK IS SUPPLIED WITH DIAPHRAGM SEAL
  - VOLUME CONTROL TANK RELIEF LINE #480 TAPS IN CLOSE TO HOLDUP TANK #31
  - J. STRAINERS ST-6 & ST-7 WERE INSTALLED FOR INITIAL SYSTEM FLUSH. SCREENS WERE REMOVED PER MWR-93-10099 & 10100.
- NOTE:** ALL PIPING ON THIS DRAWING IS SEISMIC CLASS I EXCEPT AS NOTED

THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL, INITIALS/DATE/REV. IS MAINTAINED IN THE FILES OF THE NEW YORK POWER AUTHORITY.

REDRAWN FROM (M) DRAWING 685J417 & 541F429

DWG NO	9321-F-27373	SHEET	37
SCALE	NONE		
REV	DATE	DESCRIPTION	BY
36	8/10/00	AS BUILT PER DCR 100157094	JF/MSM
35	5/15/98	AS BUILT PER DCR 100126185	VR/MSM
34	2/6/95	AS BUILT PER DCR 100118305	VR/MSM
33	2/6/95	AS BUILT PER DCR 100119452, 100119893, & 100120657	VR/MSM
32	8/2/93	AS BUILT PER DCR 100105248 & 100108402	DM/MSM

**INDIAN POINT NO. 3 NUCLEAR POWER PLANT**  
**CHEMICAL & VOLUME CONTROL SYSTEM**  
**SHEET NO. 2**

Entergy  
Nuclear Northeast

REV	DATE	DESCRIPTION	BY	CHK'D	APP'D
37	12/22/10	INCORPORATED EC-26495	RM		

**REFERENCES:**

1. PROCESS FLOW DIAGRAM SHEET #1 @ DWG. 540-F-889
2. DEFINITION OF SYMBOLS
  - ⊙ E. SPEC. 9675176 REV. 2 AND
  - ⊙ E. SPEC. 9676164 REV. 0
3. INSTALLATION OF INSTRUMENTATION
  - ⊙ PROC. SPEC. CAP 294353 REV. 1
4. MATERIAL SPEC. PIPE AND FITTINGS
  - NYP& SPEC. TS-MS-024
  - ⊙ E. SPEC. 9676398 REV. 0

**REFERENCE DRAWINGS:**

- 9321-F-27513 AC AUXILIARY COOLANT SYSTEM SHEET 1 & 2
- 9321-F-27193 HD WASTE DISPOSAL SYSTEM SHEET 1-CONT.
- 9321-F-27203 HD WASTE DISPOSAL SYSTEM SHEET 2
- 9321-F-27353 SI SAFETY INJECTION SYSTEM SHEET 1
- 9321-F-27508 SI SAFETY INJECTION SYSTEM SHEET 2
- 9321-F-27282 RC REACTOR COOLANT SYSTEM SHEET 1
- 9321-F-27283 RC REACTOR COOLANT SYSTEM SHEET 2
- 9321-F-27284 RW NUCLEAR EQUIPMENT DRAINS
- 9321-F-27245 PW PRIMARY MAKE-UP WATER SYSTEM
- 9321-F-27455 SP SUMPING SYSTEM
- 9321-F-27403 IV ISOLATION VALVE DEAL WATER SYSTEM
- 9321-C-27415 NUCLEAR LINE SCHEDULE

**NOTES:**

1. VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER SEAT; EXCEPTIONS ARE VALVES: 831A & 831B.
2. SLOTTED CONNECTION IS LOCATED IN BOTTOM HALF OF REACTOR COOLANT PIPING ON 45° ANGLE TO VERTICAL.
3. SPRING LOADED CHECK VALVE
4. LOCATED IN ANNULAR RING BETWEEN SECONDARY SHIELD AND CONTAINMENT WALL.
5. VALVE IS LOCATED CLOSE TO FUEL PIT WALL.
6. VACUUM BREAKER SUPPLIED WITH TANK.
7. PRESSURE TAP LOCATED PER ⊙ I & C STANDARDS.
8. CENTERLINE OF WALL PENETRATION FOR THE SPENT FUEL PIT PUMP SLOTTED CONNECTION (6) FEET BELOW THE TOP OF THE SPENT FUEL PIT WALL.
9. SPENT FUEL PIT PUMP DISCHARGE PIPE TERMINATES IN THE POOL AT ELEVATION 47.5/47.5/47.5.
10. ADDITIONAL VENTS & DRAINS MAY BE INSTALLED. SEE PIPING LAYOUTS.
11. REACTOR COOLANT PRESSURE INTERLOCK PREVENTS ISOLATION VALVE OPENING ABOVE SET PRESSURE.
12. SCHEDULE 140 PIPE
13. ELBOW FLOW METER.
14. ONLY 3P. FLOCCAP IS INSTALLED.
15. EMERGENCY SERVICE WATER CONNECTION.
16. PIPE RUN SUBMERGED IN SPENT FUEL PIT HAS SIPHON HOLE TO MAINTAIN A SPECIFIC WATER LEVEL AND PREVENT WATER FROM BEING SPILLED OFF.
17. ALL VALVE MD'S ARE PRECEDED BY "AC" AS THE SYSTEM DESIGNATION, EXCEPT AS NOTED.
18. TEMPORARY STRAINER (ST-19, ST-21, ST-22, ST-25, ST-30, ST-41, ST-42, ST-43, ST-44, ST-45, ST-46 & ST-47) IS PLACED IN THE FLANGED JOINT PIECE DURING INITIAL ELBOW ORIENTATION. STRAINERS MUST BE REMOVED BEFORE FUEL START-UP. CAPPED LINE IS CONNECTED TO THE SPENT FUEL PIT. STRAINER BODY/TIE ROD FOR STRAINERS ST-45 & ST-46 USE EXISTING DRAIN AND FURNISH CONNECTIONS FOR SPENT FUEL PIT STRAINER BODY/TIE ROD HAS BEEN REMOVED FROM ST-19, ST-21, ST-22, ST-25, ST-30, ST-45 & ST-46.
19. ST-20, ST-54, ST-55 & ST-58 HAVE BEEN REMOVED PER MAR-93-10168, 93-10169, 93-10170, 93-10171, ST-61, ST-62, ST-63 & ST-64 HAVE BEEN REMOVED PER MAR-93-10168, 93-10169, 93-10167, & 93-10161.
20. RW-0174 & RW-0175 HAVE HAD AIR & CONTROL SIGNAL REMOVED AND ARE NORMALLY CLOSED.
21. FLANGE AND ELBOW DOWNSTREAM OF RC-803 MAY HAVE INTERNAL SURFACE HARDENED BY DIFFUSION FLOWING PROCESS.

**LEGEND:**

- RWST REFUELING WATER STORAGE TANK
- RCWST REACTOR COOLING CONNECTION
- DIH DRAIN HEADER
- FCI FUEL CHUTE
- FCO FUEL CHUTE
- TRIP OR CLOSE ON HIGH CONTAINMENT PRESSURE
- LOCAL VENT
- LOCAL DRAIN
- SI SAFETY INJECTION SIGNAL
- TEMPORARY STRAINER
- CONTAINMENT PENETRATION
- SEISMIC CLASSIFICATION

NOTE:  
ALL PIPING ON THIS DWG. IS SEISMIC CLASS I EXCEPT AS NOTED

NOTE:  
WORK THIS DWG WITH DWG'S 9321-F-27513, SH. 1 & 2.

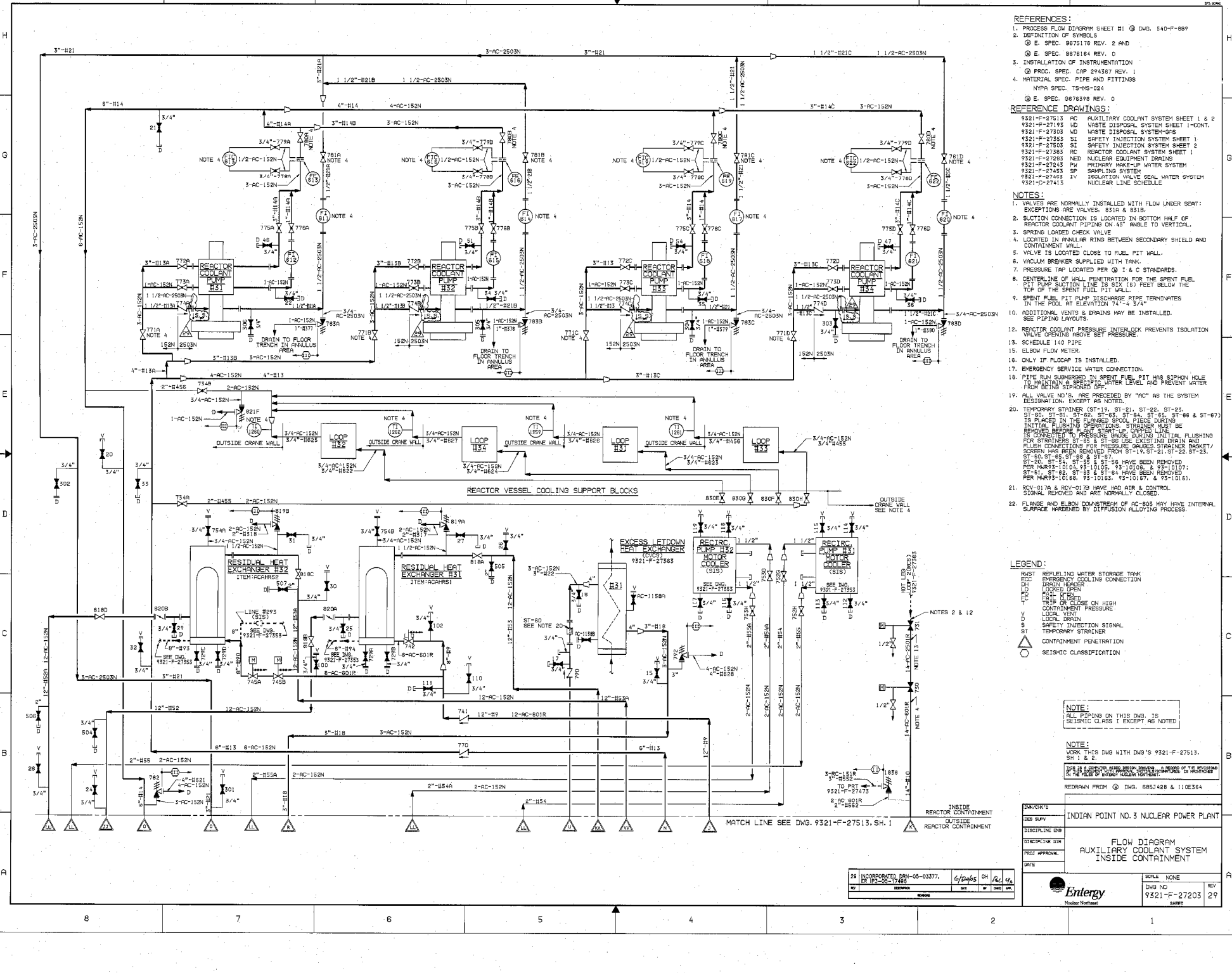
REDRAWN FROM @ DWG. 685J428 & 110384

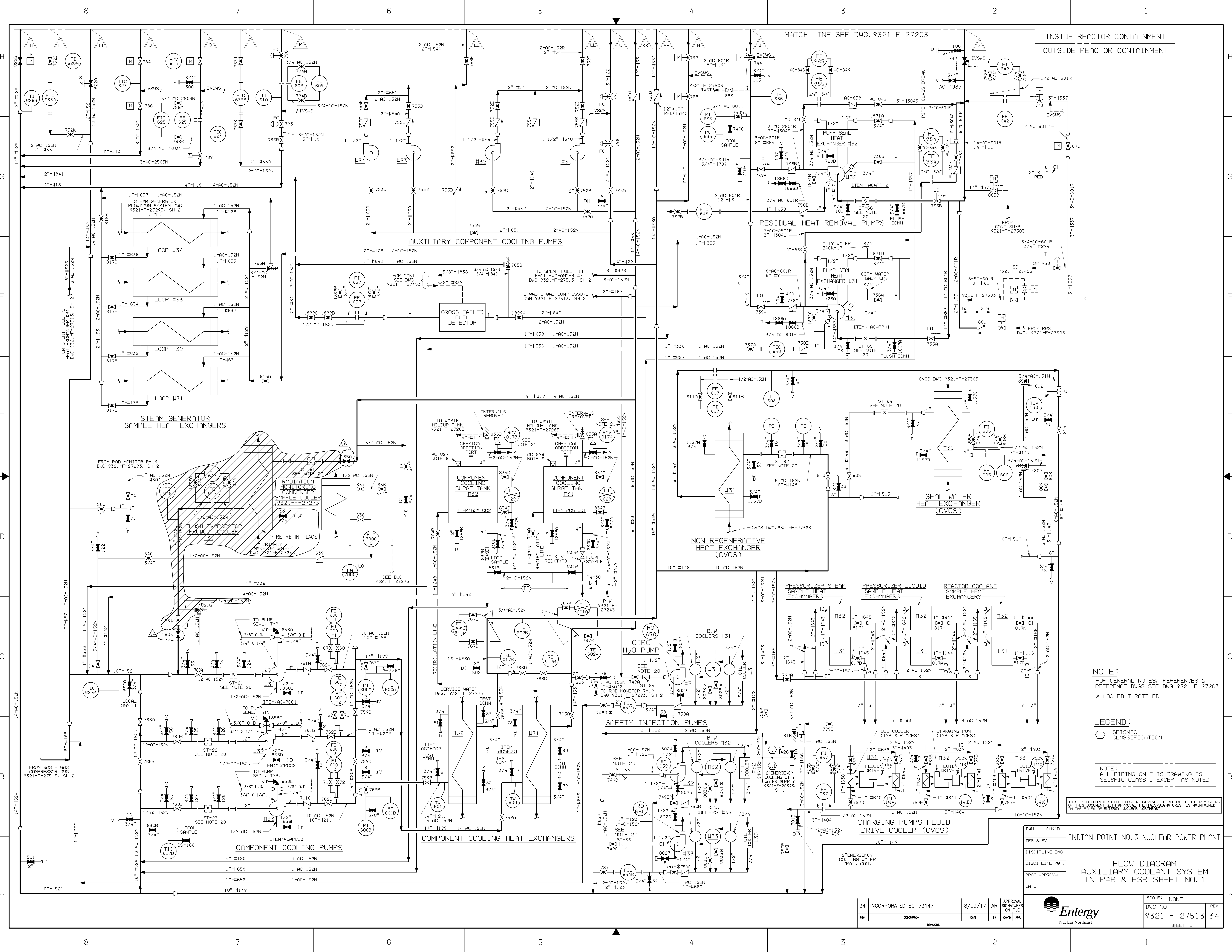
INDIAN POINT NO. 3 NUCLEAR POWER PLANT

FLOW DIAGRAM  
AUXILIARY COOLANT SYSTEM  
INSIDE CONTAINMENT

INCORPORATED	05-03377	6/29/85	OH	REC	CP
NO	000000	0000	000	000	000

SCALE NONE  
DWG NO 9321-F-27203  
REV 29





NOTE:  
FOR GENERAL NOTES, REFERENCES &  
REFERENCE DWGS SEE DWG 9321-F-27203  
\* LOCKED THROTTLED

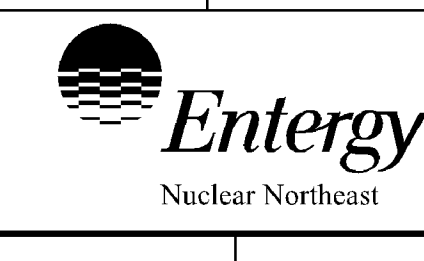
LEGEND:  
○ SEISMIC CLASSIFICATION

NOTE:  
ALL PIPING ON THIS DRAWING IS  
SEISMIC CLASS I EXCEPT AS NOTED

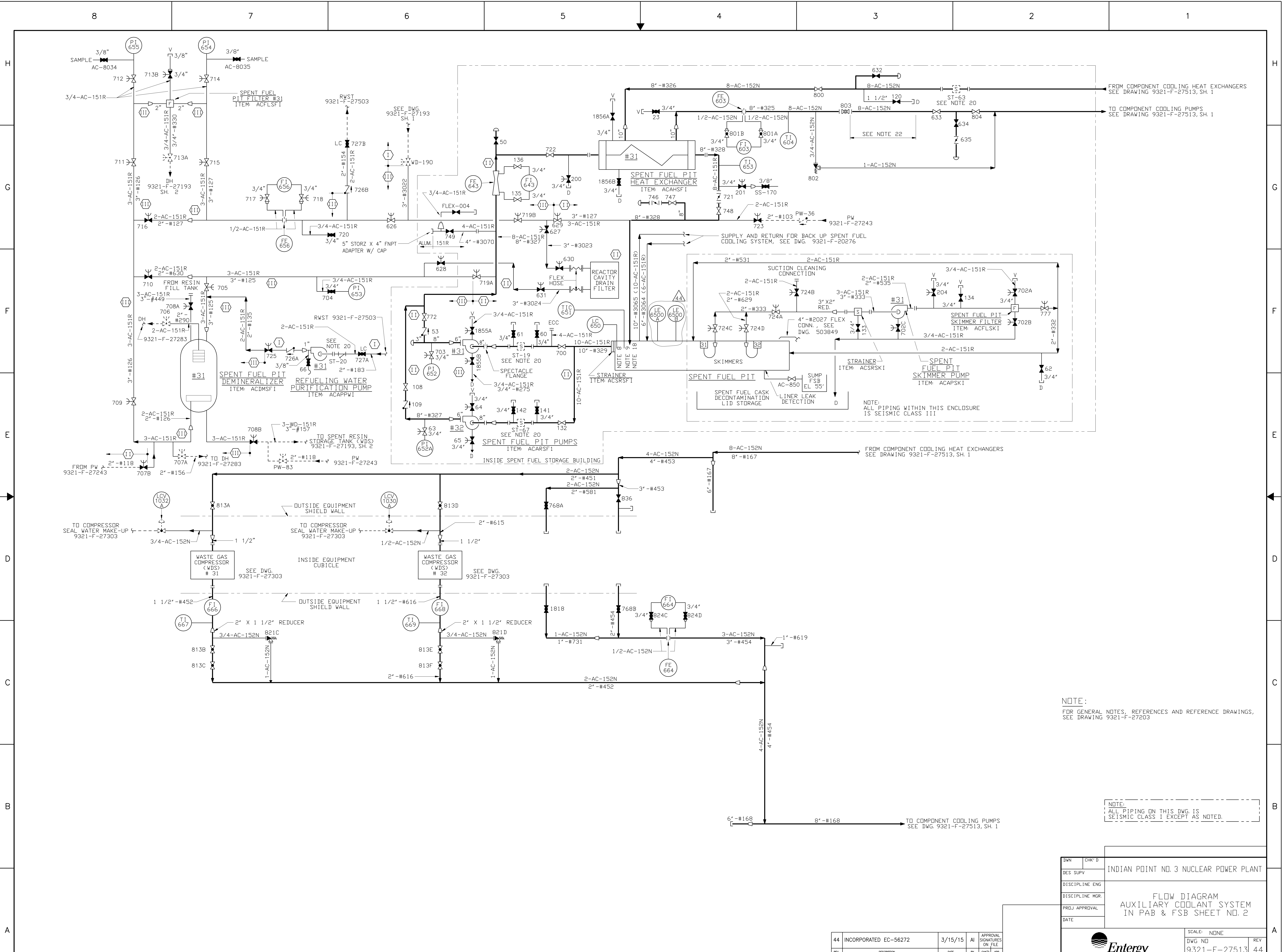
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INDIAN POINT NO. 3 NUCLEAR POWER PLANT  
FLOW DIAGRAM  
AUXILIARY COOLANT SYSTEM  
IN PAB & FSB SHEET NO. 1

DWN	CHK'D	SCALE:	NONE
DES	SUPV	DWG NO	9321-F-27513
DISCIPLINE	ENG	REV	34
DISCIPLINE	MGR.	DATE	8/09/17
PROJ	APPROVAL	BY	AR
DATE		CHK'D	APP.



34	INCORPORATED EC-73147	8/09/17	AR
REV	DESCRIPTION	DATE	BY

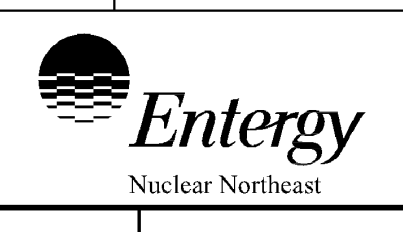


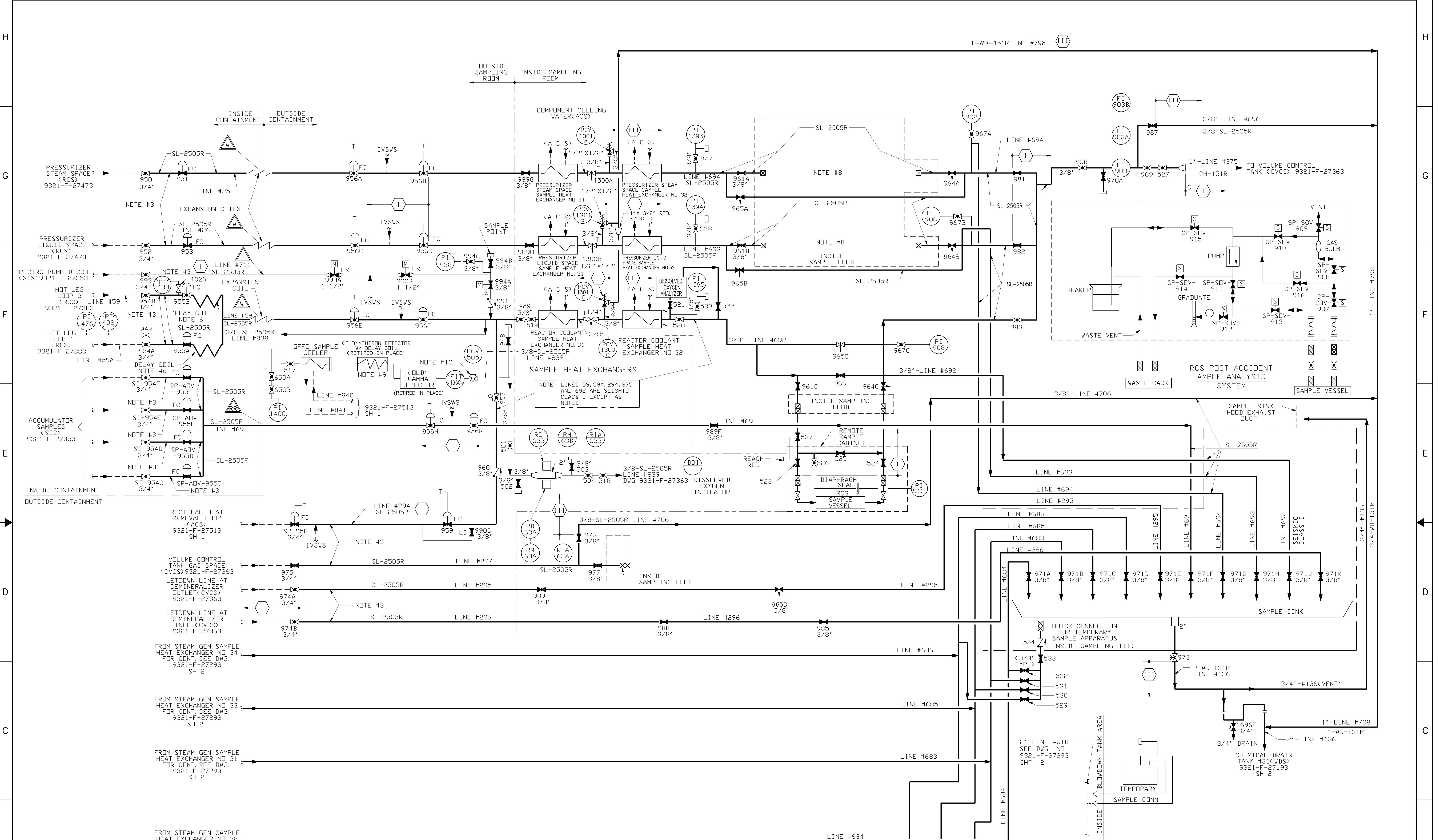
NOTE:  
FOR GENERAL NOTES, REFERENCES AND REFERENCE DRAWINGS,  
SEE DRAWING 9321-F-27203

NOTE:  
ALL PIPING ON THIS DWG IS  
SEISMIC CLASS I EXCEPT AS NOTED.

DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DES. SUPV.		FLOW DIAGRAM AUXILIARY COOLANT SYSTEM IN PAB & FSB SHEET NO. 2	
DISCIPLINE ENG.			
DISCIPLINE MGR.			
PRD. APPROVAL			
DATE			
		SCALE: NONE	REV
		DWG NO 9321-F-27513	44
		SHEET 2	

44	INCORPORATED EC-56272	3/15/15	AI	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D APP.





- REFERENCE DRAWINGS:**
- 9321-F-27363 CHEMICAL & VOLUME CONTROL SYSTEM--SHEET #1
  - 9321-F-27373 CHEMICAL & VOLUME CONTROL SYSTEM--SHEET #2
  - 9321-F-27383 REACTOR COOLANT SYSTEM--SHEET #1
  - 9321-F-27293 SH 2 STEAM GENERATOR BLOWDOWN SYSTEM
  - 9321-F-27513 SH 1 AUXILIARY COOLANT SYSTEM--SHEET #1
  - 9321-F-27193 SH 2 WASTE DISPOSAL SYSTEM--SHEET #2
  - 9321-F-27303 WASTE DISPOSAL SYSTEM--GAS
  - 9321-F-27363 SAFETY INJECTION SYSTEM--SHEET #1
  - 9321-F-27463 ISOLATION VALVE SEAL WATER SYSTEM
  - 9321-F-27243 PRIMARY WATER SYSTEM NUCLEAR STEAM SUPPLY PLANT
  - 9321-C-27413 NUCLEAR LINE SCHEDULE

- REFERENCES:**
1. PROCESS FLOW DIAGRAM DWG. 540F894
  2. DEFINITION OF SYMBOLS E. SPEC. G675176 REV. 2 AND E. SPEC. G675164 REV. 0
  3. INSTALLATION OF INSTRUMENTATION PROC. SPEC. CAP-294367 REV. 1
  4. MATERIAL SPEC. PIPE AND FITTINGS ENERGY SPEC. TS-MS-024 E. SPEC. G676398 REV. 0

- NOTES:**
1. ALL TUBING IS 3/8" O. D. EXCEPT AS DETAILED.
  2. ALL VALVES INSTALLED WITH FLOW UNDER SEAT EXCEPT VALVE NUMBERS 968, 970A.
  3. 3/4" STD PIPE X 3/8" TUBING INSERT AT 3/4" VALVES.
  4. ADDITIONAL VENTS AND DRAINS MAY BE INSTALLED BASED ON PIPE LAYOUT.
  5. ALL CHECK VALVES ARE 'Y' TYPE LIFT CHECK.
  6. DELAY COIL-125 FT. X 3/8" O. D. TUBING X 0.245" I. D. INSIDE CONT. BLDG.
  7. ALL VALVE NO'S ARE PRECEDED BY 'SP' EXCEPT AS NOTED.
  8. SAMPLE VESSEL HAS BEEN RETIRED.
  9. DELAY COIL IS 3/8" O. D. TUBING X 0.245" I. D.
  10. FCV-505 IS SELF REGULATING FLOW CONTROLLER (DWG. IFSV-439-0652).

- LEGEND:**
- FC-FAIL CLOSED
  - SEISMIC CLASSIFICATION
  - T-THROTTLED
  - LS-LOCKED SHUT
  - ⊠-QUICK DISCONNECT FOR TEST

NOTE: ALL PIPING ON THIS DWG. IS SEISMIC CLASS II EXCEPT AS NOTED

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REDRAWN FROM DWG. 541F428

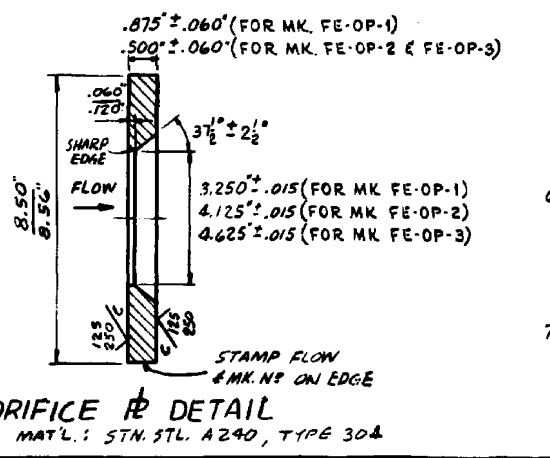
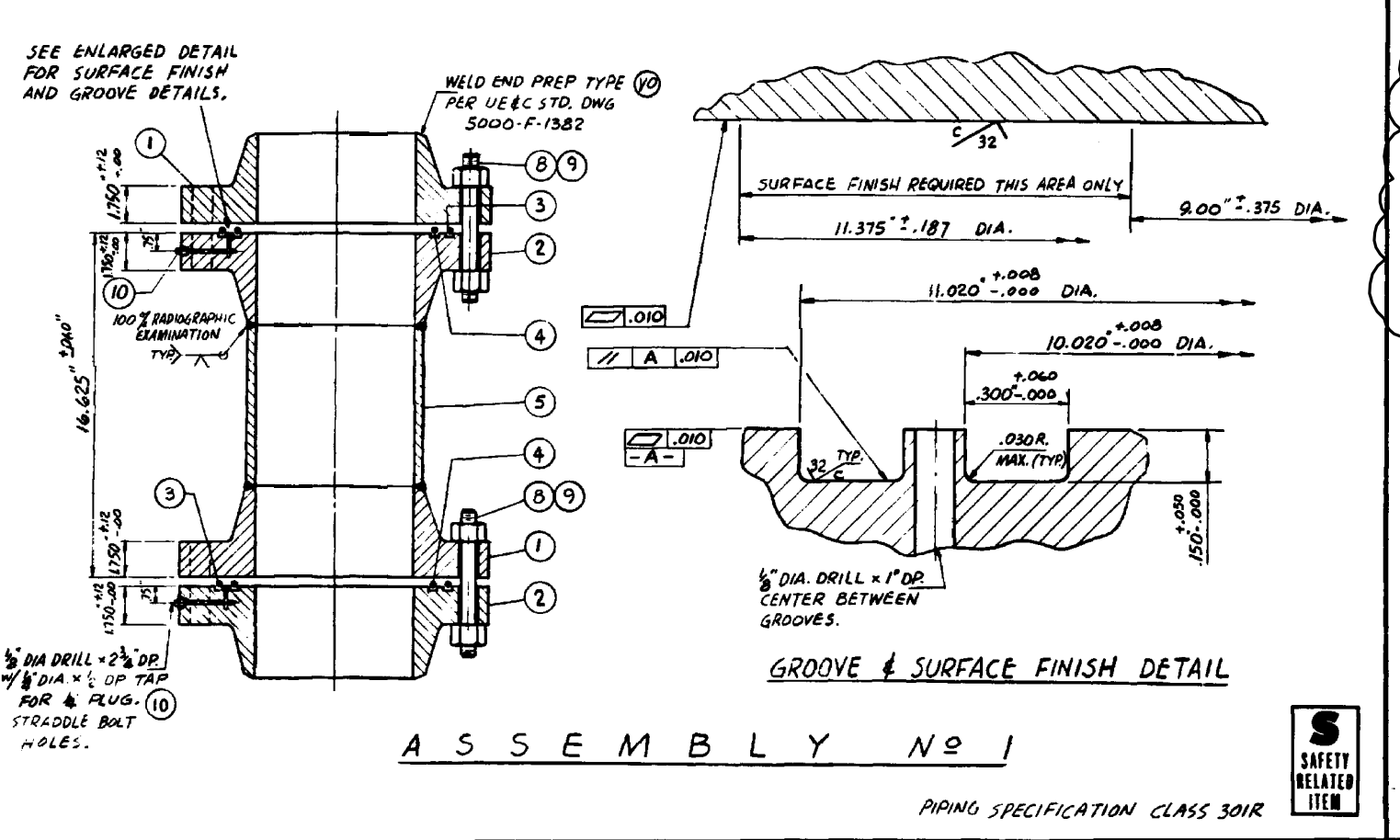
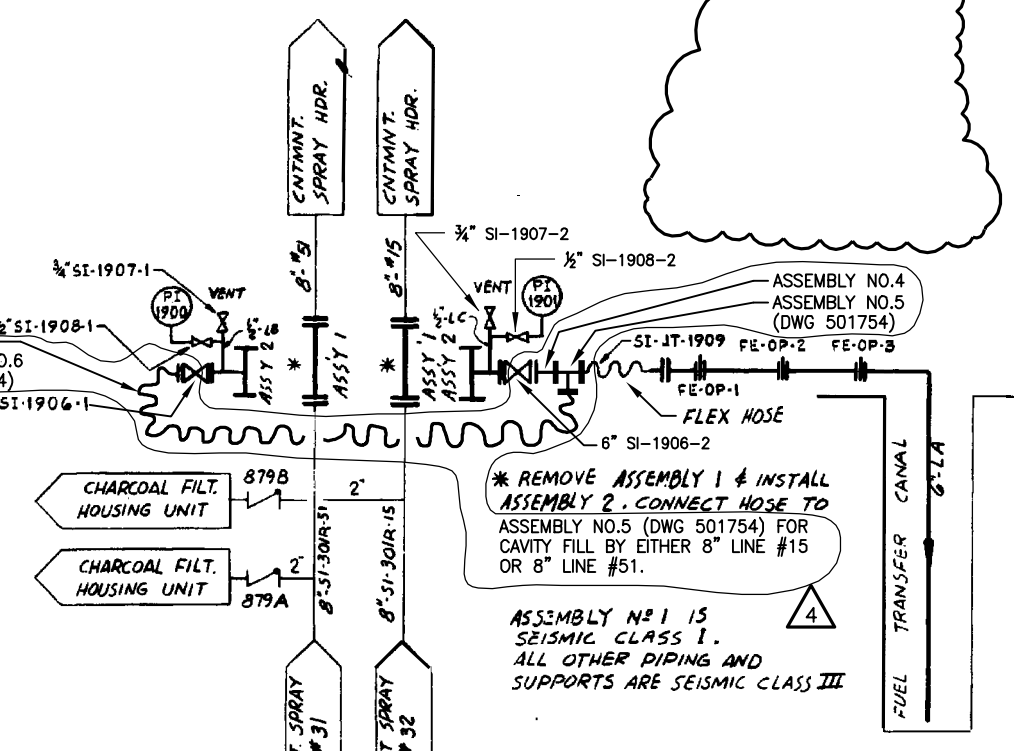
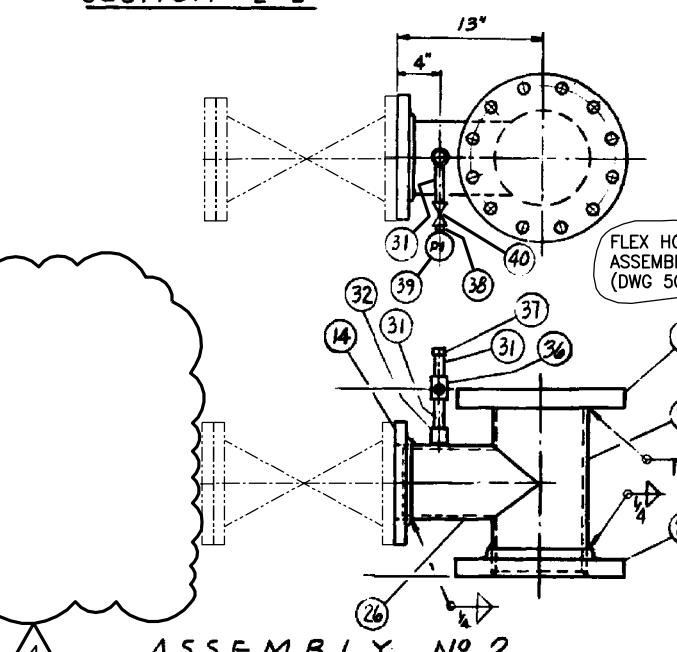
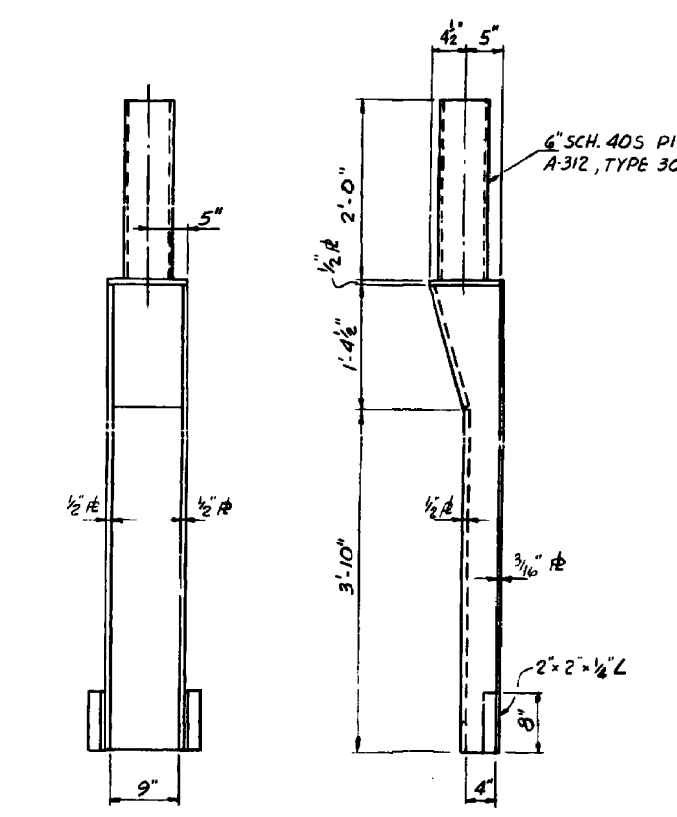
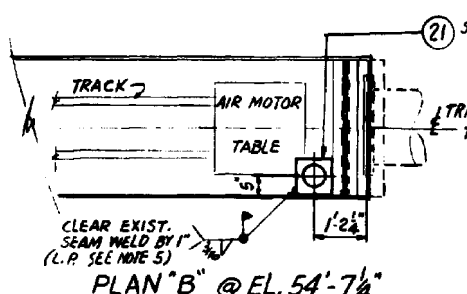
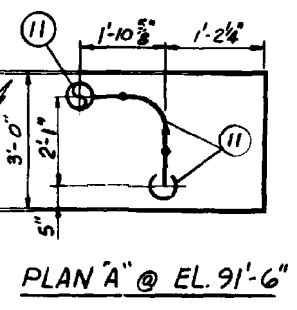
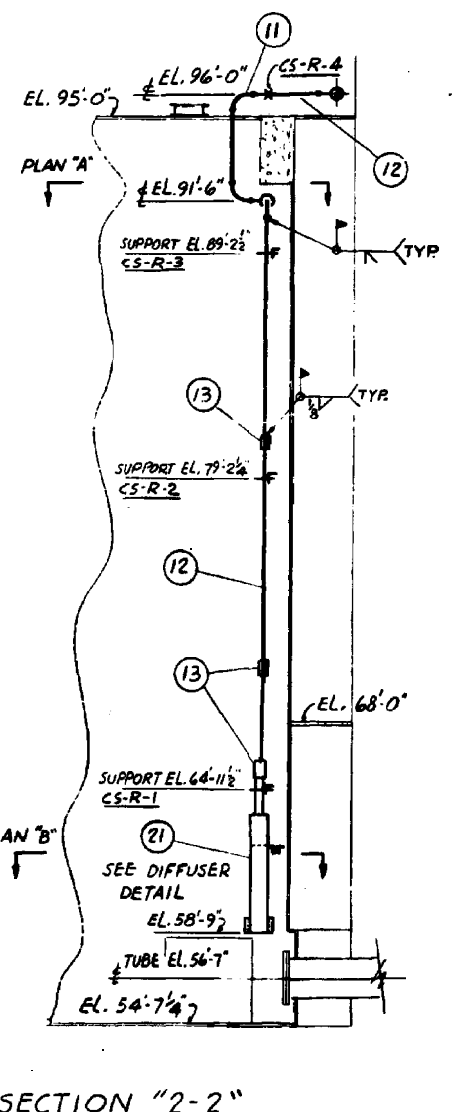
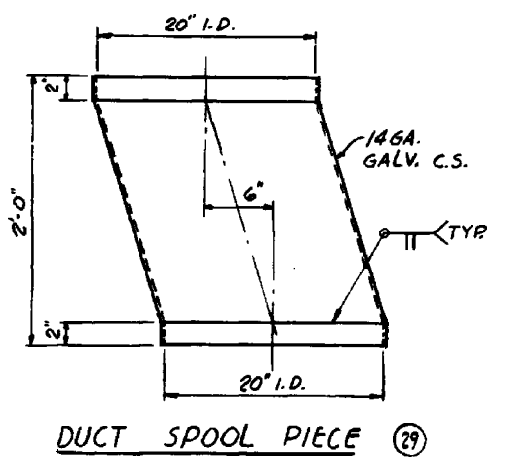
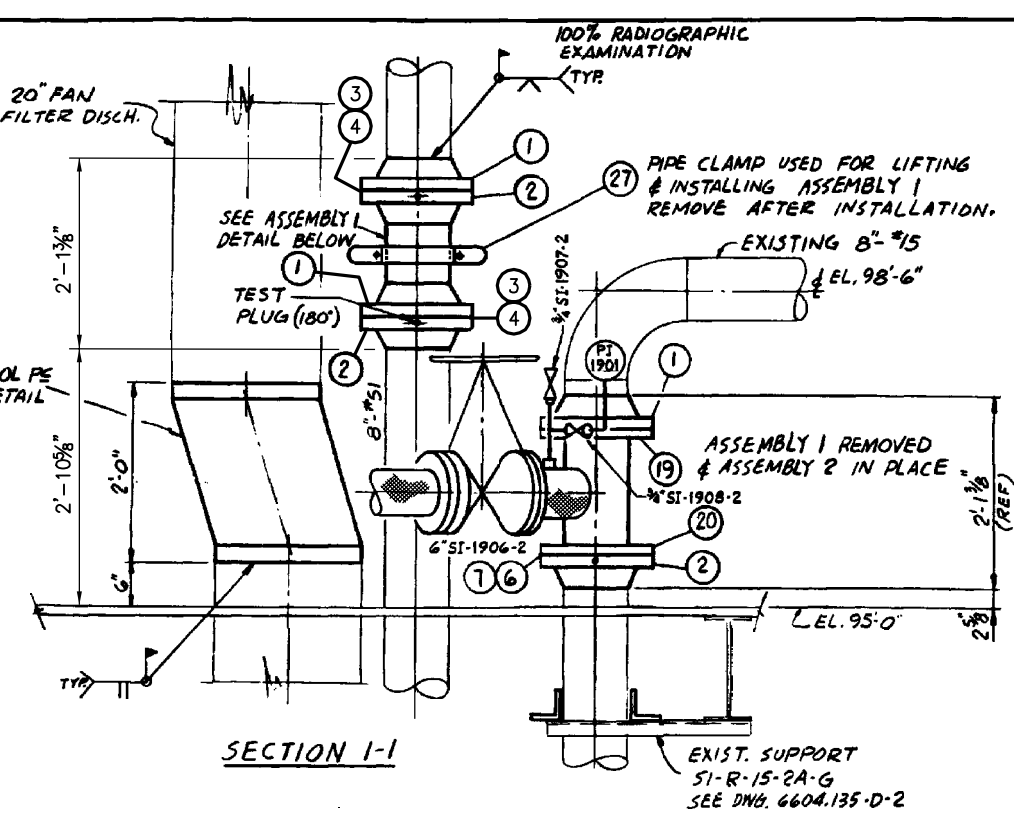
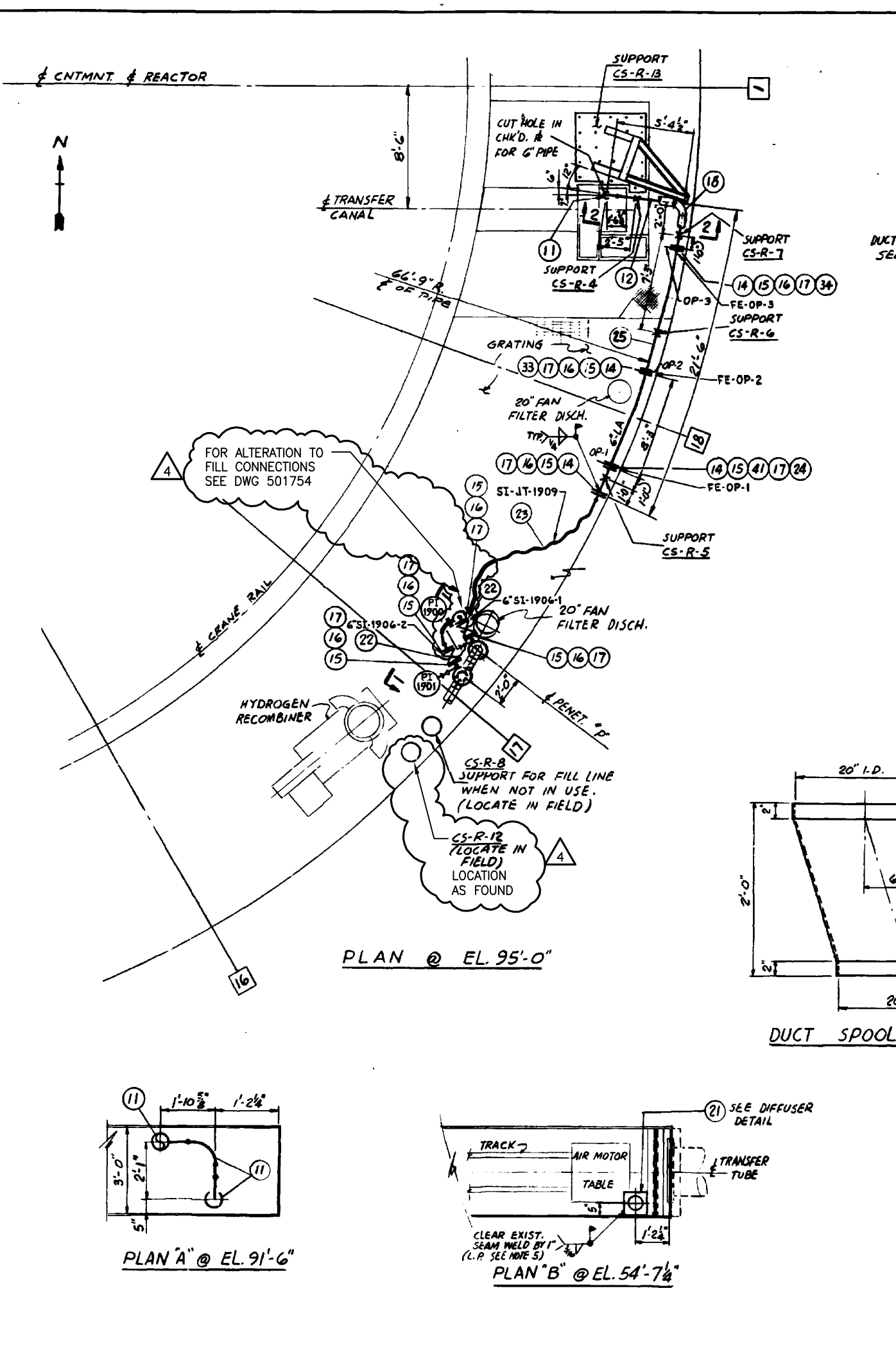
DWN	CHK'D	INDIAN POINT NO.3 NUCLEAR POWER PLANT	
DES SUPV		FLOW DIAGRAM SAMPLING SYSTEM	
DISCIPLINE ENG			
DISCIPLINE DIR			
PROJ APPROVAL			
DATE			

31	INCORPORATED EC-57076	4/22/15	VMR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D

SCALE: NONE	REV
DWG NO 9321-F-27453	31
SHEET	



TYPE A/ISI/FSAR



ITEM NO.	REV.	RO. NO.	DESCRIPTION
1	4	IP-PO-401	8" 300# W.N.FLG., FF, ANSI B16.5, SA-182, F304 FORGED (MODIFIED)
2	4		8" 300# W.N.FLG., FF, ANSI B16.5, SA-182, F304 FORGED (MODIFIED)
3	16		METAL O-RING, ADVANCED PROD. CO. #E01-01000-13-01-1-SPD (NOTE 2)
4	16		METAL O-RING, ADVANCED PROD. CO. #E01-01000-13-01-1-SPD (NOTE 2)
5	2		8" PIPE, SCH 40S, SA 312, TYPE 304, SMLS
6	4		O-RING, PARKER SEAL CO. PART #2-375, MATL. E70-71 (USED AT TIME OF CAVITY FILL ONLY)
7	4		O-RING, PARKER SEAL CO. PART #2-378, MATL. E70-71 (USED AT TIME OF CAVITY FILL ONLY)
8	48		3/8" DIA. 2" LG. FULL THRD. STUD, A-354 GR BD
9	96		3/8" DIA. 2" LG. FULL THRD. STUD, A-354 GR BD
10	4		8" PIPE PLUG, STN. STL.
11	4		6" 90° ELL, SCH 10S, 300 SERIES STN. STL., A 403
12	35-0		6" PIPE, A-312, TYPE 304, SCH 10S
13	4		G ALIGNING CONNECTOR, 300 SERIES STN. STL., BULLOCK ENDS, DUNLA. PA.
14	9		6" 150° S.O. FLG., R.F. ANSI B16.5, SERIES 300 STN. STL., A 182
15	21		6" 150° GASKET, ASBESTOS JM-60, 1/4" THK.
16	64		3/8" x 4 1/2" MIN. THRD., NUT HEX HD BOLT, C.S. A307
17	78		3/4" NUT HEX NUT, C.S. A-307
18	1		6" 90° ELL, SCH. 40S, B.W., 300 SERIES STN. STL., A 403
19	2		8" 300# BLIND FLG., FF, ANSI B16.5, 300 SERIES STN. STL., A 182
20	2		8" 300# SLIP-ON FLG., FF, ANSI B16.5, 300 SERIES STN. STL., A 182
21	1	IP-PO-401	DIFFUSER, STN. STL. PER DETAIL
22	2	IP-PO-428	6" GATE VALVE
23	1	IP-PO-430	STN. STL. BRAIDED HOSE, 6" I.D., 18'-0" OVERALL LGTH. 1/150" ANSI 1/4" R.F. FLGS. (TYPE 300 SERIES STN. STL.) EACH END.
24	1	IP-PO-401	ORIFICE #, MK. NO. OP-1, PER DETAIL
25	25-0		6" PIPE, A-312, TYPE 304, SCH 40S, ROLL TO 66'-9" R.
26	24-0		6" PIPE, SCH. 40S, A312, TYPE 304
27	1		6" PIPE CLAMP, GRINNELL FIG. 261 OR EQUAL
28	2		8" PIPE, SCH. 40S, A312, TYPE 304
29	1	IP-PO-401	DUCT SPOOL PIECE, PER DETAIL
30	2	IP-PO-428	6" GATE VALVE, SCRD.
31	6	IP-PO-401	1/2" x 3" LG. PIPE NIPPLE, THRD. BOTH ENDS A312, TYPE 304
32	2		1/2" 3000# HALF COUPLING, SCRD, STN. STL., A 182, TYPE 304
33	1		ORIFICE #, MK. NO. OP-2, PER DETAIL
34	1	IP-PO-401	ORIFICE #, MK. NO. OP-3, PER DETAIL
35	20	IP-PO-401	SHIM, 4" x 20GA. x 6" LG., STN. STL., PER DETAIL
36	2		1/2" TEE 3000# SCRD, STN. STL., A 182 TYPE 304
37	2		3/8" x 1/2" HEX BUSHING, SCRD, STN. STL., A 182, TYPE 304
38	2		1/2" x 1/2" HEX BUSHING, SCRD, STN. STL., A 182, TYPE 304
39	2		PRESSURE GAGE
40	2		1/2" VALVE
41	8		3/4" x 5" LG. 1/3" MIN. THRD., NUT HEX HD. BOLT, C.S. A-307
42	2		
43	1		

**NOTES:**

- ALTERNATE O-RING GASKET MATL FOR ITEMS 6 & 7: E-803-70, E-667-70, E-686-75, E-692-75, E-794-80, E-810-80, E-652-70, N-674-70
- 4 O-RINGS TO BE USED FOR SHOP HYDRO-TEST. DISCARD AFTER TEST. USE NEW O-RINGS WHEN ASSEMBLY NO. 1 IS INSTALLED IN C.S. LINES.
- INTERNAL SURFACE OF ALL REACTOR CAVITY LINER ATTACHMENT WELDS SHALL BE LIQUID PENETRANT EXAMINED. PORTION OF EXISTING WELD SEAMS COVERED BY SUPPORTS TO BE GROUND FLUSH WITH FACE OF LINER & LIQUID PENETRANT EXAMINED.
- ALL FIELD INSTALLATION WORK TO BE IN ACCORDANCE WITH U.E.C. SPEC. 6604-301-44-1.
- TEMPORARY SUPPORTS TO BE INSTALLED PRIOR TO PIPE MODIFICATION & DURING SUBSEQUENT CAVITY FILL OPERATION. SUPPORTS TO BE REMOVED AFTER COMPLETION OF CAVITY FILL OPERATION & REINSTALLATION OF PIPING ASSEMBLY 1. ITEM (S) SHIMS ON AFFECTED PERMANENT SUPPORTS MUST BE REMOVED.

4 INCORPORATED EC-28907 4/14/11 VMR APPROVAL SIGNATURES ON FILE

ENTERGY Nuclear Northeast

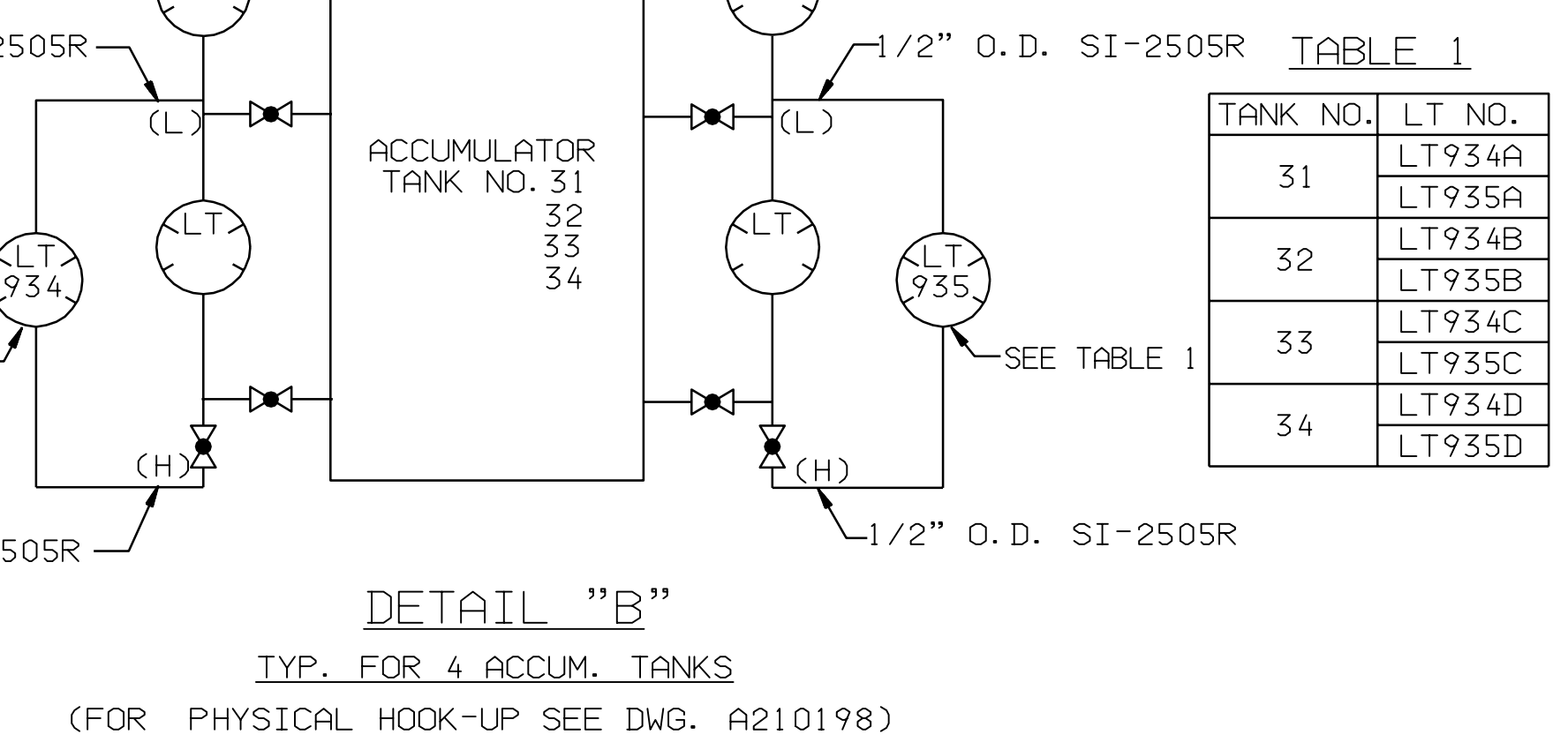
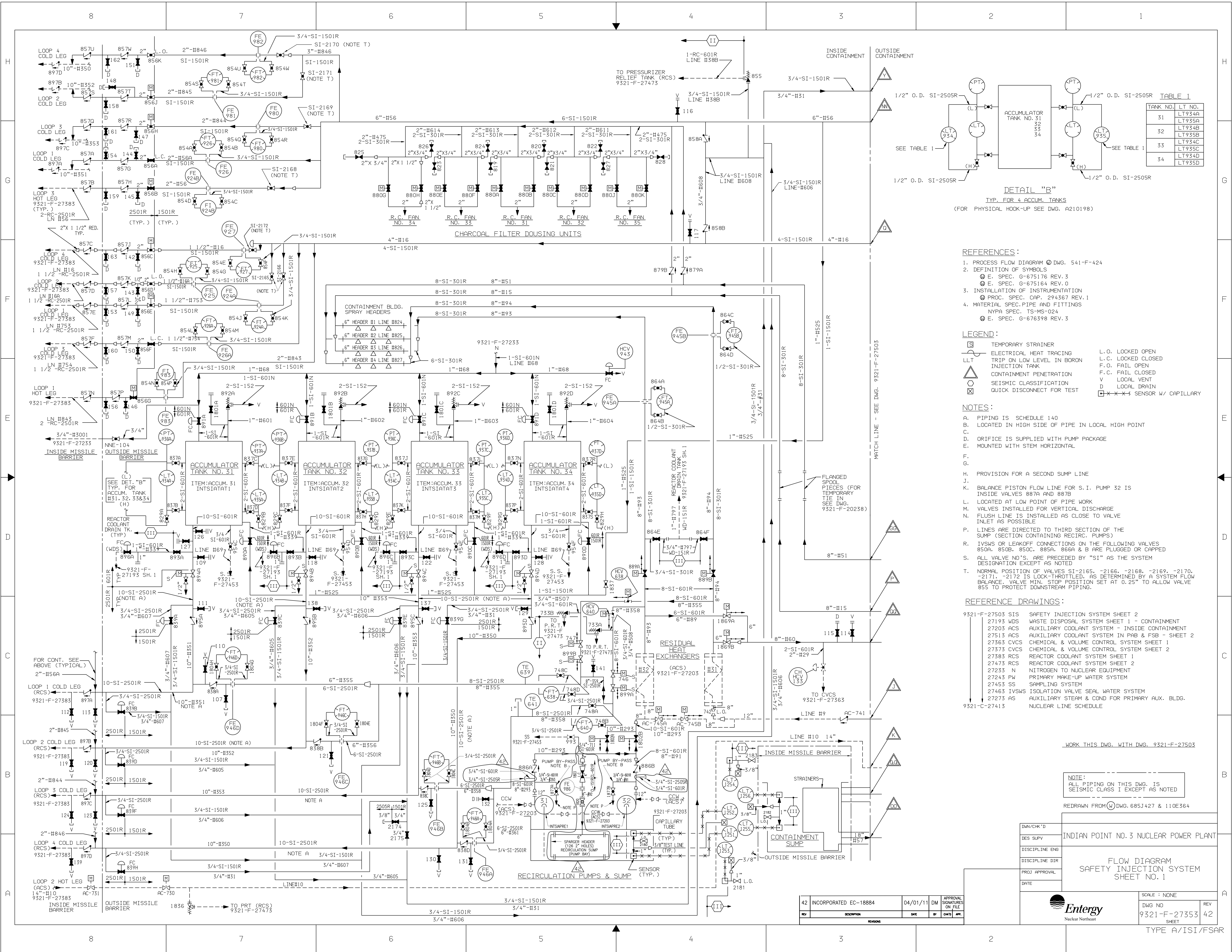
CONTAINMENT BUILDING REACTOR CAVITY ALTERNATE FILL LINE

9321-F-20238

THIS DWG. PREVIOUSLY U.E.C. 6604135-F-1

WORK THIS DWG WITH DWG 501754

FRIM 076 WAH 38



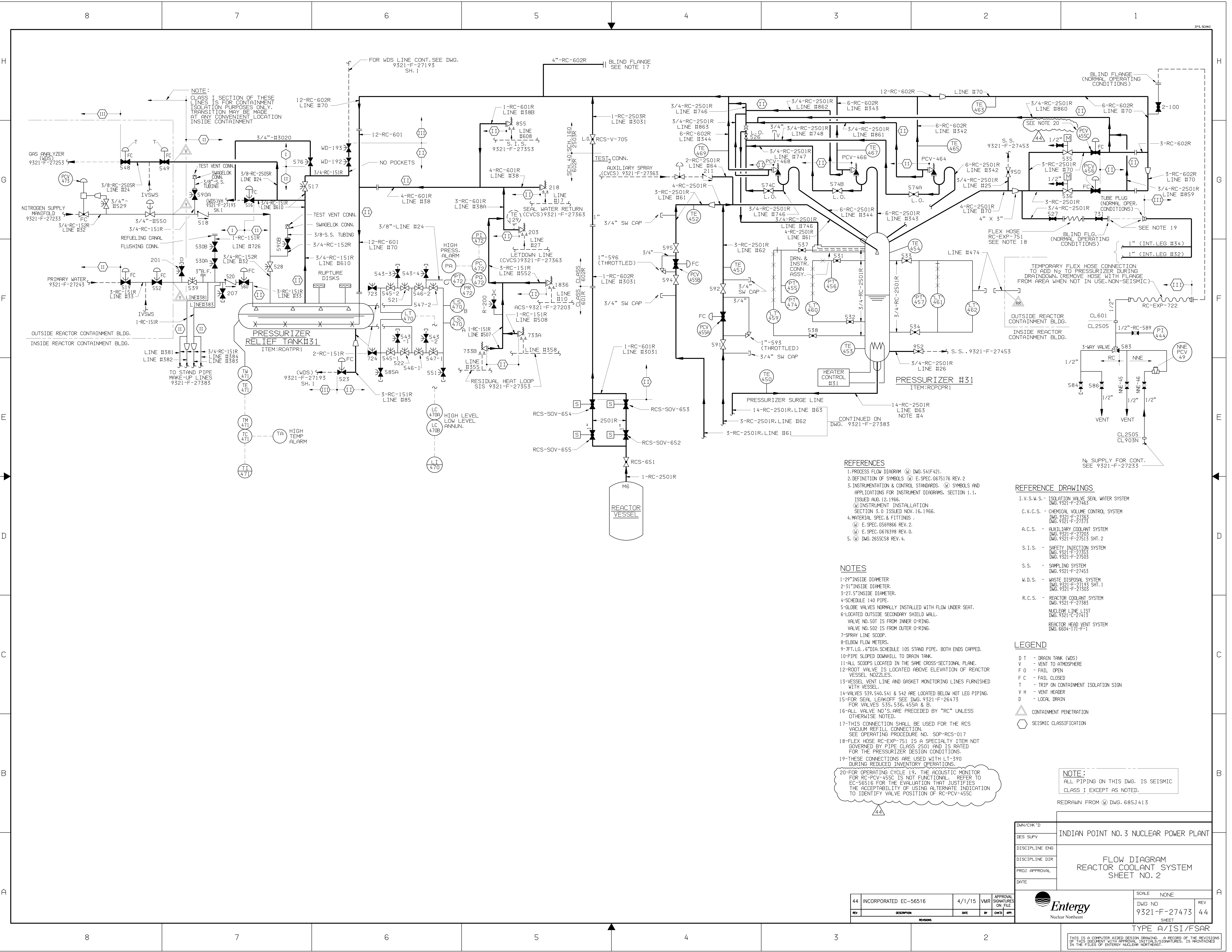
- REFERENCES:**
- PROCESS FLOW DIAGRAM DWG. 541-F-424
  - DEFINITION OF SYMBOLS
    - ⊙ E. SPEC. 6-675176 REV. 3
    - ⊙ E. SPEC. 6-675164 REV. 0
  - INSTALLATION OF INSTRUMENTATION
    - ⊙ PROC. SPEC. CAP. 294367 REV. 1
    - ⊙ MATERIAL SPEC. PIPE AND FITTINGS NYPA SPEC. TS-MS-024
    - ⊙ E. SPEC. 6-676398 REV. 3
- LEGEND:**
- ⊙ TEMPORARY STRAINER
  - ⊙ ELECTRICAL LINE TRACING
  - ⊙ TRIP ON LOW LEVEL IN BORON INJECTION TANK
  - ⊙ CONTAINMENT PENETRATION
  - ⊙ SEISMIC CLASSIFICATION
  - ⊙ QUICK DISCONNECT FOR TEST
  - L.O. LOCKED OPEN
  - L.C. LOCKED CLOSED
  - F.O. FAIL OPEN
  - F.C. FAIL CLOSED
  - V LOCAL VENT
  - D LOCAL DRAIN
  - ⊙ X X X X X SENSOR W/ CAPILLARY
- NOTES:**
- PIPING IS SCHEDULE 140
  - LOCATED IN HIGH SIDE OF PIPE IN LOCAL HIGH POINT
  - ORIFICE IS SUPPLIED WITH PUMP PACKAGE
  - MOUNTED WITH STEM HORIZONTAL
  - PROVISION FOR A SECOND SUMP LINE
  - BALANCE PISTON FLOW LINE FOR S.I. PUMP 32 IS INSIDE VALVES 887A AND 887B
  - LOCATED AT LOW POINT OF PIPE WORK
  - VALVES INSTALLED FOR VERTICAL DISCHARGE
  - FLUSH LINE IS INSTALLED AS CLOSE TO VALVE INLET AS POSSIBLE
  - LINE ARE DIRECTED TO THIRD SECTION OF THE SUMP (SECTION CONTAINING RECIRC. PUMPS)
  - IVSMS OR LEAKOFF CONNECTIONS ON THE FOLLOWING VALVES 850A, 850B, 850C, 885A, 886A & B ARE PLUGGED OR CAPPED
  - ALL VALVE NO.'S. ARE PRECEDED BY "SI" AS THE SYSTEM DESIGNATION EXCEPT AS NOTED
  - NORMAL POSITION OF VALVES SI-2165, -2166, -2168, -2169, -2170, -2171, -2172 IS LOCK-THROTTLED, AS DETERMINED BY A SYSTEM FLOW BALANCE. VALVE MIN. STOP POSITION SET AT 0.25" TO ALLOW VALVE 855 TO PROTECT DOWNSTREAM PIPING.

- REFERENCE DRAWINGS:**
- 9321-F-27503 SIS SAFETY INJECTION SYSTEM SHEET 2
  - 27193 WDS WASTE DISPOSAL SYSTEM SHEET 1 - CONTAINMENT
  - 27203 ACS AUXILIARY COOLANT SYSTEM - INSIDE CONTAINMENT
  - 27513 ACS AUXILIARY COOLANT SYSTEM IN PAB & FSB - SHEET 2
  - 27363 CVCS CHEMICAL & VOLUME CONTROL SYSTEM SHEET 1
  - 27373 CVCS CHEMICAL & VOLUME CONTROL SYSTEM SHEET 2
  - 27383 RCS REACTOR COOLANT SYSTEM SHEET 1
  - 27473 RCS REACTOR COOLANT SYSTEM SHEET 2
  - 27233 N NITROGEN TO NUCLEAR EQUIPMENT
  - 27243 PS PRIMARY MAKE-UP WATER SYSTEM
  - 27453 SW SAMPLING SYSTEM
  - 27463 IVSMS ISOLATION VALVE SEAL WATER SYSTEM
  - 27273 AS AUXILIARY STEAM & COND FOR PRIMARY AUX. BLDG.
  - 9321-C-27413 NUCLEAR LINE SCHEDULE
- WORK THIS DWG. WITH DWG. 9321-F-27503
- NOTE:** ALL PIPING ON THIS DWG. IS SEISMIC CLASS I EXCEPT AS NOTED
- REDRAWN FROM DWG. 685J427 & 110E564

DWG/CHK'D	DES SUPV	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DISCIPLINE ENG	DISCIPLINE DIR	FLOW DIAGRAM SAFETY INJECTION SYSTEM SHEET NO. 1	
PROJ APPROVAL	DATE	SCALE: NONE	DWG NO: 9321-F-27353
			SHEET 42
42 INCORPORATED EC-18884		04/01/11	DM APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY

TYPE A/ISI/FSAR





NOTE:  
CLASS I SECTION OF THESE  
LINES IS FOR CONTAINMENT  
ISOLATION PURPOSES ONLY.  
TRANSITION MAY BE MADE  
AT ANY CONVENIENT LOCATION  
INSIDE CONTAINMENT

PRESSURIZER  
RELIEF TANK #31  
ITEM:RCATPR1

REACTOR  
VESSEL

- REFERENCES**
1. PROCESS FLOW DIAGRAM (PFD) DWG. 541F421.
  2. DEFINITION OF SYMBOLS (D.S.) E.SPEC. 6675176 REV. 2
  3. INSTRUMENTATION & CONTROL STANDARDS. (I.C.S.) SYMBOLS AND APPLICATIONS FOR INSTRUMENT DIAGRAMS, SECTION 1.1. ISSUED AUG. 12, 1966.
  4. MATERIAL SPEC. & FITTINGS (M.S.F.) E.SPEC. 6569866 REV. 2.
  5. (E.SPEC. 6676398 REV. 0.
  6. (E.SPEC. 265558 REV. 4.

- NOTES**
- 1-2" INSIDE DIAMETER
  - 3-3" INSIDE DIAMETER.
  - 27-5" INSIDE DIAMETER.
  - SCHEDULE 140 PIPE.
  - GLOBE VALVES NORMALLY INSTALLED WITH FLOW UNDER SEAT.
  - LOCATED OUTSIDE SECONDARY SHIELD WALL.
  - VALVE NO. 501 IS FROM INNER O-RING.
  - VALVE NO. 502 IS FROM OUTER O-RING.
  - SPRAY LINE SCOOP.
  - ELBOW FLOW METERS.
  - 7-FT. LG., 6" DIA. SCHEDULE 10S STAND PIPE. BOTH ENDS CAPPED.
  - 10-PIPE SLOPED DOWNHILL TO DRAIN TANK.
  - 11-ALL SCOOPS LOCATED IN THE SAME CROSS-SECTIONAL PLANE.
  - 12-ROOT VALVE IS LOCATED ABOVE ELEVATION OF REACTOR VESSEL NOZZLES.
  - 13-VESSEL VENT LINE AND GASKET MONITORING LINES FURNISHED WITH VESSEL.
  - 14-VALVES 539, 540, 541 & 542 ARE LOCATED BELOW HOT LEG PIPING.
  - 15-FOR SEAL LEAKOFF SEE DWG. 9321-F-26473 FOR VALVES 535, 536, 455A & B.
  - 16-ALL VALVE NO.'S ARE PRECEDED BY "RC" UNLESS OTHERWISE NOTED.
  - 17-THIS CONNECTION SHALL BE USED FOR THE RCS VACUUM REFILL CONNECTION. SEE OPERATING PROCEDURE NO. SOP-RCS-017
  - 18-FLEX HOSE RC-EXP-751 IS A SPECIALITY ITEM NOT GOVERNED BY PIPE CLASS 2501 AND IS RATED FOR THE PRESSURIZER DESIGN CONDITIONS.
  - 19-THSE CONNECTIONS ARE USED WITH LT-390 DURING REDUCED INVENTORY OPERATIONS.
  - 20-FOR OPERATING CYCLE 19, THE ACOUSTIC MONITOR FOR RC-PCV-455C IS NOT FUNCTIONAL. REFER TO EC-56516 FOR THE EVALUATION THAT JUSTIFIES THE ACCEPTABILITY OF USING ALTERNATE INDICATION TO IDENTIFY VALVE POSITION OF RC-PCV-455C

- REFERENCE DRAWINGS**
- I.V.S.W.S. - ISOLATION VALVE SEAL WATER SYSTEM DWG. 9321-F-27485
  - C.V.C.S. - CHEMICAL VOLUME CONTROL SYSTEM DWG. 9321-F-27363
  - A.C.S. - AUXILIARY COOLANT SYSTEM DWG. 9321-F-27205
  - S.I.S. - SAFETY INJECTION SYSTEM DWG. 9321-F-27353
  - S.S. - SAMPLING SYSTEM DWG. 9321-F-27453
  - W.D.S. - WASTE DISPOSAL SYSTEM DWG. 9321-F-27303
  - R.C.S. - REACTOR COOLANT SYSTEM DWG. 9321-F-27385
  - NUCLEAR LINE LIST DWG. 9321-C-27413
  - REACTOR HEAD VENT SYSTEM DWG. 6604-171-F-1

- LEGEND**
- D T - DRAIN TANK (WDS)
  - V - VENT TO ATMOSPHERE
  - F O - FAIL OPEN
  - F C - FAIL CLOSED
  - T - TRIP ON CONTAINMENT ISOLATION SIGN
  - V H - VENT HEADER
  - D - LOCAL DRAIN
  - △ - CONTAINMENT PENETRATION
  - - SEISMIC CLASSIFICATION

NOTE:  
ALL PIPING ON THIS DWG. IS SEISMIC CLASS I EXCEPT AS NOTED.

REDRAWN FROM (Q) DWG. 685J413

DWG/CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE DIR	
PROJ APPROVAL	
DATE	

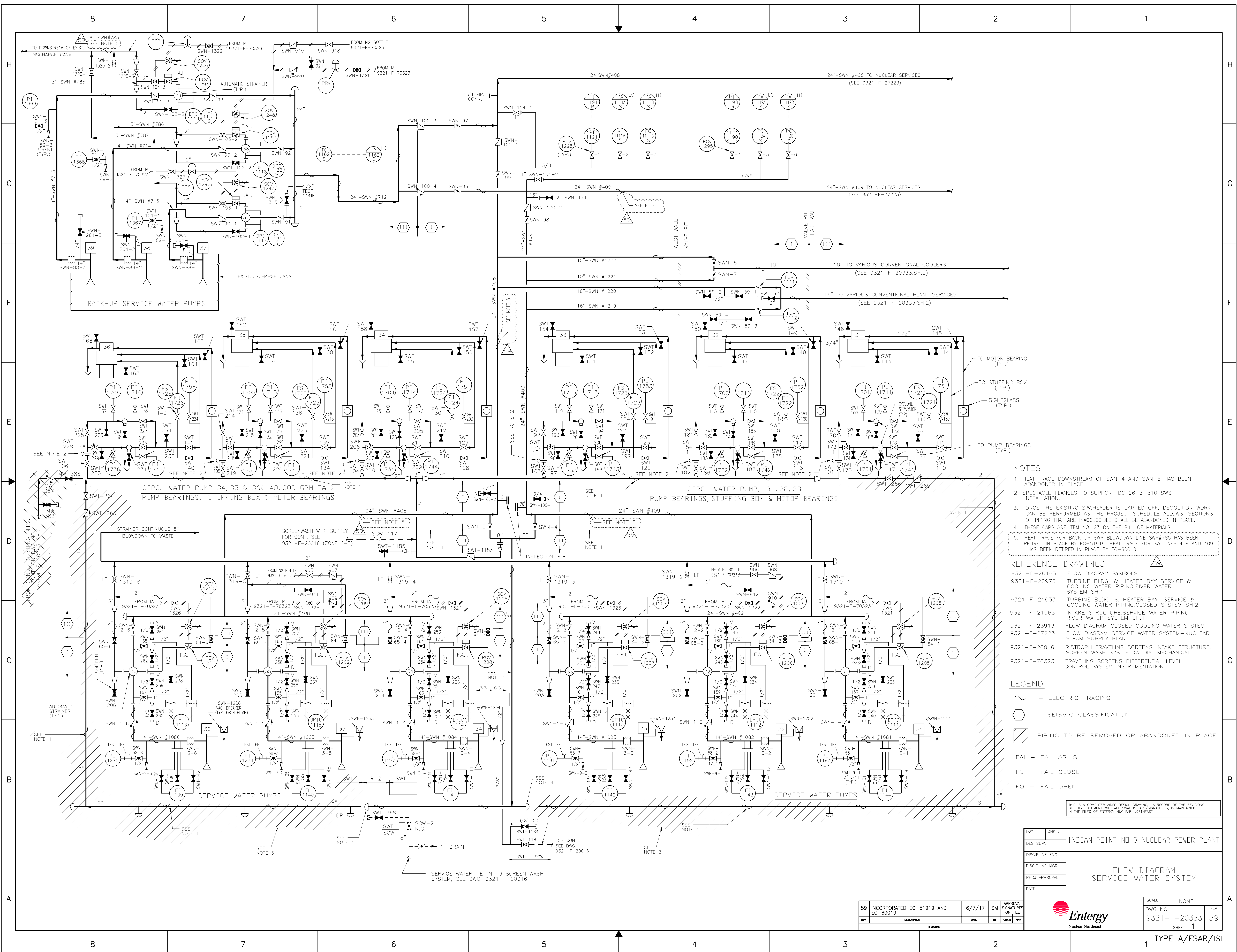
FLOW DIAGRAM REACTOR COOLANT SYSTEM SHEET NO. 2	
SCALE NONE	REV 44
DWG NO 9321-F-27473	SHEET

44	INCORPORATED EC-56516	4/1/15	VWR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHKD APP.

Entergy  
Nuclear Northeast

THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL INITIALS/SIGNATURES, IS MAINTAINED IN THE FILES OF ENTERGY NUCLEAR NORTHEAST.

TYPE A/ISI/FSAR



- NOTES**
- HEAT TRACE DOWNSTREAM OF SWN-4 AND SWN-5 HAS BEEN ABANDONED IN PLACE.
  - SPECTACLE FLANGES TO SUPPORT DC 96-3-510 SWS INSTALLATION.
  - ONCE THE EXISTING S.W.HEADER IS CAPPED OFF, DEMOLITION WORK CAN BE PERFORMED AS THE PROJECT SCHEDULE ALLOWS. SECTIONS OF PIPING THAT ARE INACCESSIBLE SHALL BE ABANDONED IN PLACE.
  - THESE CAPS ARE ITEM NO. 23 ON THE BILL OF MATERIALS.
  - HEAT TRACE FOR BACK UP SWP BLOWDOWN LINE SWP#785 HAS BEEN RETIRED IN PLACE BY EC-51919. HEAT TRACE FOR SW LINES 408 AND 409 HAS BEEN RETIRED IN PLACE BY EC-60019

- REFERENCE DRAWINGS:**
- 9321-D-20163 FLOW DIAGRAM SYMBOLS
  - 9321-F-20973 TURBINE BLDG. & HEATER BAY SERVICE & COOLING WATER PIPING, RIVER WATER SYSTEM SH.1
  - 9321-F-21033 TURBINE BLDG. & HEATER BAY, SERVICE & COOLING WATER PIPING, CLOSED SYSTEM SH.2
  - 9321-F-21063 INTAKE STRUCTURE, SERVICE WATER PIPING RIVER WATER SYSTEM SH.1
  - 9321-F-23913 FLOW DIAGRAM CLOSED COOLING WATER SYSTEM
  - 9321-F-27223 FLOW DIAGRAM SERVICE WATER SYSTEM-NUCLEAR STEAM SUPPLY PLANT
  - 9321-F-20016 RISTROPH TRAVELING SCREENS INTAKE STRUCTURE, SCREEN WASH SYS. FLOW DIA. MECHANICAL.
  - 9321-F-70323 TRAVELING SCREENS DIFFERENTIAL LEVEL CONTROL SYSTEM INSTRUMENTATION

- LEGEND:**
- ELECTRIC TRACING
  - SEISMIC CLASSIFICATION
  - PIPING TO BE REMOVED OR ABANDONED IN PLACE
  - FAI - FAIL AS IS
  - FC - FAIL CLOSE
  - FO - FAIL OPEN

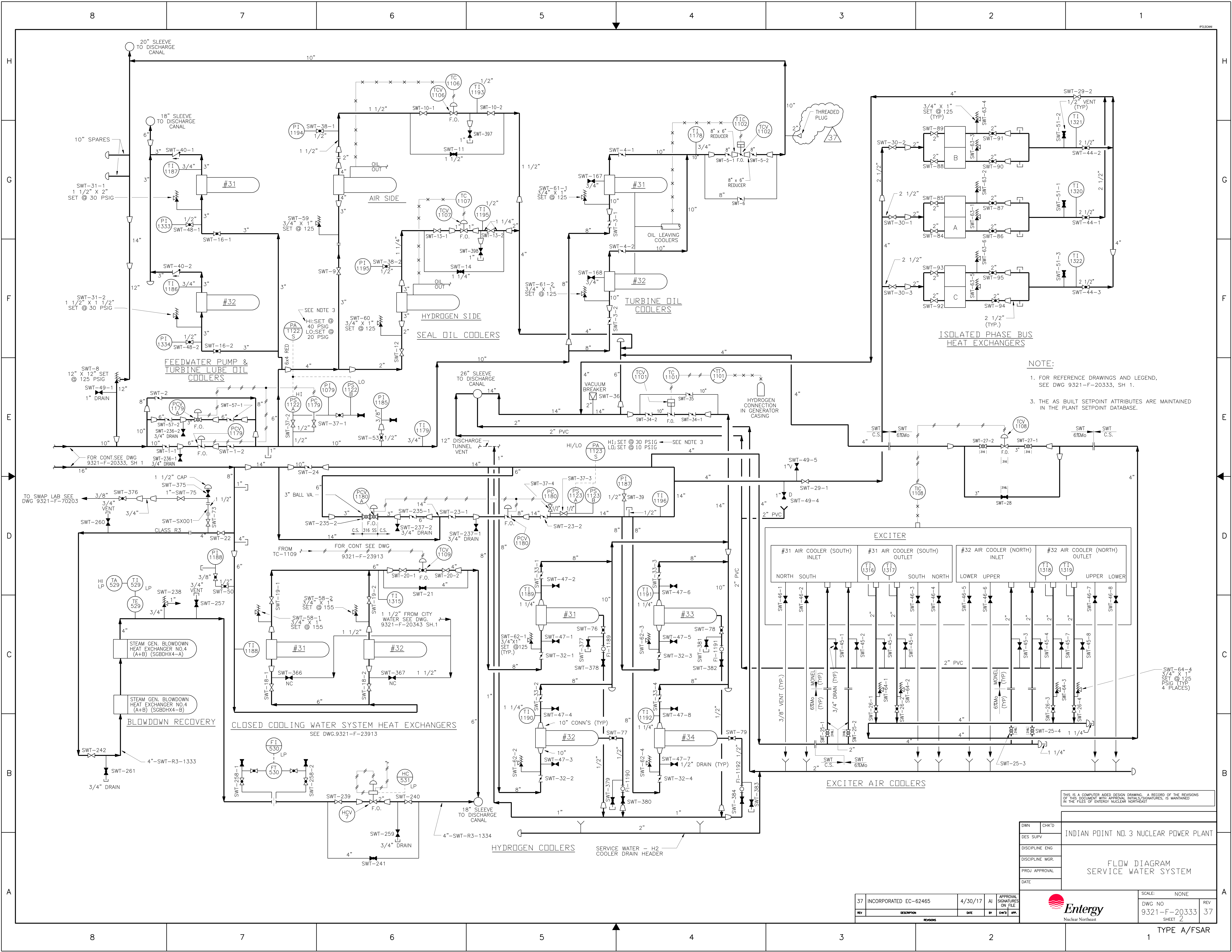
THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL INITIALS/SIGNATURES, IS MAINTAINED IN THE FILES OF ENTERTY NUCLEAR NORTHEAST.

DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT
DES. SUPV.		
DISCIPLINE ENG.		
DISCIPLINE MGR.		FLOW DIAGRAM SERVICE WATER SYSTEM
PROJ. APPROVAL		
DATE		

59	INCORPORATED EC-51919 AND EC-60019	6/7/17	SM	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D

SCALE: NONE  
 DWG NO: 9321-F-20333  
 SHEET 1  
 REV 59

TYPE A/FSAR/ISI

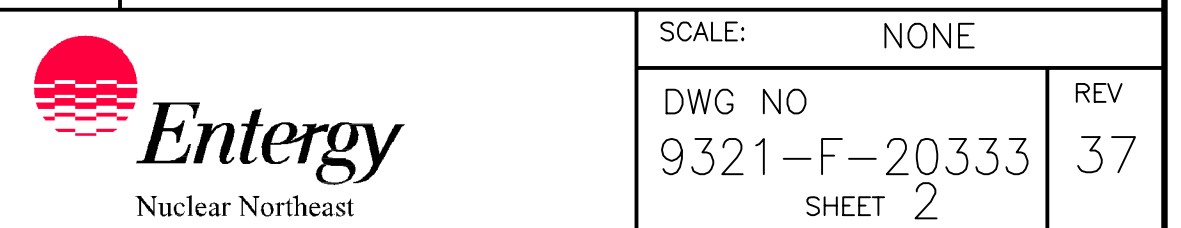


NOTE:  
 1. FOR REFERENCE DRAWINGS AND LEGEND, SEE DWG 9321-F-20333, SH 1.  
 2. THE AS BUILT SETPOINT ATTRIBUTES ARE MAINTAINED IN THE PLANT SETPOINT DATABASE.

THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL INITIALS/SIGNATURES, IS MAINTAINED IN THE FILES OF ENERGY NUCLEAR NORTHEAST.

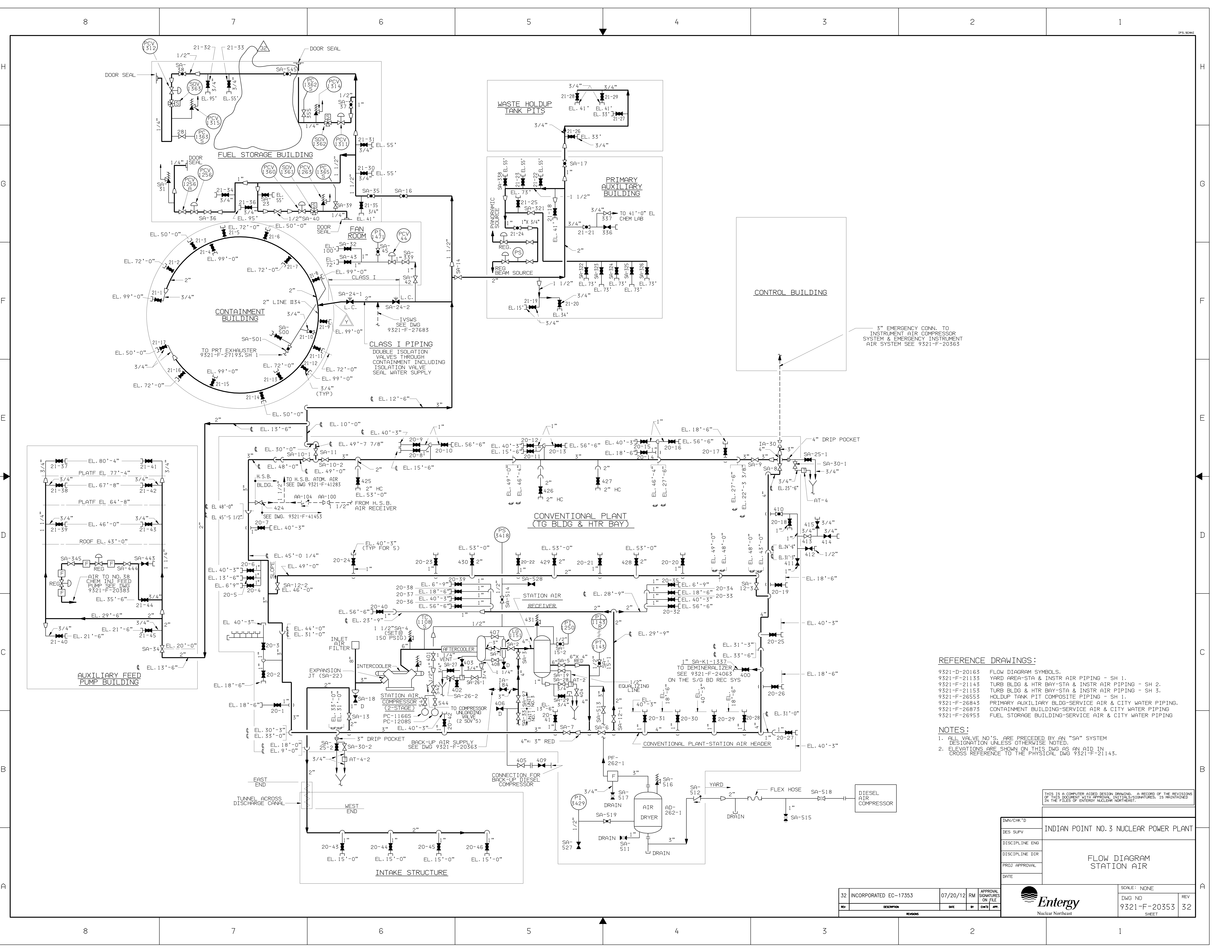
DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DES SUPV		FLOW DIAGRAM	
DISCIPLINE ENG		SERVICE WATER SYSTEM	
DISCIPLINE MGR			
PROJ APPROVAL			
DATE			

37	INCORPORATED EC-62465	4/30/17	AI	APPROVAL SIGNATURES ON FILE	SCALE: NONE
REV	DESCRIPTION	DATE	BY	CHK'D	APP.



DWG NO 9321-F-20333  
 SHEET 2

TYPE A/FSAR



- REFERENCE DRAWINGS:**
- 9321-D-20163 FLOW DIAGRAM SYMBOLS.
  - 9321-F-21133 YARD AREA-STA & INSTR AIR PIPING - SH 1.
  - 9321-F-21143 TURB BLDG & HTR BAY-STA & INSTR AIR PIPING - SH 2.
  - 9321-F-21153 TURB BLDG & HTR BAY-STA & INSTR AIR PIPING - SH 3.
  - 9321-F-26553 HOLDUP TANK PIT COMPOSITE PIPING - SH 1.
  - 9321-F-26843 PRIMARY AUXILIARY BLDG-SERVICE AIR & CITY WATER PIPING.
  - 9321-F-26873 CONTAINMENT BUILDING-SERVICE AIR & CITY WATER PIPING
  - 9321-F-26953 FUEL STORAGE BUILDING-SERVICE AIR & CITY WATER PIPING

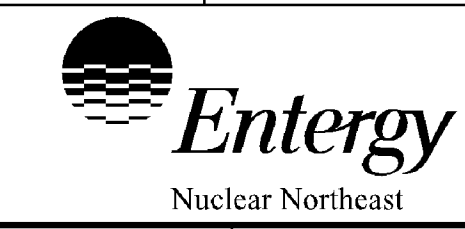
- NOTES:**
1. ALL VALVE NO.'S. ARE PRECEDED BY AN "SA" SYSTEM DESIGNATION UNLESS OTHERWISE NOTED.
  2. ELEVATIONS ARE SHOWN ON THIS DWG AS AN AID IN CROSS REFERENCE TO THE PHYSICAL DWG 9321-F-21143.

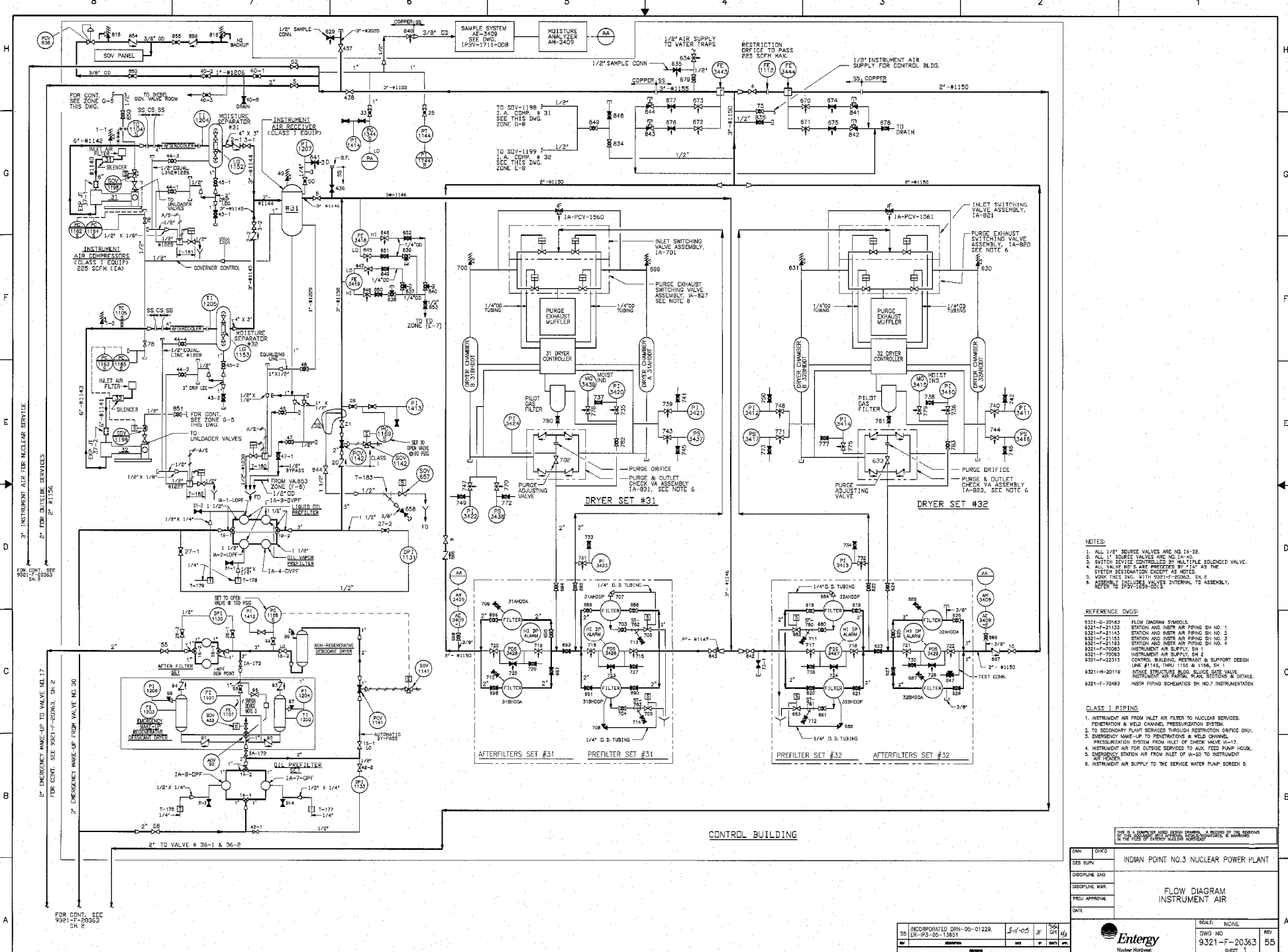
THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL INITIALS/SIGNATURES, IS MAINTAINED IN THE FILES OF ENTERTY NUCLEAR NORTHEAST.

DWN/CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT		
DES SUPV			
DISCIPLINE ENG			
DISCIPLINE DIR	FLOW DIAGRAM STATION AIR		
PROJ APPROVAL			
DATE			

32	INCORPORATED EC-17353	07/20/12	RM	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	DWD/APP.

SCALE: NONE
DWG NO 9321-F-20353
REV 32
SHEET





- NOTES:
1. ALL 1/2" SOURCE VALVES ARE NO. 1A-35.
  2. ALL 1" SOURCE VALVES ARE NO. 1A-40.
  3. SWITCH DEVICES CONTROLLED BY MULTIPLE SOLENOIDS VALVE.
  4. ALL VALVE NF & AIR PREPRESSURE BY 114" AS THE SYSTEM DESIGNATION CODE IS NOTED.
  5. WORK THIS INCH WITH 5031-F-20363, SH. 1.
  6. ASSEMBLY IS SHOWN INTERNAL TO ASSEMBLY. REFER TO IPSV-1259-D013.

- REFERENCE DWGS:
- 9321-D-20163 FLOW DIAGRAM SYMBOLS.
  - 9321-F-21133 STATION AND INSTR AIR PIPING SH. NO. 1.
  - 9321-F-21142 STATION AND INSTR AIR PIPING SH. NO. 2.
  - 9321-F-21153 STATION AND INSTR AIR PIPING SH. NO. 3.
  - 9321-F-70083 INSTRUMENT AIR SUPPLY, SH. 1.
  - 9321-F-70082 INSTRUMENT AIR SUPPLY, SH. 2.
  - 9321-F-22515 CONTROL BUILDING, RESTRAINT & SUPPORT DESIGN LINE #1145, THRU 1155 & 1156, SH. 1.
  - 9321-H-20119 INSTRUMENT AIR SUPPLY, SOURCE RATE VALVE, INSTRUMENT AIR SERVICE, PLANK SECTION & DETAILS.
  - 9321-F-70483 INSTR. PIPING SCHEMATICS SH. NO. 7 INSTRUMENTATION.

- CLASS I PIPING
1. INSTRUMENT AIR FROM INLET AIR FILTER TO NUCLEAR SERVICES, PENETRATION & WELD CHANNEL PRESSURIZATION SYSTEM.
  2. TO SECONDARY PLANT SERVICES THROUGH RESTRICTION ORIFICE ONLY.
  3. EMERGENCY MAKE-UP TO PENETRATIONS & WELD CHANNEL PRESSURIZATION SYSTEM FROM INLET OF CHECK VALVE 1A-17.
  4. INSTRUMENT AIR FOR OUTSIDE SERVICES TO AUX. FEED PUMP HOUSE.
  5. EMERGENCY STATION AIR FROM INLET OF 1A-20 TO INSTRUMENT AIR SERVICE.
  6. INSTRUMENT AIR SUPPLY TO THE SERVICE WATER PUMP, SCREEN 5.

THIS IS A COMPLETE AND FINAL DESIGN. A REVIEW OF THIS DESIGN IN THE FIELD OF EMERGENCY NUCLEAR SERVICE.

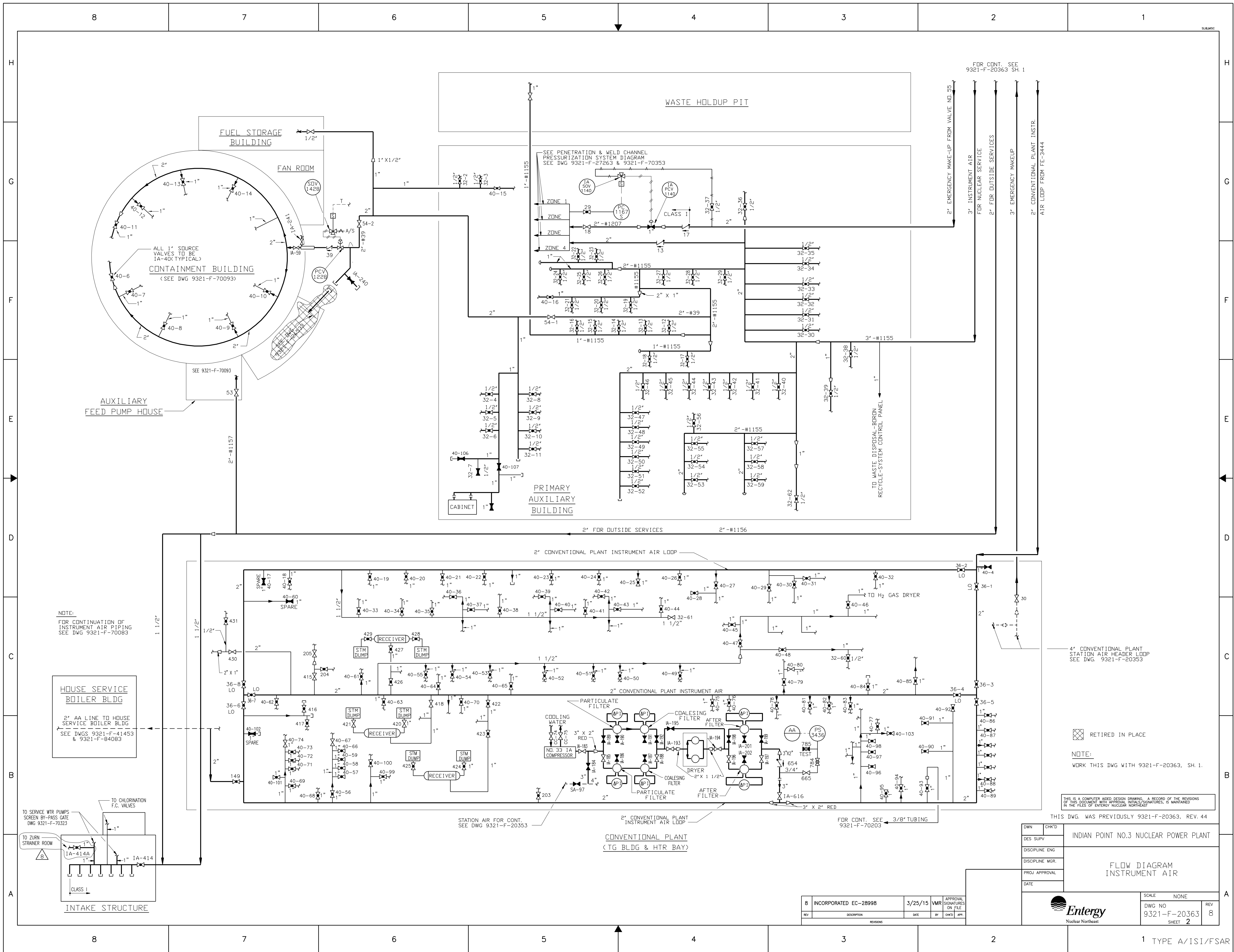
OWN	CHKD	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DESIGN	ENG	
DESIGN	MR	
PROJ	APPROVAL	
DATE		

FLOW DIAGRAM  
INSTRUMENT AIR

INCORPORATED DRN-05-01229	3/1/05	1/	1/	1/
55 ER-IPS-05-13651				



SCALE	NONE
DWG NO.	9321-F-20363
REV	55
SHEET	1



NOTE:  
FOR CONTINUATION OF  
INSTRUMENT AIR PIPING  
SEE DWG 9321-F-70083

HOUSE SERVICE  
BOILER BLDG  
2" AA LINE TO HOUSE  
SERVICE BOILER BLDG  
SEE DWGS 9321-F-41453  
& 9321-F-84083

TO SERVICE WTR PUMPS  
SCREEN BY-PASS GATE  
DWG 9321-F-70323

TO CHLORINATION  
F.C. VALVES

TO TURN  
STRAINER ROOM

INTAKE STRUCTURE

THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS  
OF THIS DOCUMENT WITH APPROVAL INITIALS/DATE(S), IS MAINTAINED  
IN THE FILES OF ENTERGY NUCLEAR NORTHEAST

THIS DWG. WAS PREVIOUSLY 9321-F-20363, REV. 44

DWN	CHKD	INDIAN POINT NO.3 NUCLEAR POWER PLANT	
DES SUPV			
DISCIPLINE ENG			
DISCIPLINE MGR		FLOW DIAGRAM INSTRUMENT AIR	
PROJ APPROVAL			
DATE			

8	INCORPORATED EC-28998	3/25/15	VMR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHKD

SCALE	NONE
DWG NO	9321-F-20363
SHEET	2
REV	8

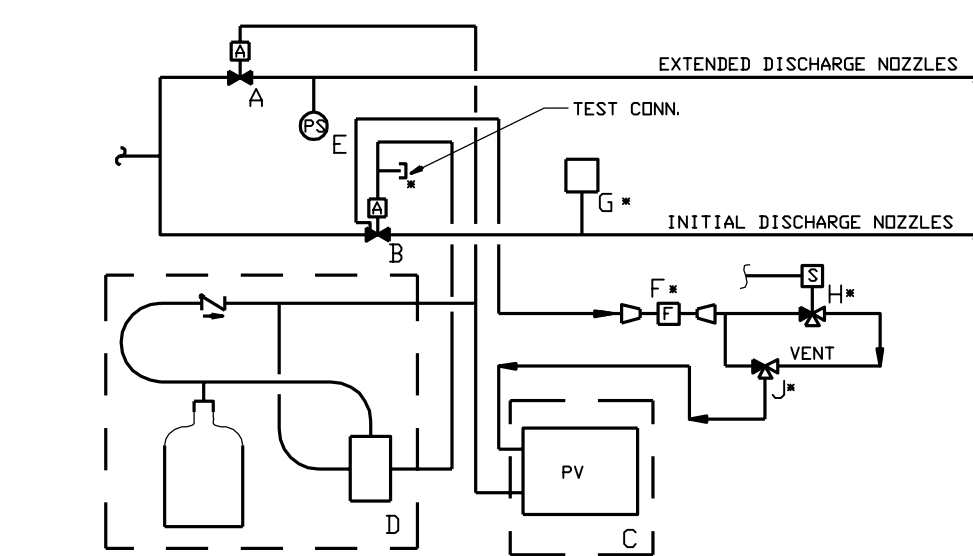


1 TYPE A/ISI/FSAR

CO <sub>2</sub> SYSTEM SUMMARY						
SYSTEM NO.	BUILDING LOCATION	AREA	ELEVATION	SYSTEM TYPE	SUPPORT SEISMIC CL.	HAZARD
2	TURB. GEN.	GENERATOR	53'-0"	TOTAL FLOOD	-	EXCITER ENCL. & BRGS 10&11
3	"	T/G	"	LOCAL APP.	-	TURB. BRG. NOS. 1, 2, & 3
4	"	"	"	"	-	TURB. BRG. NOS. 4, 5, 6&7
5	"	"	"	"	-	TURB. BRG. NOS. 8&9
6	"	GENERATOR	"	"	-	GENERATOR PURGE ELECTRICAL SWITCHGEAR
7	CONTRD.	CABLE SPREADING & BATTERY BRG.	33'-0"	TOTAL FLOOD	I	"
8	"	RELAY ROOM	15'-0"	"	"	"
9A&B	TURB. GEN.	BASEMENT	"	LOCAL APP.	-	B. F. PUMP TURB. H. P. END BRG. S.
1A, 1B & 1C	"	"	"	TOTAL FLOOD	I	DIESEL GEN. DAY TK. - LUBE OIL

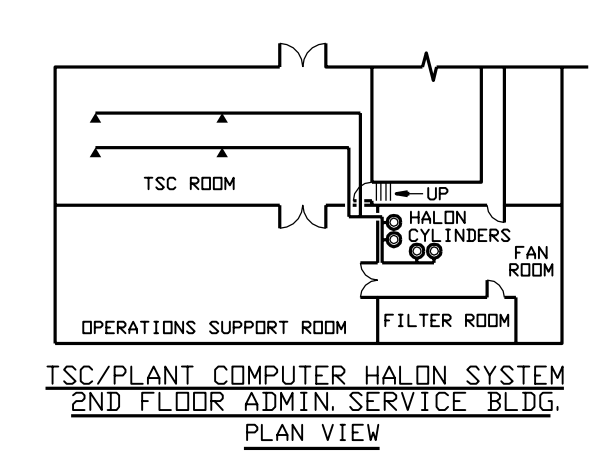
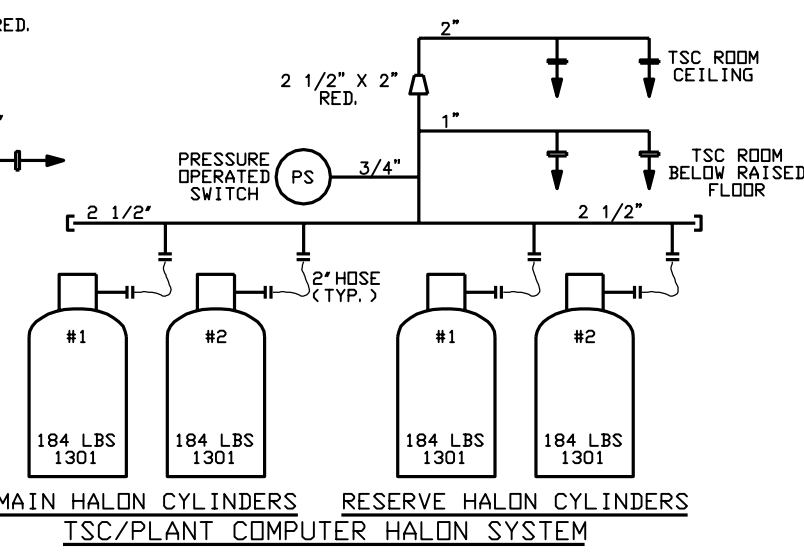
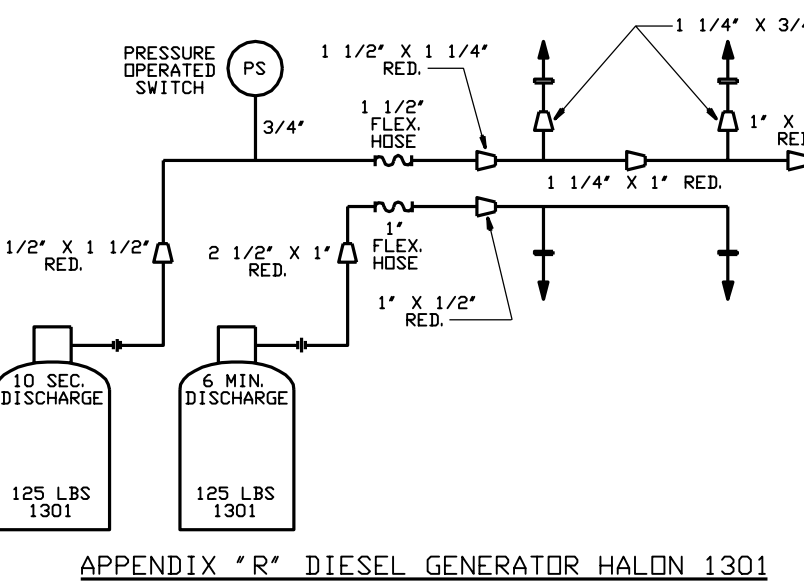
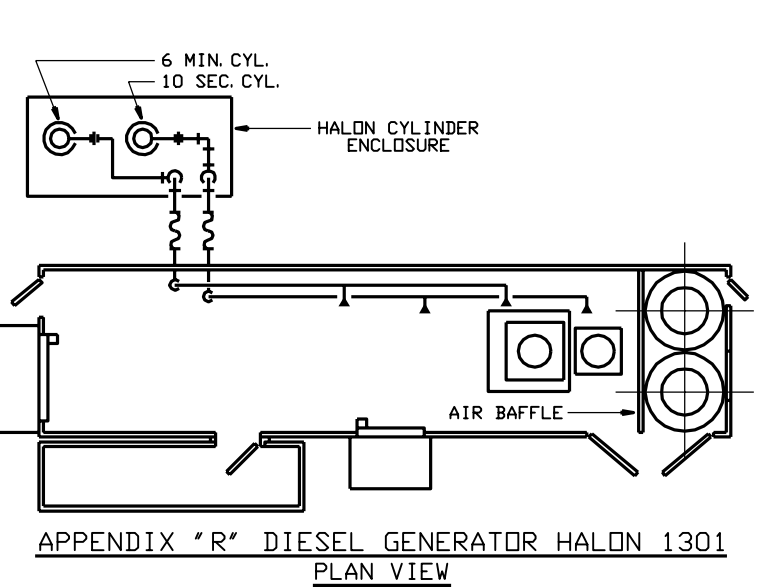
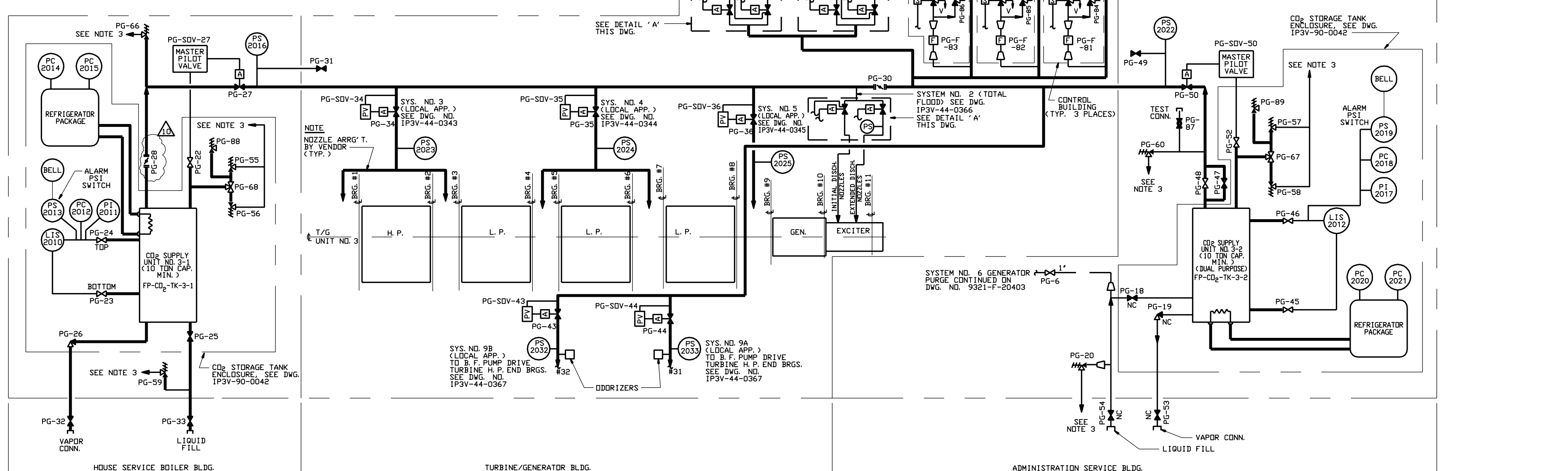
  

HALON 1301 SYSTEM						
SYSTEM NO.	BUILDING LOCATION	AREA	ELEVATION	SYSTEM TYPE	SUPPORT SEISMIC CL.	HAZARD
	OUTSIDE CONT. BLDG.	APPENDIX "R" DIESEL	15'-0"	TOTAL FLOOD	-	DIESEL ENGINE



SYS.	A	B	C	D	E	F	G	H	J
2	PG-71	PG-42	PG-SDV-42	T-2006	PS-2031				
7	PG-70	PG-41	PG-SDV-41	T-2005	PS-2030	PG-F-79	ND TAG	PG-SDV-75	PG-76
8	PG-69	PG-40	PG-SDV-40	T-2004	PS-2029	PG-F-80	ND TAG	PG-SDV-77	PG-78

**DETAIL "A"**  
 TYP. FOR SYS. NOS. 2, 7 & 8  
 (\* ONLY ON SYS. NOS. 7 & 8)



- NOTES:**
- ALL SYSTEMS ARE DESIGNED AND BUILT IN ACCORD WITH NFPA-STD #12 FOR CO<sub>2</sub> AND STD #12A FOR HALON 1301, AND REQUIREMENTS OF 10CFR-50.61 AND ALL OTHER AUTHORITIES.
  - ALL SYSTEMS ARE DESIGNED AND BUILT IN ACCORD WITH NRC REG. GUIDE 1.120 INCLUDING BTP, APCS 9.5-1 AUG. 23, 1976.
  - RELIEF VALVE DISCHARGE LINE PIPED TO OUTSIDE OF BUILDING.
- REF. DWGS:**
- IP3V-0044-0228 - SERVICE ADMIN BOILER ANNEX- CO<sub>2</sub> STORAGE TANKS

THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL INITIALS/SIGNATURES, IS MAINTAINED IN THE FILES OF ENERGY NUCLEAR NORTHEAST

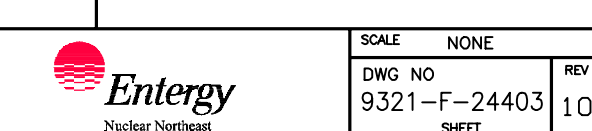
THIS DWG. WAS PREVIOUSLY BURNS & ROE INC. -M038 REV. 5

DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENG		
DISCIPLINE MGR.		
PROJ APPROVAL		
DATE		

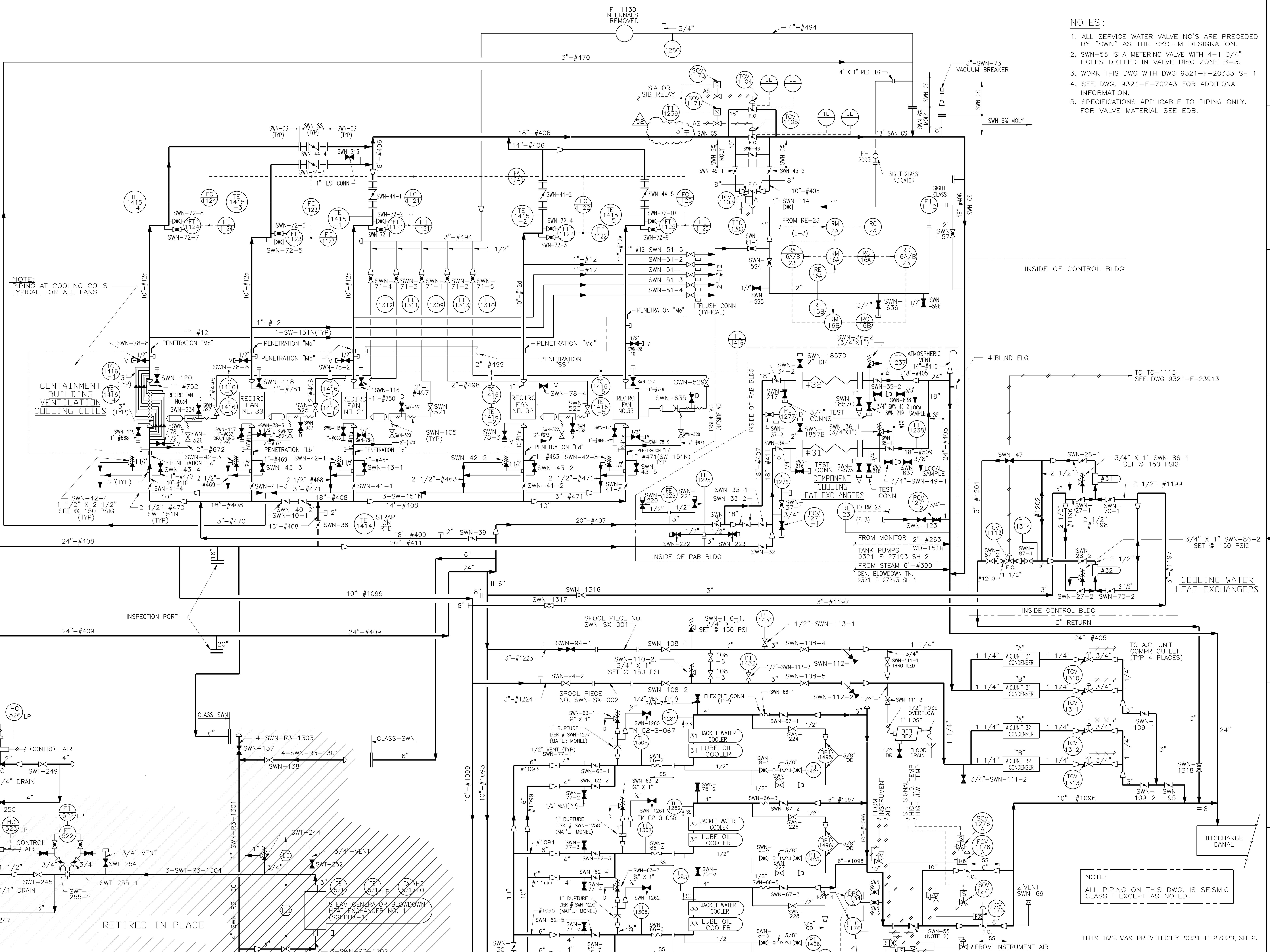
  

FLOW DIAGRAM FIRE PROTECTION CO <sub>2</sub> AND HALON	
SCALE NONE	REV 10
DWG NO 9321-F-24403	SHEET

10 INCORPORATED EC 24962	6/7/13	AI	APPROVAL SIGNATURES ON FILE
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- NOTES:
1. ALL SERVICE WATER VALVE NO'S ARE PRECEDED BY "SWN" AS THE SYSTEM DESIGNATION.
  2. SWN-55 IS A METERING VALVE WITH 4-1 3/4" HOLES DRILLED IN VALVE DISC ZONE B-3.
  3. WORK THIS DWG WITH DWG 9321-F-20333 SH 1
  4. SEE DWG. 9321-F-70243 FOR ADDITIONAL INFORMATION.
  5. SPECIFICATIONS APPLICABLE TO PIPING ONLY. FOR VALVE MATERIAL SEE EDB.



NOTE: PIPING AT COOLING COILS TYPICAL FOR ALL FANS

CONTAINMENT BUILDING VENTILATION COOLING COILS

NOTE: ALL PIPING ON THIS DWG. IS SEISMIC CLASS I EXCEPT AS NOTED.

THIS DWG. WAS PREVIOUSLY 9321-F-27223, SH 2.

DIESEL GENERATORS  
400 GPM TO EACH OF 3 COOLERS

SET TO MAINTAIN 1350 GPM THROUGH VALVES  
ON DECREASING FLOW

DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DES SUPV		FLOW DIAGRAM SERVICE WATER SYSTEM NUCLEAR STEAM SUPPLY PLANT	
DISCIPLINE ENG			
DISCIPLINE MGR.			
PROJ APPROVAL			
DATE			

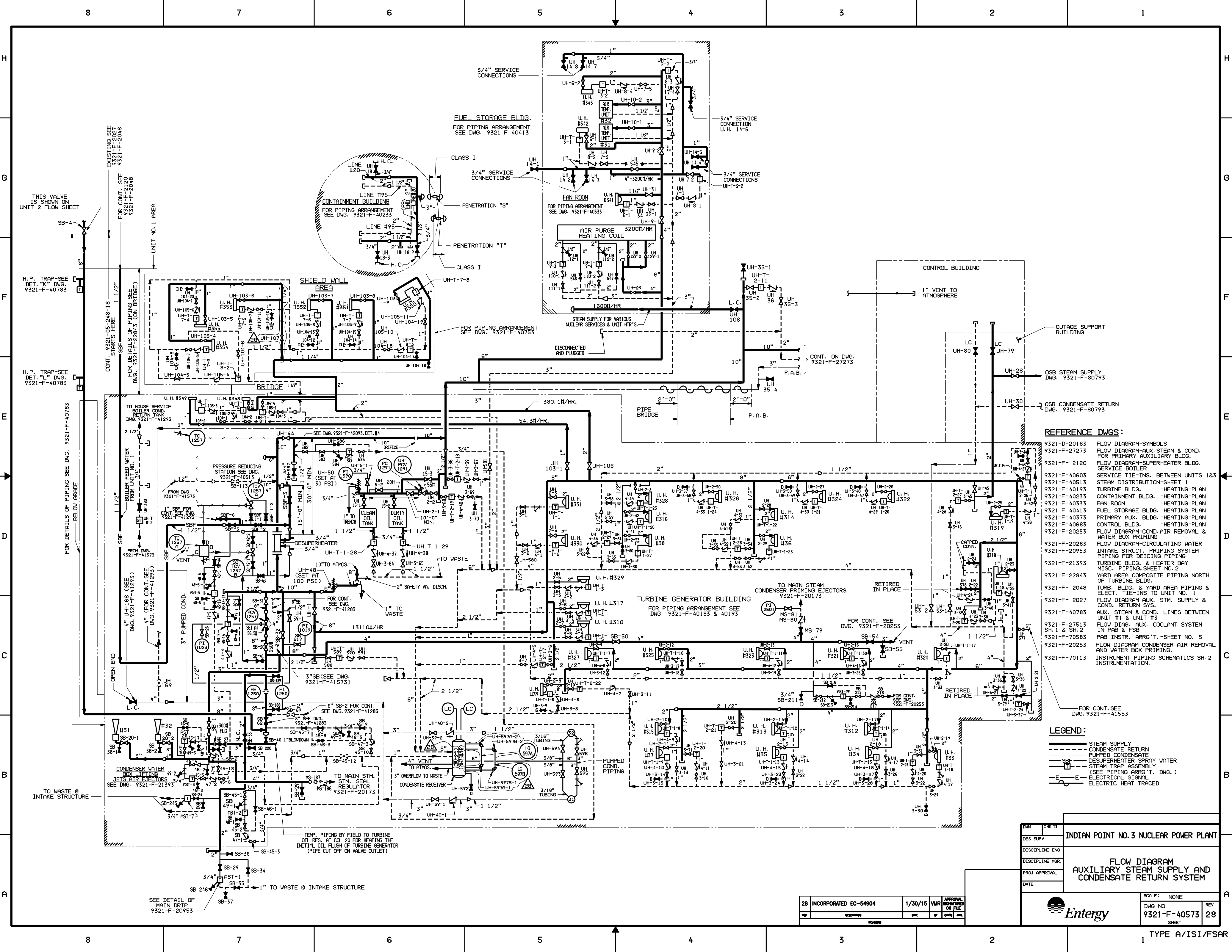
52	INCORPORATED EC-171506	6/01/17	AR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D

SCALE:	NONE
DWG NO	9321-F-27223
SHEET	52



TYPE A/ISI  
FSAR





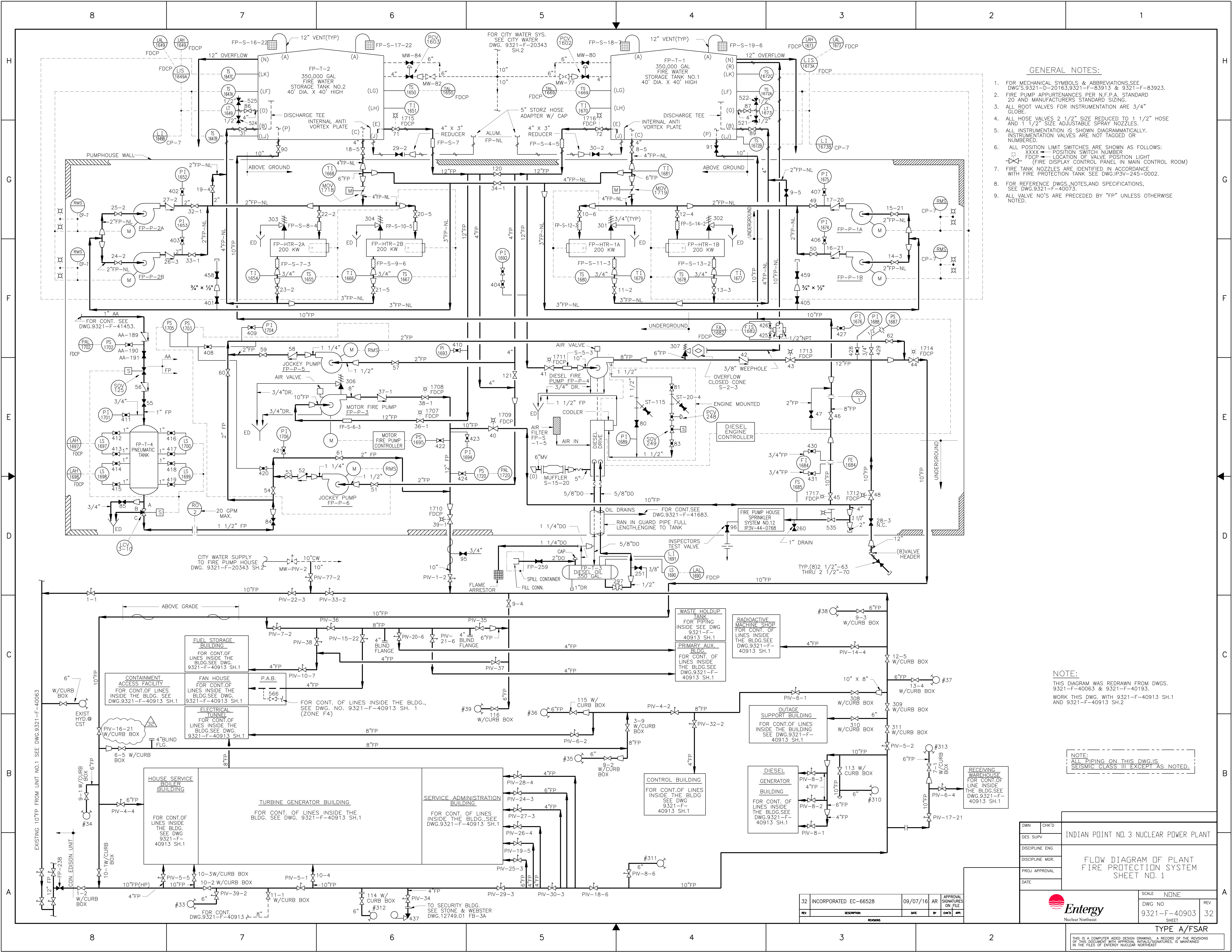
- REFERENCE DWGS:**
- 9321-D-20163 FLOW DIAGRAM-SYMBOLS
  - 9321-F-27273 FLOW DIAGRAM-AUX. STEAM & COND. FOR PRIMARY AUXILIARY BLDG.
  - 9321-F-2120 FLOW DIAGRAM-SUPERHEATER BLDG. SERVICE BOILER
  - 9321-F-40603 SERVICE TIE-INS. BETWEEN UNITS 1&3
  - 9321-F-40513 STEAM DISTRIBUTION-SHEET 1
  - 9321-F-40193 TURBINE BLDG. -HEATING-PLAN
  - 9321-F-40233 CONTAINMENT BLDG. -HEATING-PLAN
  - 9321-F-40333 FAN ROOM -HEATING-PLAN
  - 9321-F-40413 FUEL STORAGE BLDG. -HEATING-PLAN
  - 9321-F-40373 PRIMARY AUX. BLDG. -HEATING-PLAN
  - 9321-F-40683 CONTROL BLDG. -HEATING-PLAN
  - 9321-F-20253 FLOW DIAGRAM-COND. AIR REMOVAL & WATER BOX PRIMING
  - 9321-F-20263 FLOW DIAGRAM-CIRCULATING WATER INTAKE STRUCT. PRIMING SYSTEM PIPING FOR DEICING PIPING
  - 9321-F-20953 TURBINE BLDG. & HEATER BAY MISC. PIPING SHEET NO. 2
  - 9321-F-21393 YARD AREA COMPOSITE PIPING NORTH OF TURBINE BLDG.
  - 9321-F-20248 TURB. BLDG. & YARD AREA PIPING & ELECT. TIE-INS TO UNIT NO. 1
  - 9321-F-2027 FLOW DIAGRAM AUX. STM. SUPPLY & COND. RETURN SYS.
  - 9321-F-40783 AUX. STEAM & COND. LINES BETWEEN UNIT #1 & UNIT #3
  - 9321-F-27513 SH. 1 & SH. 2 FLOW DIAG. AUX. COOLANT SYSTEM IN PAB & FSB
  - 9321-F-70583 PAB INSTR. ARRG'T. -SHEET NO. 5
  - 9321-F-20253 FLOW DIAGRAM CONDENSER AIR REMOVAL AND WATER BOX PRIMING.
  - 9321-F-70113 INSTRUMENT PIPING SCHEMATICS SH. 2 INSTRUMENTATION.

- LEGEND:**
- STEAM SUPPLY
  - - - CONDENSATE RETURN
  - PUMPED CONDENSATE
  - DESUPERHEATER SPRAY WATER
  - STEAM TRAP ASSEMBLY
  - (SEE PIPING ARRG'T. DWG.)
  - ELECTRICAL SIGNAL
  - ELECTRIC HEAT TRACED

INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
FLOW DIAGRAM AUXILIARY STEAM SUPPLY AND CONDENSATE RETURN SYSTEM	
SCALE: NONE	REV 28
DWG NO. 9321-F-40573	SHEET 28

28 INCORPORATED EC-54904	1/30/15	VMR	APPROVAL SIGNATURES ON FILE
REV	DATE	BY	CHKD

TYPE A/ISI/FSAR



- GENERAL NOTES:**
- FOR MECHANICAL SYMBOLS & ABBREVIATIONS, SEE DWG. 9321-D-20163, 9321-F-83913 & 9321-F-83923.
  - FIRE PUMP APPURTENANCES PER N.F.P.A. STANDARD 20 AND MANUFACTURERS STANDARD SIZING.
  - ALL ROOT VALVES FOR INSTRUMENTATION ARE 3/4" GLOBE.
  - ALL HOSE VALVES 2 1/2" SIZE REDUCED TO 1 1/2" HOSE AND 1 1/2" SIZE ADJUSTABLE SPRAY NOZZLES.
  - ALL INSTRUMENTATION IS SHOWN DIAGRAMMATICALLY. INSTRUMENTATION VALVES ARE NOT TAGGED OR NUMBERED.
  - ALL POSITION LIMIT SWITCHES ARE AS FOLLOWS:  
 □ XXXX — POSITION SWITCH NUMBER  
 □ FDCP — LOCATION OF VALVE POSITION LIGHT (FIRE DISPLAY CONTROL PANEL IN MAIN CONTROL ROOM)
  - FIRE TANK NOZZLES ARE IDENTIFIED IN ACCORDANCE WITH FIRE PROTECTION TANK SEE DWG. IP3V-245-0002.
  - FOR REFERENCE DWGS., NOTES, AND SPECIFICATIONS, SEE DWG. 9321-F-40073.
  - ALL VALVE NO'S ARE PRECEDED BY "FP" UNLESS OTHERWISE NOTED.

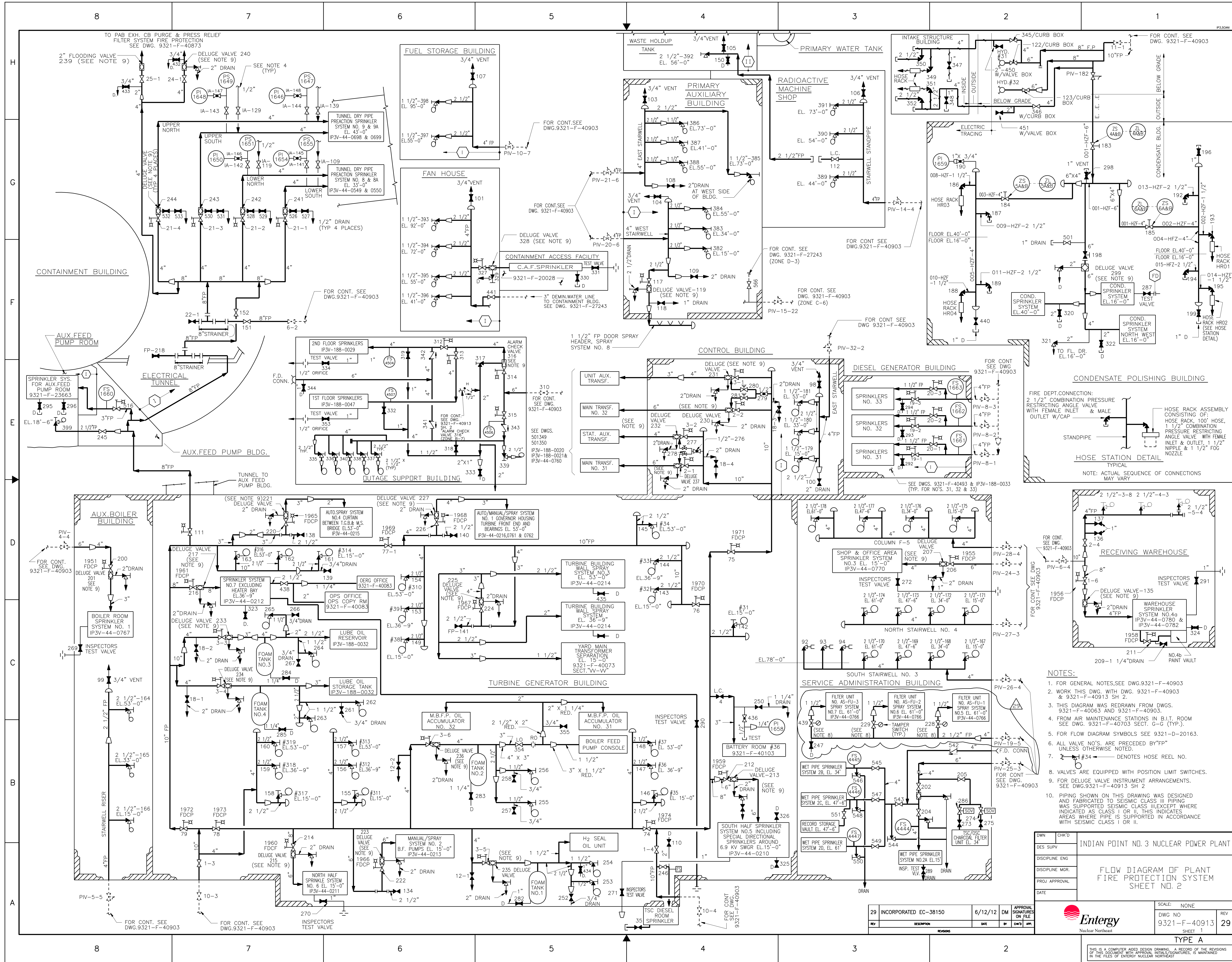
**NOTE:**  
 THIS DIAGRAM WAS REDRAWN FROM DWGS. 9321-F-40063 & 9321-F-40193.  
 WORK THIS DWG. WITH 9321-F-40913 SH.1 AND 9321-F-40913 SH.2.

**NOTE:**  
 ALL PIPING ON THIS DWG. IS SEISMIC CLASS III EXCEPT AS NOTED.

DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DES SUPV		FLOW DIAGRAM OF PLANT FIRE PROTECTION SYSTEM SHEET NO. 1	
DISCIPLINE ENG			
DISCIPLINE MGR.			
PROJ APPROVAL			
DATE			
		SCALE NONE	REV
		DWG NO 9321-F-40903	32
		SHEET	
TYPE A/FSAR			

32	INCORPORATED EC-66528	09/07/16	AR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D

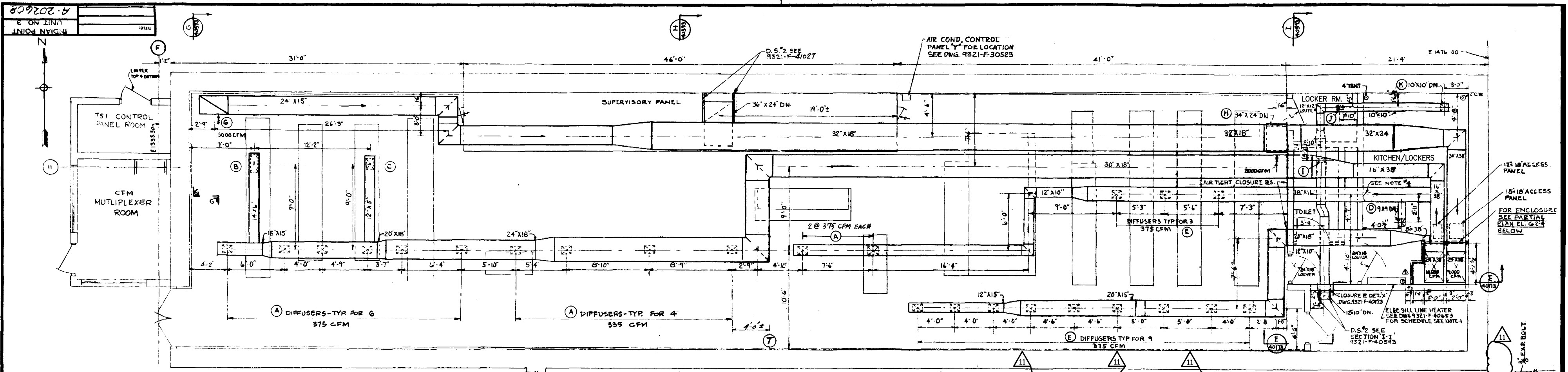
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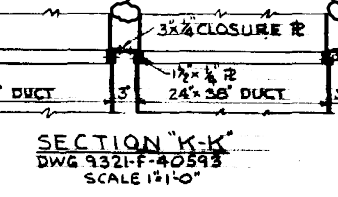
- NOTES:**
- FOR GENERAL NOTES, SEE DWG. 9321-F-40903
  - WORK THIS DWG. WITH DWG. 9321-F-40903 & 9321-F-40913 SH 2.
  - THIS DIAGRAM WAS REDRAWN FROM DWGS. 9321-F-40063 AND 9321-F-40903.
  - FROM AIR MAINTENANCE STATIONS IN B.I.T. ROOM SEE DWG. 9321-F-40703 SECT. G-G (TYP.).
  - FOR FLOW DIAGRAM SYMBOLS SEE 9321-D-20163.
  - ALL VALVE NO.'S. ARE PRECEDED BY "FP" UNLESS OTHERWISE NOTED.
  - #34 DENOTES HOSE REEL NO.
  - VALVES ARE EQUIPPED WITH POSITION LIMIT SWITCHES.
  - FOR DELUGE VALVE INSTRUMENT ARRANGEMENTS. SEE DWG. 9321-F-40913 SH 2
  - PIPING SHOWN ON THIS DRAWING WAS DESIGNED AND FABRICATED TO SEISMIC CLASS III PIPING WAS SUPPORTED SEISMIC CLASS III, EXCEPT WHERE INDICATED AS CLASS I OR II. THIS INDICATED AREAS WHERE PIPE IS SUPPORTED IN ACCORDANCE WITH SEISMIC CLASS I OR II.

INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
FLOW DIAGRAM OF PLANT FIRE PROTECTION SYSTEM SHEET NO. 2	
DATE	SCALE: NONE
DWN	CHK'D
DES SUPV	FILE
DISCIPLINE ENG	REV
DISCIPLINE MGR.	29
PROJ APPROVAL	9321-F-40913
DATE	SHEET 1
29 INCORPORATED EC-38150	6/12/12 DM
APPROVAL SIGNATURES ON FILE	REV
DESCRIPTION	DATE
BY	CHK'D
APP.	APP.
TYPE A	

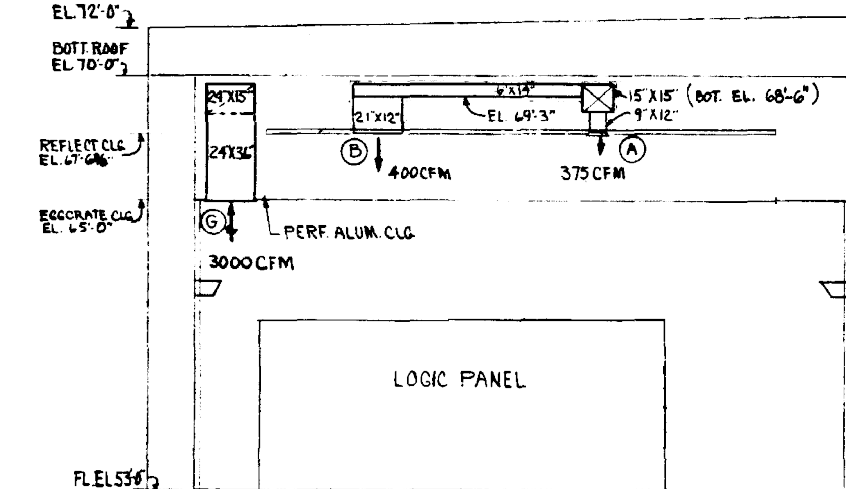
THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL, INITIALS, SIGNATURES, IS MAINTAINED IN THE FILES OF ENTERGY NUCLEAR NORTHEAST.



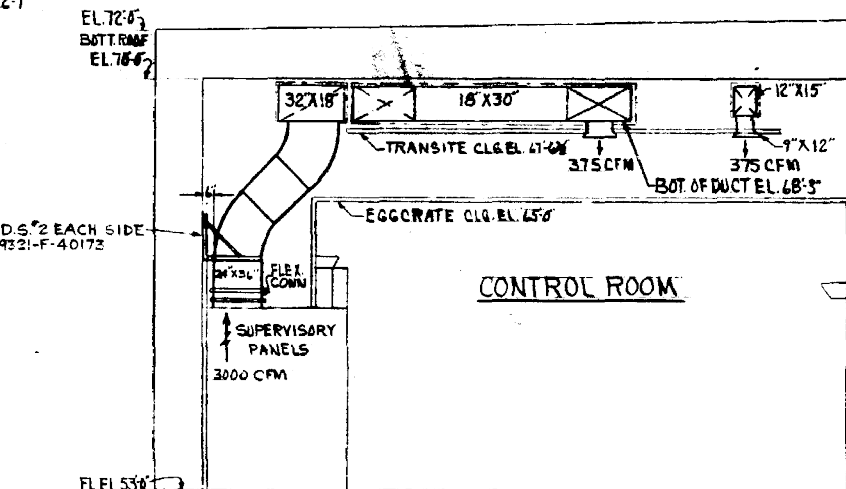
**CONTROL ROOM FLOOR PLAN EL 53'-0"**  
SCALE 1/4" = 1'-0"



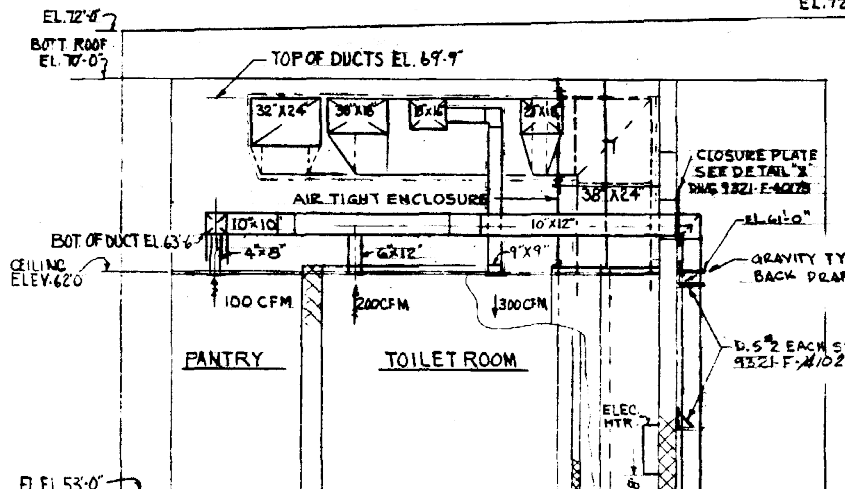
**SECTION 'K-K'**  
DWG 9321-F-40523  
SCALE 1/4" = 1'-0"



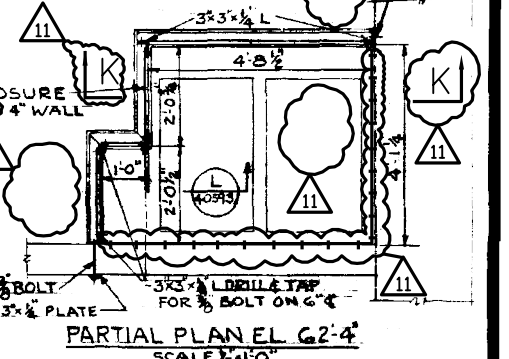
**SECTION 'G-G'**  
DWG 9321-F-40523  
SCALE 1/4" = 1'-0"



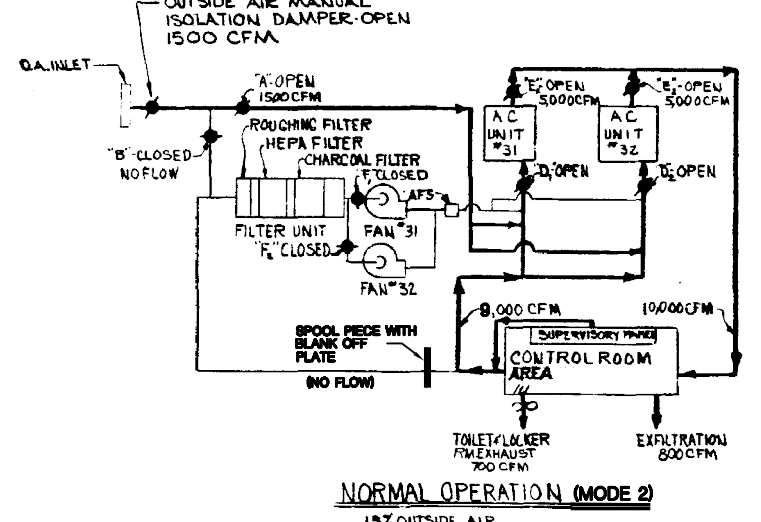
**SECTION 'H-H'**  
DWG 9321-F-40523  
SCALE 1/4" = 1'-0"



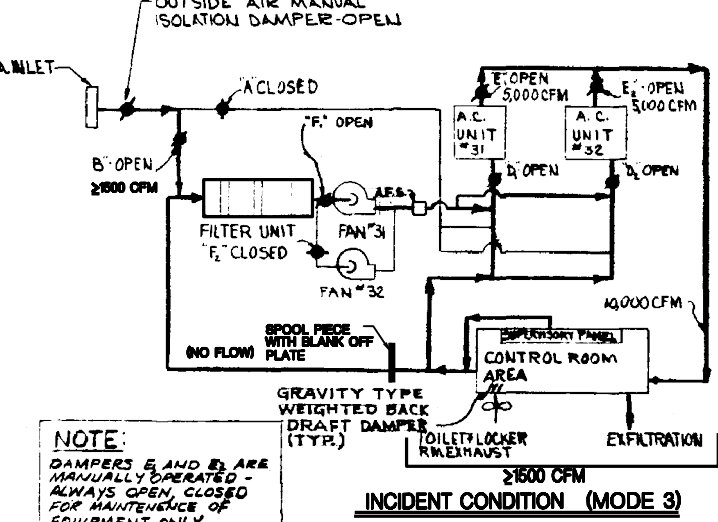
**SECTION 'I-I'**  
DWG 9321-F-40523  
SCALE 1/4" = 1'-0"



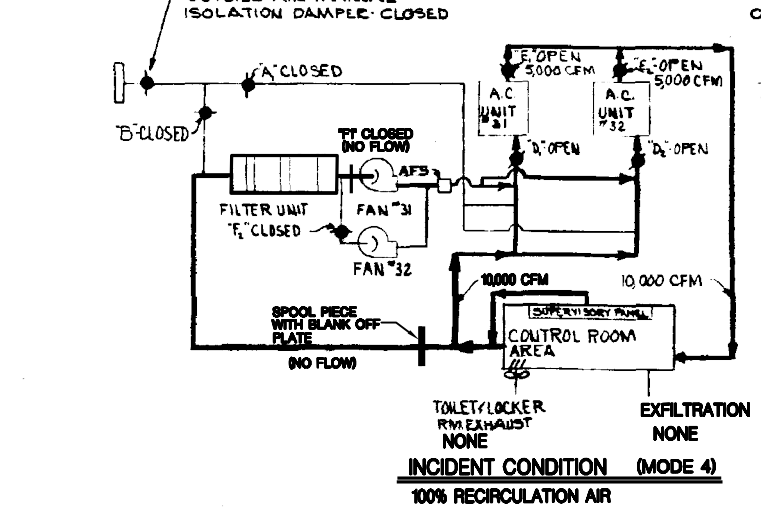
**PARTIAL PLAN EL 62'-4"**  
SCALE 1/4" = 1'-0"



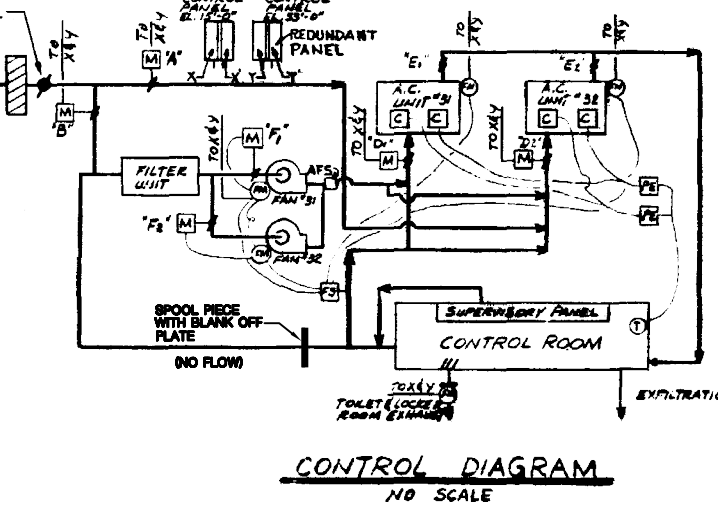
**NORMAL OPERATION (MODE 2)**  
15% OUTSIDE AIR



**INCIDENT CONDITION (MODE 3)**  
2100 CFM MAKE-UP AIR KIK



**INCIDENT CONDITION (MODE 4)**  
100% RECIRCULATION AIR



**CONTROL DIAGRAM**  
NO SCALE

REGISTER & DIFFUSER SCHEDULE				
REGISTER	QUAN.	SIZE	MFG. & TYPE NO.	REMARKS
(A)	12	12"x9"	AGTAIR MODEL AVD-20L DAMPER/ GRID	SUPPLY
(B)	1	21"x12"	"	SUPPLY
(C)	1	15"x9"	"	SUPPLY 340 CFM
(D)	1	9"x9"	"	SUPPLY 300 CFM
(E)	12	12"x9"	AGTAIR MODEL AVD-21L	SUPPLY 375 CFM
(G)	1	36"x24"	AGTAIR MODEL EDHEO	RETURN 3000 CFM
(H)	1	34"x24"	"	RETURN 3000 CFM
(I)	1	12"x6"	"	RETURN 200 CFM
(J)	1	9"x4"	"	RETURN 100 CFM
(K)	1	14"x18"	"	RETURN 400 CFM

- LEGEND**
- ⊙ FIRESTAT
  - ⊙ FAN MOTOR
  - ⊙ ROOM TEMPERATURE CONTROLLER - NUMBER
  - ⊙ PNEUMATIC ELECT. SWITCH (OPST NO.)
  - ⊙ DAMPER MOTOR
  - ⊙ REFRIGERANT COMPRESSOR
- AIR FLOW SW TO START 2ND FAN IN EVENT 1ST FAN DOES NOT START

**REFERENCE DRAWINGS**

- 9321-F-18833 CONTROL BLDG SUSPENDED CEILING PLAN.
- 9321-F-30523 EQUIP AIRPORT CONTROL BLDG (ELEC)
- 1521-F-31103 CONTROL BLDG LOCATION OF SLEEVES/OPENINGS
- 1521-F-30399 LIGHTING & PA SYS CONTROL BLDG
- 9321-F-40173 CONTROL BLDG-AE EQUIPMENT RM.
- 9321-F-18465 TURBINE BLDG 2-BAY EXTENSION
- 9321-F-13813 CONTROL & DIESEL GEN BLDG EL 53'-0" FLOOR PLAN/SECT
- 9321-F-41627 DUCT SUPPORT DWG.

**SPECIFICATIONS**

9321-05 45-24 PLANT HEATING, VENTILATING/AIR COND. SYSTEMS.

**NOTES**

1. ELECTRIC SILL LINE HEATER TO BE FURNISHED UNDER SPEC 9321-05-95-24 BUT INSTALLED BY FIELD.
2. DUCT WORK ABOVE REFLECTIVE CEILING TO BE INSULATED.
3. DOOR GRILLES TO BE FURNISHED BY OTHERS.
4. INFRARED LIGHT WILL BE FURNISHED BY OTHERS.
5. DUCT SUPPORTS TO BE FABRICATED AS SHOWN IN TABULATED ON THIS DRAWING EXCEPT AS OTHERWISE NOTED.
6. DOTTED LINE IN DUCT HANGER & BRACING DETAIL SHOWS CONDITION WHERE DUCT IS TOO CLOSE TO WALL TO INSTALL DIAGONAL BRACE.
7. USE EXISTING UNISTRUT TYPE CEILING & WALL INSERTS WHERE POSSIBLE.

11 INCORPORATED EC9066	7/30/08	JF	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY

**WESTINGHOUSE ELECTRIC CORPORATION**

**CONTROL ROOM (EL. 53'-0")**  
**AIR CONDITIONING**  
**PLAN, SECTIONS & DIAGRAMS**

FOR  
**INDIAN POINT ENERGY CENTER**  
INDIAN POINT GENERATING STATION  
UNIT NO. 3

U. S. A. C. DWG. NO. **9321-F-40593-11** CON. ED. CO. DWG. NO. **A-202608**