

REFERENCES:

1. PROCESS FLOW DIAGRAM (PFD) DWG.
2. DEFINITION OF SYMBOLS
3. E. SPEC. 6675176 REV. 2 AND 6675164 REV. 0
4. INSTALLATION OF INSTRUMENTATION
5. PROC. SPEC. CAP 294367 REV. 1
6. MATERIAL SPEC. PIPE AND FITTINGS
7. E. SPEC. G569866 REV. 2 AND G567398 REV. 0

REFERENCE DRAWINGS:

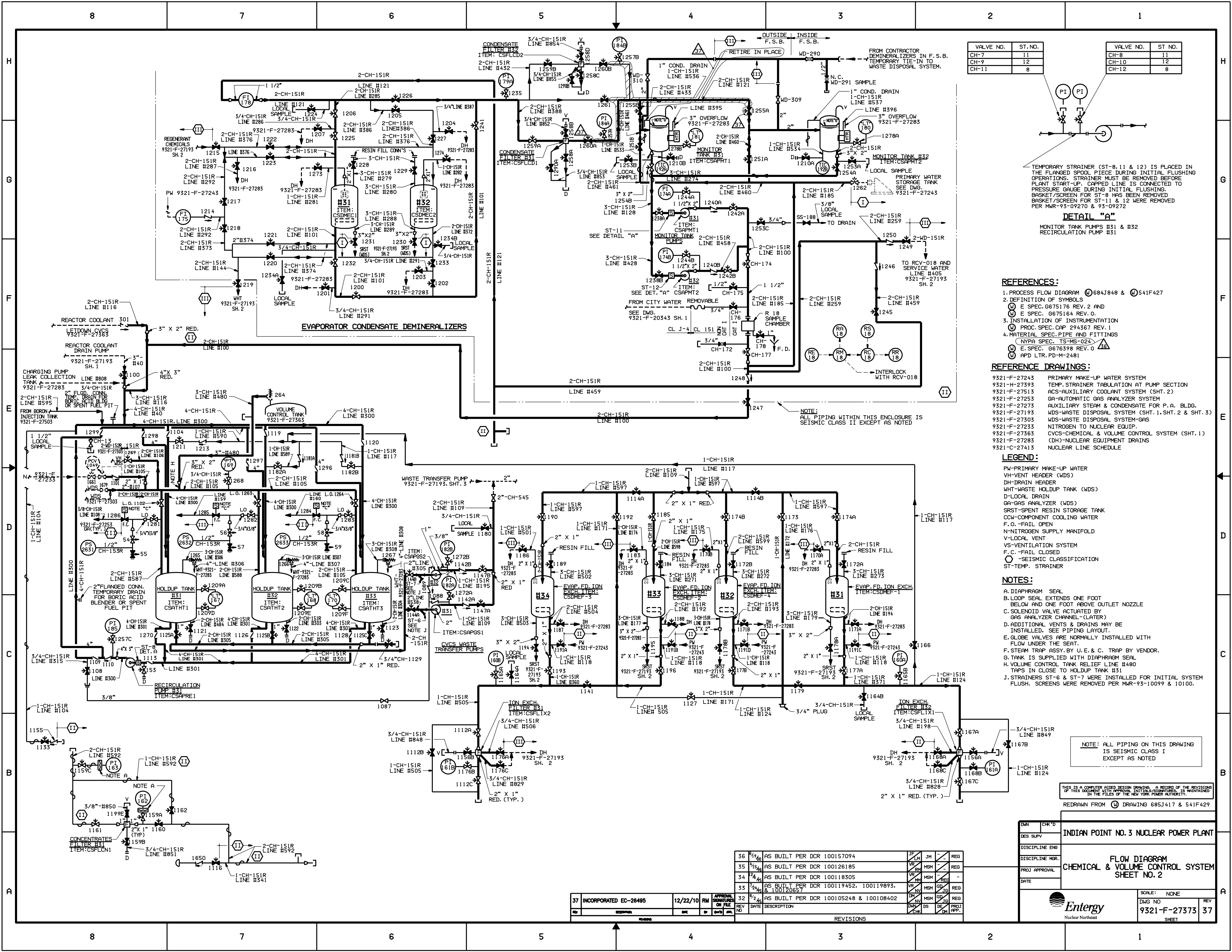
- 9321-F-27193 WDS - WASTE DISPOSAL SYSTEM (SH. 1 & SH. 2)
 27303 WDS - WASTE DISPOSAL SYSTEM - GAS
 27383 RCS - REACTOR COOLANT SYSTEM
 27473 RCS - REACTOR COOLANT SYSTEM
 27503 SIS - SAFETY INJECTION SYSTEM
 27503 SIS - SAFETY INJECTION SYSTEM
 27503 ACS - AUXILIARY COOLANT SYSTEM (SHT. 1)
 27513 ACS - AUXILIARY COOLANT SYSTEM (SHT. 2)
 27573 CVCS - CHEMICAL & VOLUME CONTROL SYSTEM
 27533 N - NITROGEN TO NUCLEAR EQUIP.
 27243 PW - PRIMARY MAKE-UP WATER SYSTEM
 27283 DH - NUCLEAR EQUIPMENT DRAINS
 27453 SS - SAMPLING SYSTEM
 27273 AS - AUX. STEAM & CONDENSATE FOR P. A. BLDG.
 27253 GA - AUTOMATIC GAS ANALYZER SYSTEM
 9321-C-27413 NUCLEAR LINE SCHEDULE

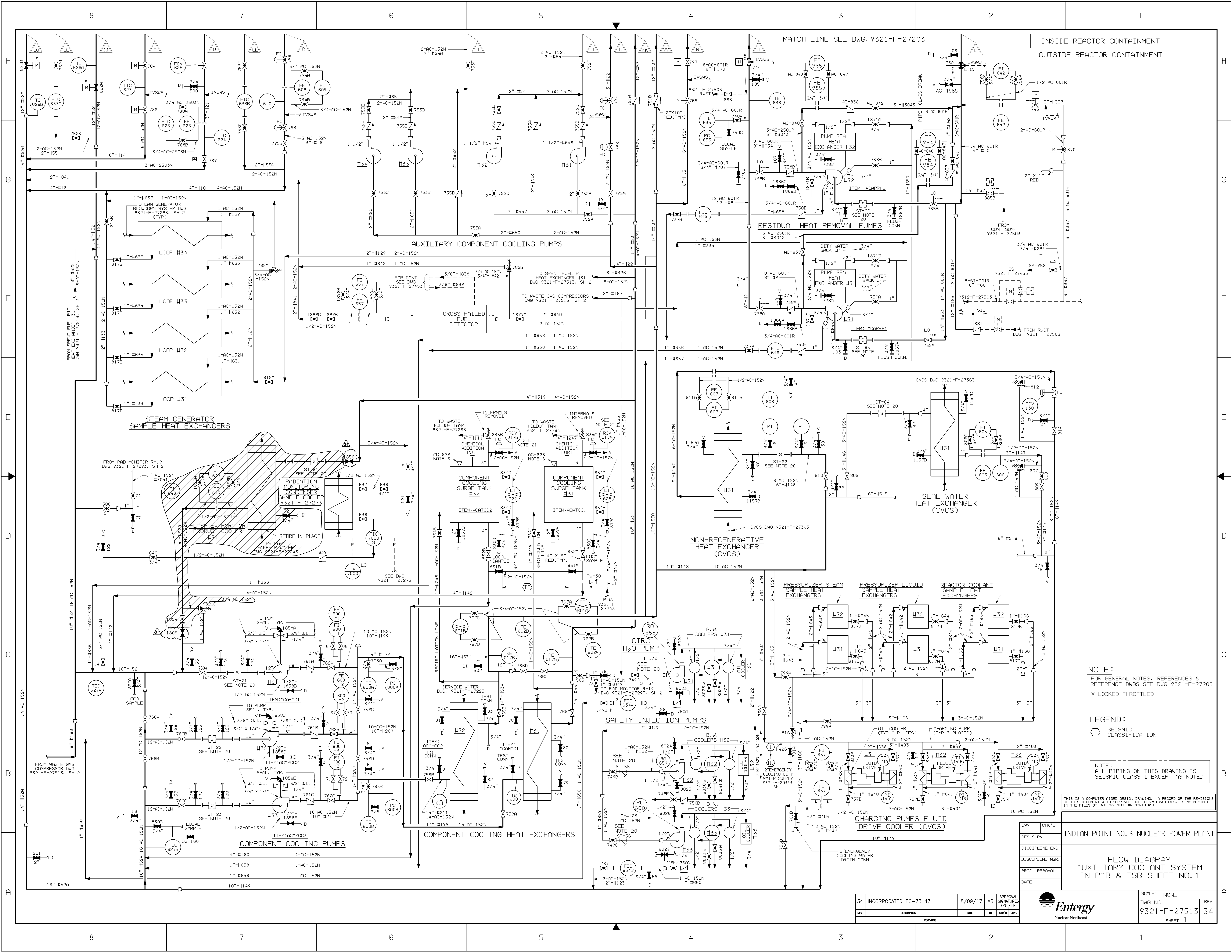
LEGEND:

- V - LOCAL VENT
 V - PRIMARY MAKE-UP WATER
 V - VENT HEADER (WDS)
 DH - DRAIN HEADER (WDS)
 T - CONTAINMENT ISOLATION SIGNAL
 D - LOCAL DRAIN
 D - REACTOR COOLANT DRAIN TANK (WDS)
 HSC - HAND SPEED CONTROL
 GA - GAS ANALYZER (WDS)
 FAI - FAIL AS (WDS)
 FC - FAIL CLOSED
 FO - FAIL OPEN
 LO - LOCKED OPEN
 LC - LOCKED CLOSED
 ATM - ATMOSPHERE
 IVSWP - ISOLATION VALVE SEAL WATER SYSTEM
 PRT - PRESSURIZER RELIEF TANK
 WHT - WASTE HOLDUP TANK
 ST - TEMPORARY STRAINER
 SRST - SPENT RESIN STORAGE TANK
 HUT - HOLDUP TANK
 WCCP - WASTE GAS COMPRESSOR PACKAGE (WDS)
 -CONTAINMENT PENETRATIONS
 -SEISMIC CLASSIFICATION

NOTES:

- A. VALVE FAILS WITH FLOW TO VOLUME CONTROL TANK
 B. VALVE FUNCTIONS AS ISOLATION VALVE ONLY. OVER PRESSURE PROTECTION FOR THE REGENERATIVE HEAT EXCHANGER PROVIDED BY CH-8282.
 C. SPECIAL SPRING LOADED CHECK VALVE
 D. DIAPHRAGM SEAL
 E. ELECTROMAGNETIC-METER LOCATED IN VERT. PIPE RUN
 F. .06" DIA. HOLE IN CLAPPER OR CUP
 G. ADDITIONAL VENTS & DRAINS MAY BE INSTALLED SEE PIPING LAYOUT.
 H. GLOBE VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER VALVE SEAT. EXCEPTIONS ARE VALVES NO. 230, 232, 233, 235, 236, 238, 240A THRU D INCL. AND 333
 J. LOOP SEAL EXTENDS 12" BELOW AND ABOVE OVERFLOW NOZZLE
 K. CHECK VALVES 251E, F, G, ARE LOCATED NEAR CONTAINMENT WALL
 L. CHECK VALVES 251A, B, C, ARE LOCATED NEAR REACTOR COOLANT PUMPS
 M. TEMPORARY (START-UP) STRAINER ST-764, ST-765, ST-766, ST-767, ST-768, ST-769, ST-770, ST-771, ST-772, ST-773, ST-774, ST-775, ST-776, ST-777, ST-778, ST-779, ST-780, ST-781, ST-782, ST-783, ST-784, ST-785, ST-786, ST-787, ST-788, ST-789, ST-790, ST-791, ST-792, ST-793, ST-794, ST-795, ST-796, ST-797, ST-798, ST-799, ST-800, ST-801, ST-802, ST-803, ST-804, ST-805, ST-806, ST-807, ST-808, ST-809, ST-810, ST-811, ST-812, ST-813, ST-814, ST-815, ST-816, ST-817, ST-818, ST-819, ST-820, ST-821, ST-822, ST-823, ST-824, ST-825, ST-826, ST-827, ST-828, ST-829, ST-830, ST-831, ST-832, ST-833, ST-834, ST-835, ST-836, ST-837, ST-838, ST-839, ST-840, ST-841, ST-842, ST-843, ST-844, ST-845, ST-846, ST-847, ST-848, ST-849, ST-850, ST-851, ST-852, ST-853, ST-854, ST-855, ST-856, ST-857, ST-858, ST-859, ST-860, ST-861, ST-862, ST-863, ST-864, ST-865, ST-866, ST-867, ST-868, ST-869, ST-870, ST-871, ST-872, ST-873, ST-874, ST-875, ST-876, ST-877, ST-878, ST-879, ST-880, ST-881, ST-882, ST-883, ST-884, 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NOTE:
FOR GENERAL NOTES, REFERENCES &
REFERENCE DWGS SEE DWG 9321-F-27203
* LOCKED THROTTLED

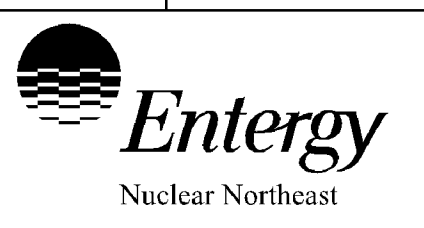
LEGEND:
○ SEISMIC
CLASSIFICATION

NOTE:
ALL PIPING ON THIS DRAWING IS
SEISMIC CLASS 1 EXCEPT AS NOTED

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 NORTHWEST.

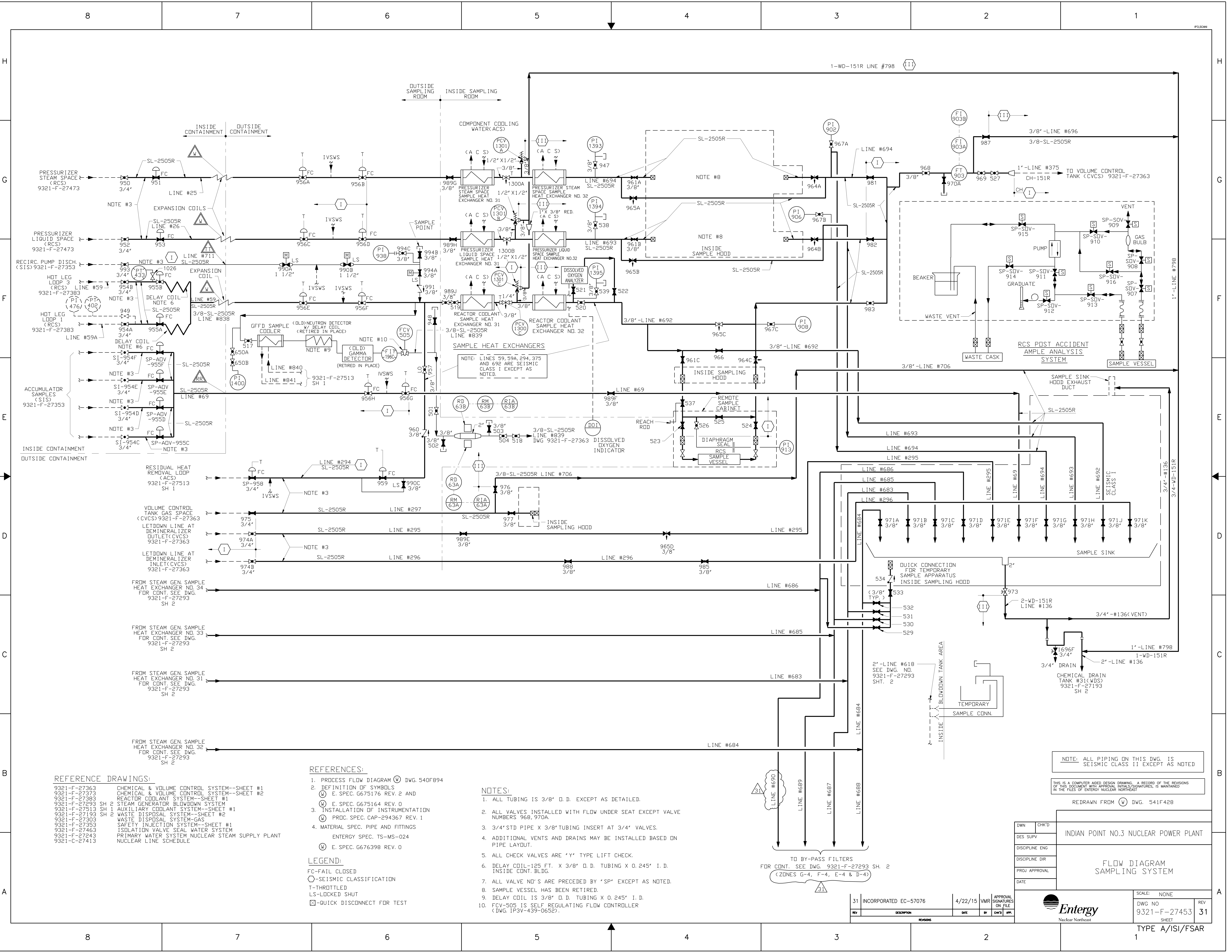
DWN	CHK'D	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENG		
DISCIPLINE MOR.		
PROJ APPROVAL		
DATE		

FLOW DIAGRAM
AUXILIARY COOLANT SYSTEM
IN PAB & FSB SHEET NO.1



SCALE: NONE
DWG NO
9321-F-27513
SHEET 1

34	INCORPORATED EC-73147	8/09/17	AR	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 1 WASTE DISPOSAL SYSTEM--SHEET #2
 - 9321-F-27303 SH 2 WASTE DISPOSAL SYSTEM--GAS
 - 9321-F-27353 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 (PFD) DWG. 540F894
 - 2. DEFINITION OF SYMBOLS
 - (M) E. SPEC. G675176 REV. 2 AND
 - (M) E. SPEC. G675164 REV. 0
 - 3. INSTALLATION OF INSTRUMENTATION
 - (M) PROC. SPEC. CAP-294367 REV. 1
 - 4. MATERIAL SPEC. PIPE AND FITTINGS
 - ENTERTY SPEC. TS-MS-024
 - (M) E. SPEC. G676398 REV. 0
- LEGEND:
- FC-FAIL CLOSED
 - SEISMIC CLASSIFICATION
 - T-THROTTLED
 - LS-LOCKED SHUT
 - QUICK DISCONNECT FOR TEST

- 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. 1P3V-439-0652).

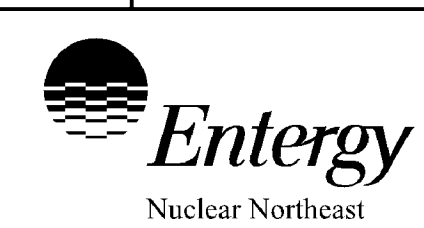
NOTE: ALL PIPING ON THIS DWG. IS SEISMIC CLASS II EXCEPT AS NOTED

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

REDRAWN FROM (M) DWG. 541F428

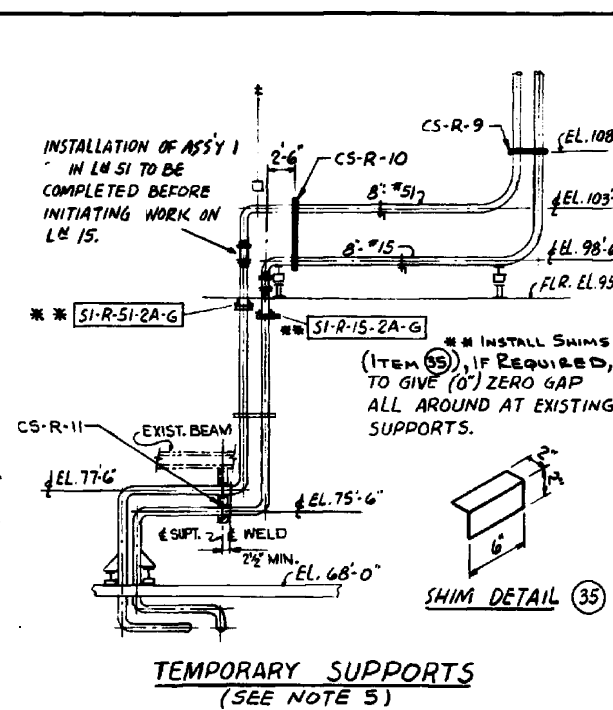
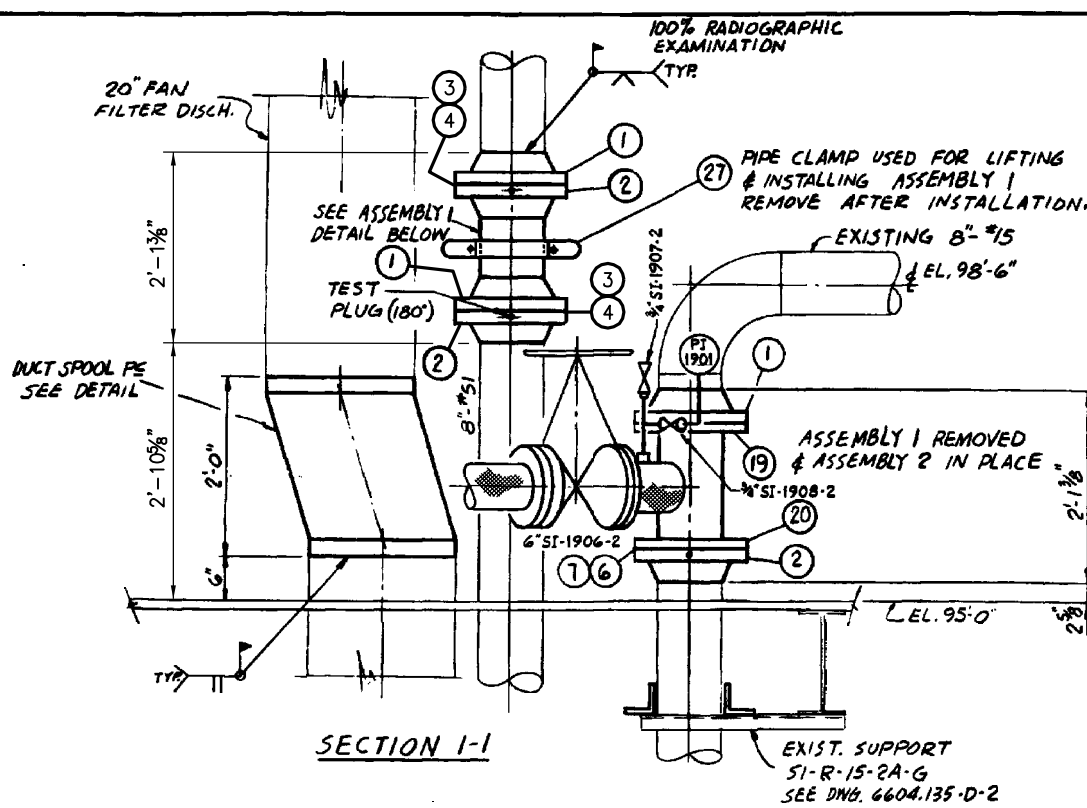
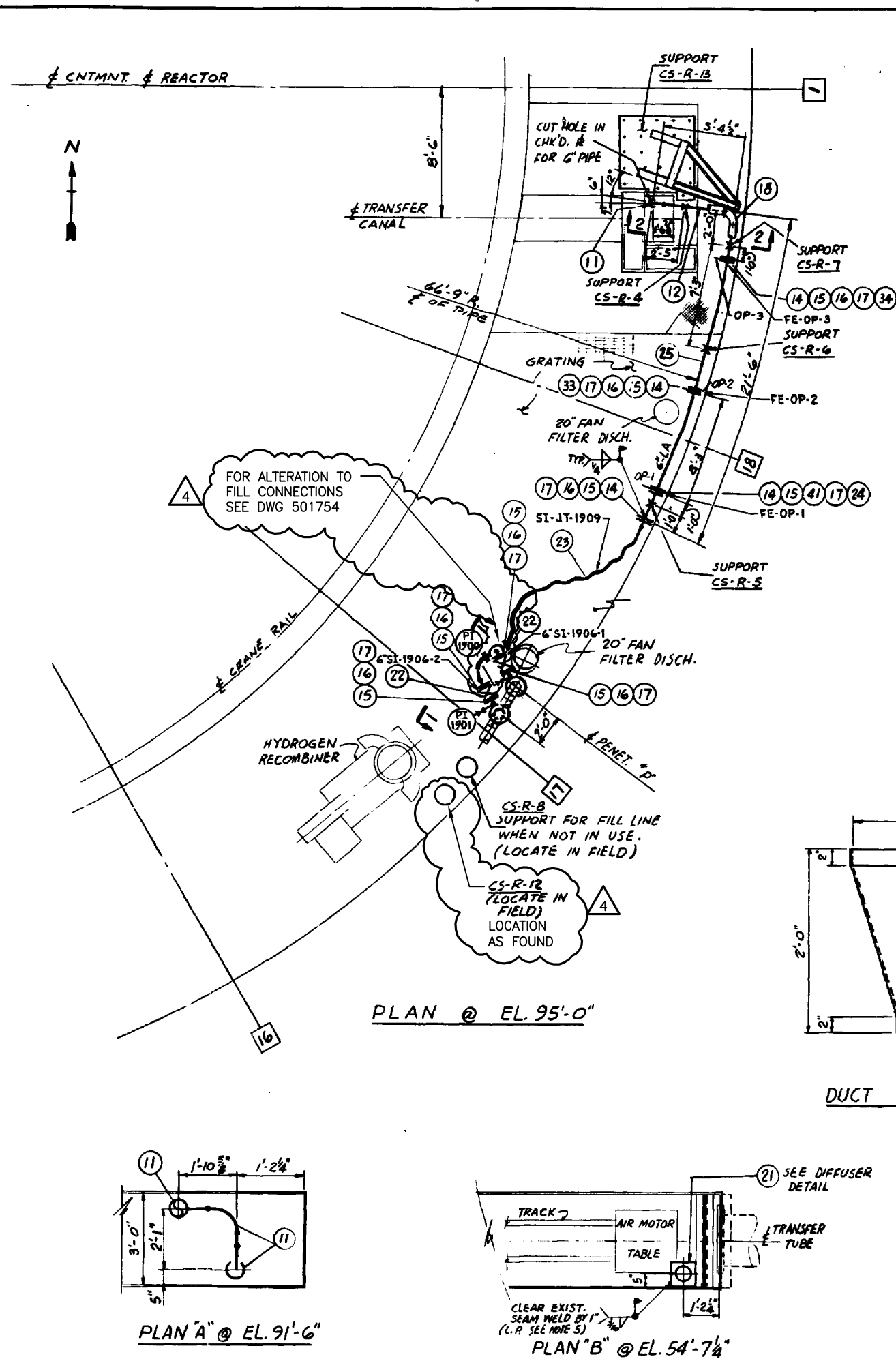
DWN	CHK'D	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENG		FLOW DIAGRAM SAMPLING SYSTEM
DISCIPLINE DIR		
PROJ APPROVAL		
DATE		

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

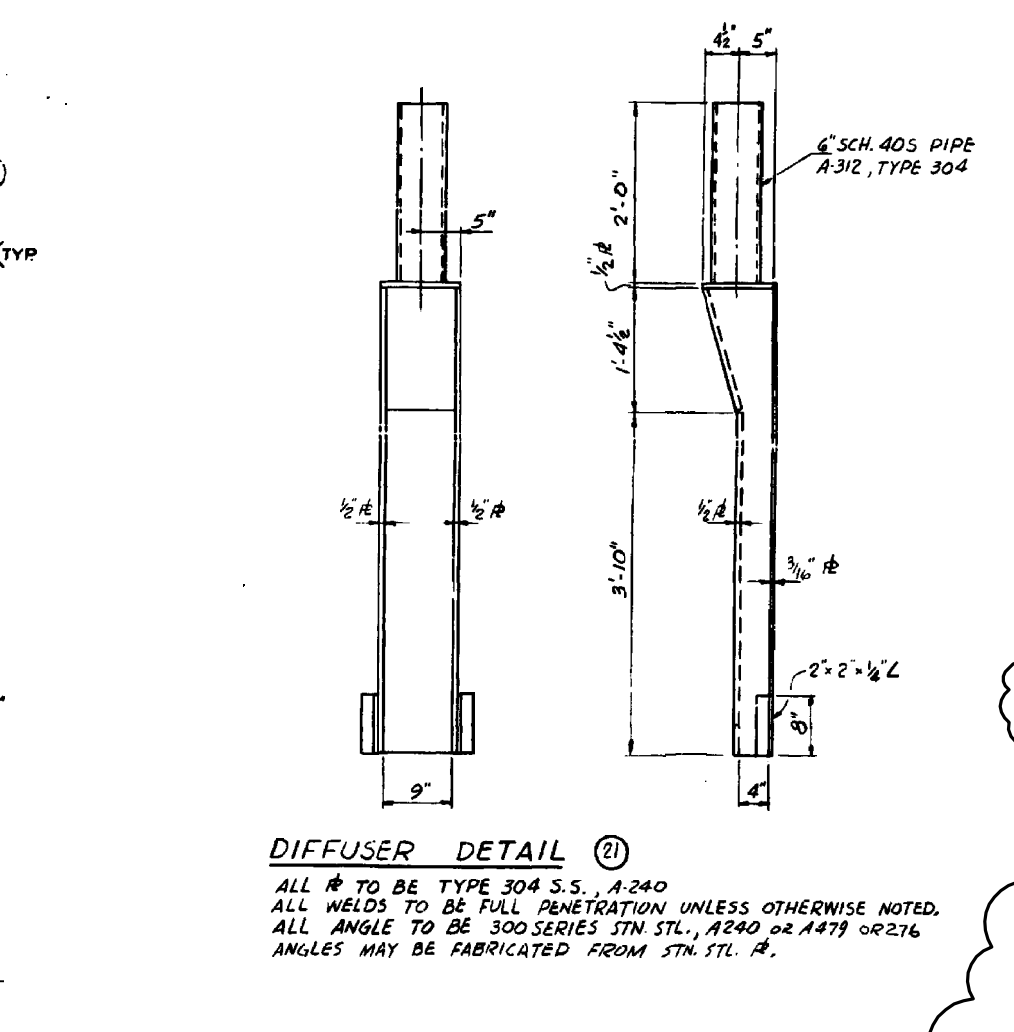
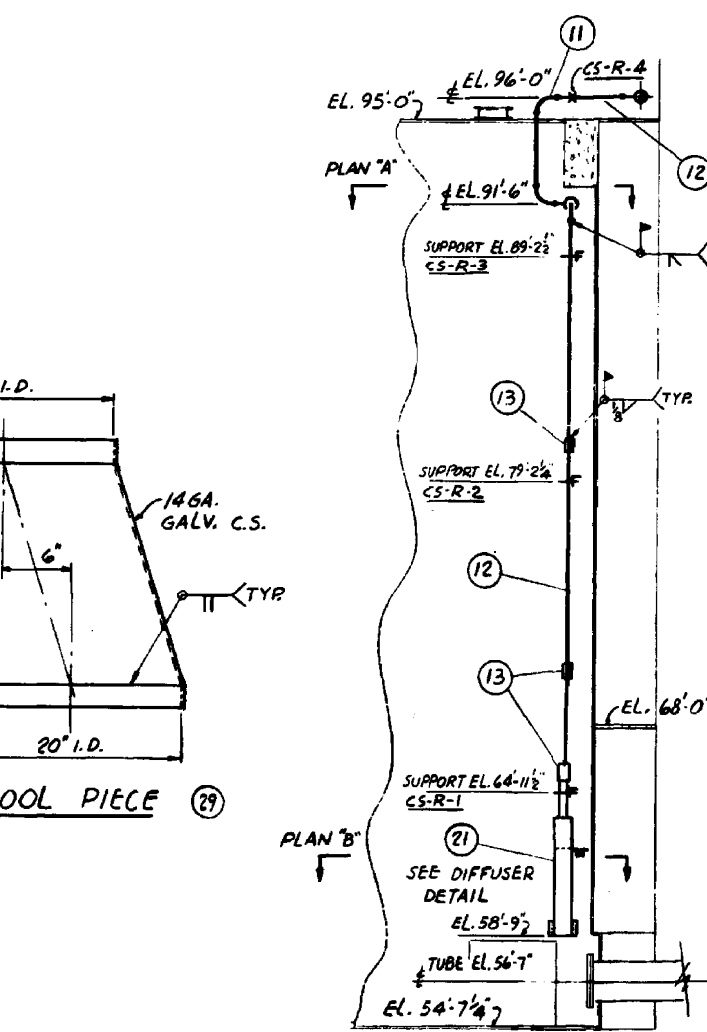


SCALE: NONE
DWG NO
9321-F-27453
SHEET
REV
31

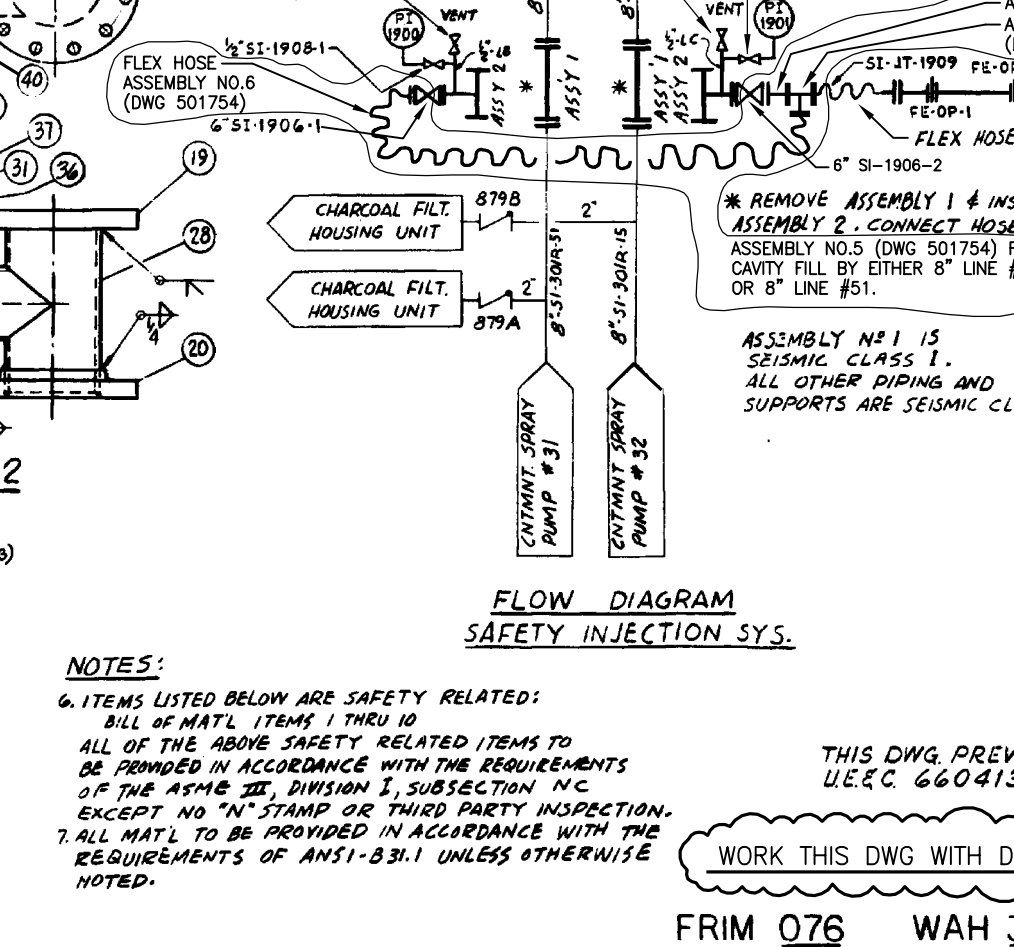
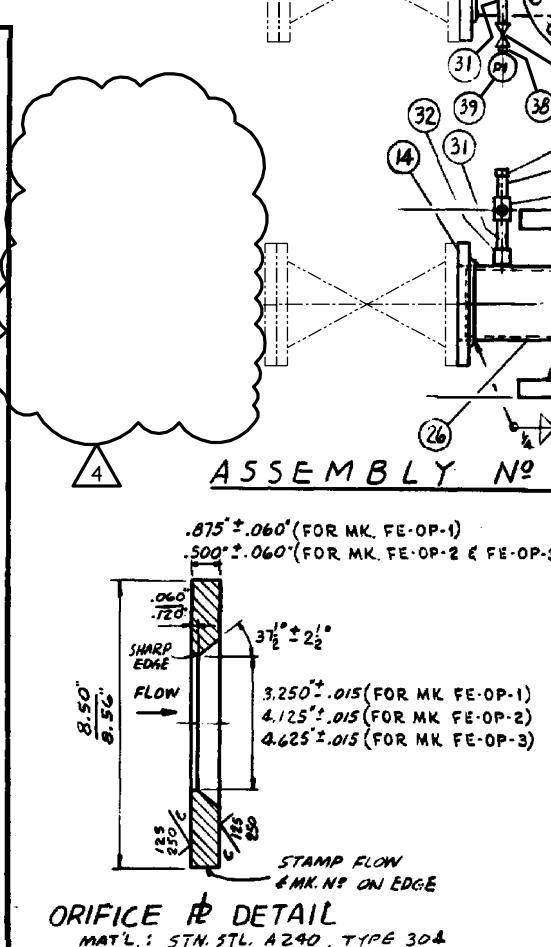
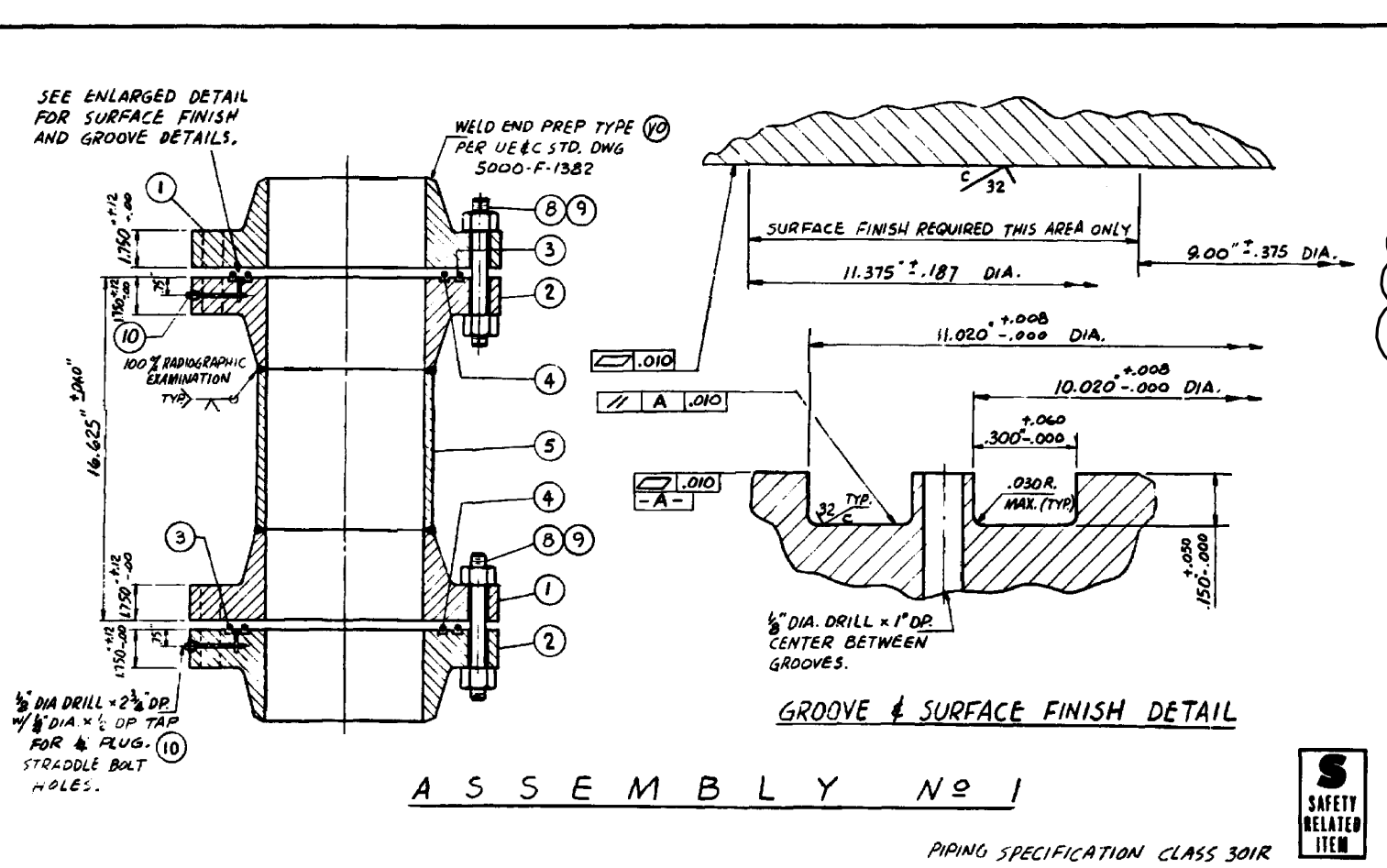
TYPE A/ISI/FSAR



ITEM NO.	REV.	PO. NO.	DESCRIPTION
1	4	IP-PO-401	8\"/>
2	4		8\"/>
3	16		METAL O-RING, ADVANCED PROD. CO. #E01-011000-13-01-1-SPD (NOTE 2)
4	16		METAL O-RING, ADVANCED PROD. CO. #E01-011000-13-01-1-SPD (NOTE 2)
5	2		8\"/>
6	4		O-RING, PARKER SEAL CO. PART NO. 2-375, MATL. E7075 (USED AT TIME OF CONSTRUCTION)
7	4		O-RING, PARKER SEAL CO. PART NO. 2-375, MATL. E7075 (USED AT TIME OF CONSTRUCTION)
8	48		3\"/>
9	96		3\"/>
10	4		1\"/>
11	4		6\"/>
12	35	0	6\"/>
13	4		6\"/>
14	9		6\"/>
15	21		6\"/>
16	64		3\"/>
17	78		3\"/>
18	1		6\"/>
19	2		8\"/>
20	2		8\"/>
21	1	IP-PO-401	DIFFUSER, STN. STL. PER DETAIL
22	2	IP-PO-428	6\"/>
23	1	IP-PO-430	STN. STL. BRAIDED HOSE, 6\"/>
24	1	IP-PO-401	ORIFICE #, MK. NO. OP-1, PER DETAIL
25	25	0	6\"/>
26	24	0	6\"/>
27	1		6\"/>
28	2		8\"/>
29	1	IP-PO-401	DUCT SPOOL PIECE, PER DETAIL
30	2	IP-PO-428	6\"/>
31	6	IP-PO-401	1\"/>
32	2		1\"/>
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\"/>
36	2		1\"/>
37	2		3\"/>
38	2		1\"/>
39	2		PRESSURE GAGE
40	2		1\"/>
41	8		3\"/>
42	2		
43	1		



REFERENCE DWGS:
 9321-F-10901 PIPE SUPPORT DETAILS
 5000-F-1382 WELD END PREP DETAILS
 6604-135-D-3 FLOOR STEEL BRACING



NOTES:
 1. ALTERNATE O-RING GASKET MATL. FOR ITEMS 6 & 7: E-803-70, E-667-70, E-686-75, E-672-75, E-794-80, E-810-80, E-652-70, N-674-70
 2. 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.
 3. FINAL 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.
 4. ALL FIELD INSTALLATION WORK TO BE IN ACCORDANCE WITH U.E.C. SPEC. 6604-301-44-1.
 5. 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 (35) SHIMS ON AFFECTED PERMANENT SUPPORTS ALSO TO BE REMOVED.

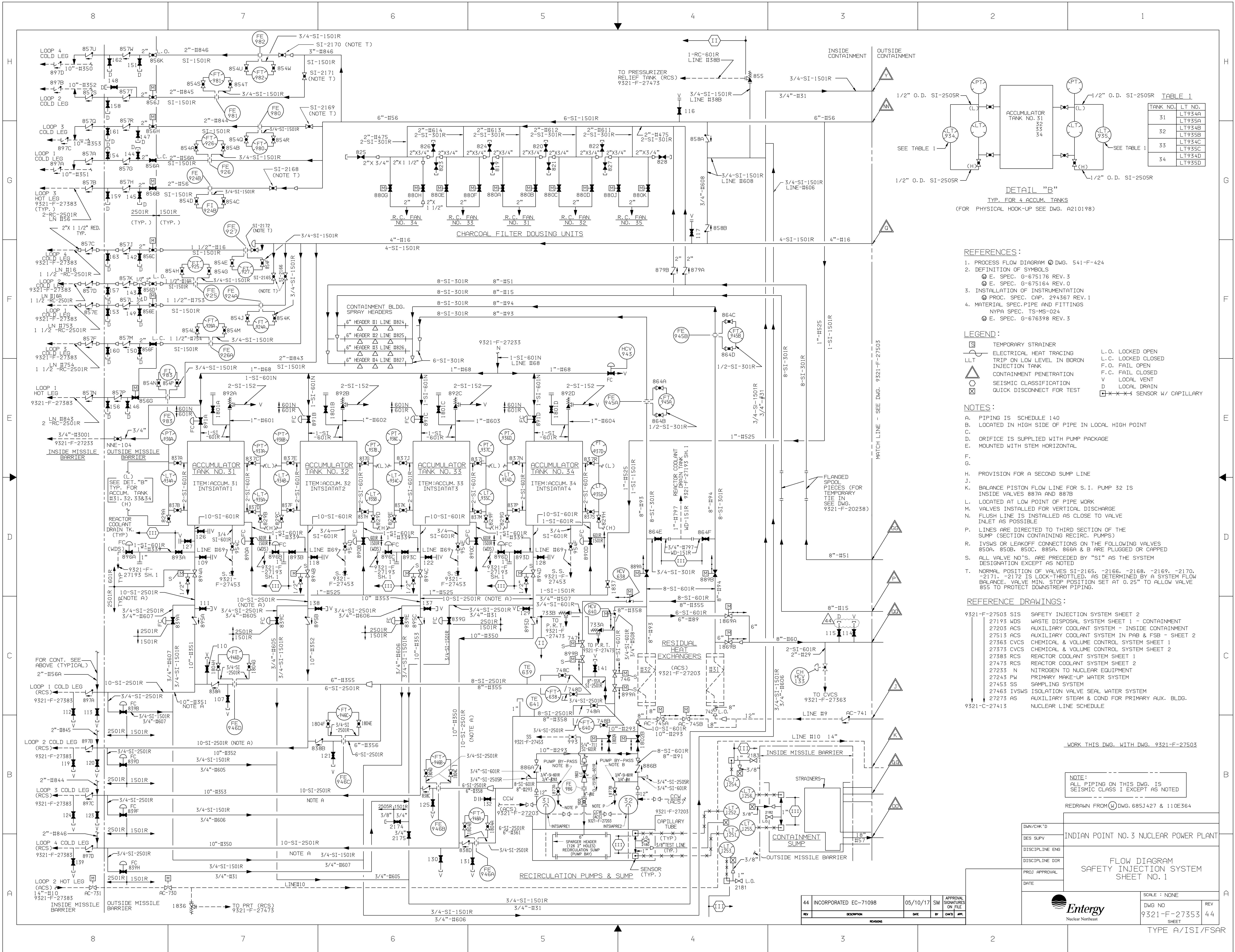
4 INCORPORATED EC-28907 4/14/11 VMR APPROVAL SIGNATURES ON FILE

ENGINEER: [Signature] STATE REG. NO. 44132 INDIAN POINT UNIT 3 NUCLEAR POWER PLANT

Entergy Nuclear Northeast

CONTAINMENT BUILDING REACTOR CAVITY ALTERNATE FILL LINE

9321-F-20238



REFERENCES:

1. PROCESS FLOW DIAGRAM DWG. 541-F-424
2. DEFINITION OF SYMBOLS
 - ⊙ E. SPEC. G-675176 REV. 3
 - ⊙ E. SPEC. G-675164 REV. 3
3. INSTALLATION OF INSTRUMENTATION
 - ⊙ PROC. SPEC. CAP. 294367 REV. 1
4. MATERIAL SPEC. PIPE AND FITTINGS
 - NYPA SPEC. TS-MS-024
 - ⊙ E. SPEC. G-676398 REV. 3

LEGEND:

- ⊠ TEMPORARY STRAINER
- ⊠ ELECTRICAL HEAT 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
- ⊠ SENSORS 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
- VALVES ARE DIRECTED TO THIRD SECTION OF THE SUMP (SECTION CONTAINING RECIRC. PUMPS)
- IVSWS 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 PW | PRIMARY MAKE-UP WATER SYSTEM |
| 27453 SS | SAMPLING SYSTEM |
| 27463 IVSWS | 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 (W) DWG. 685J427 & 110E364

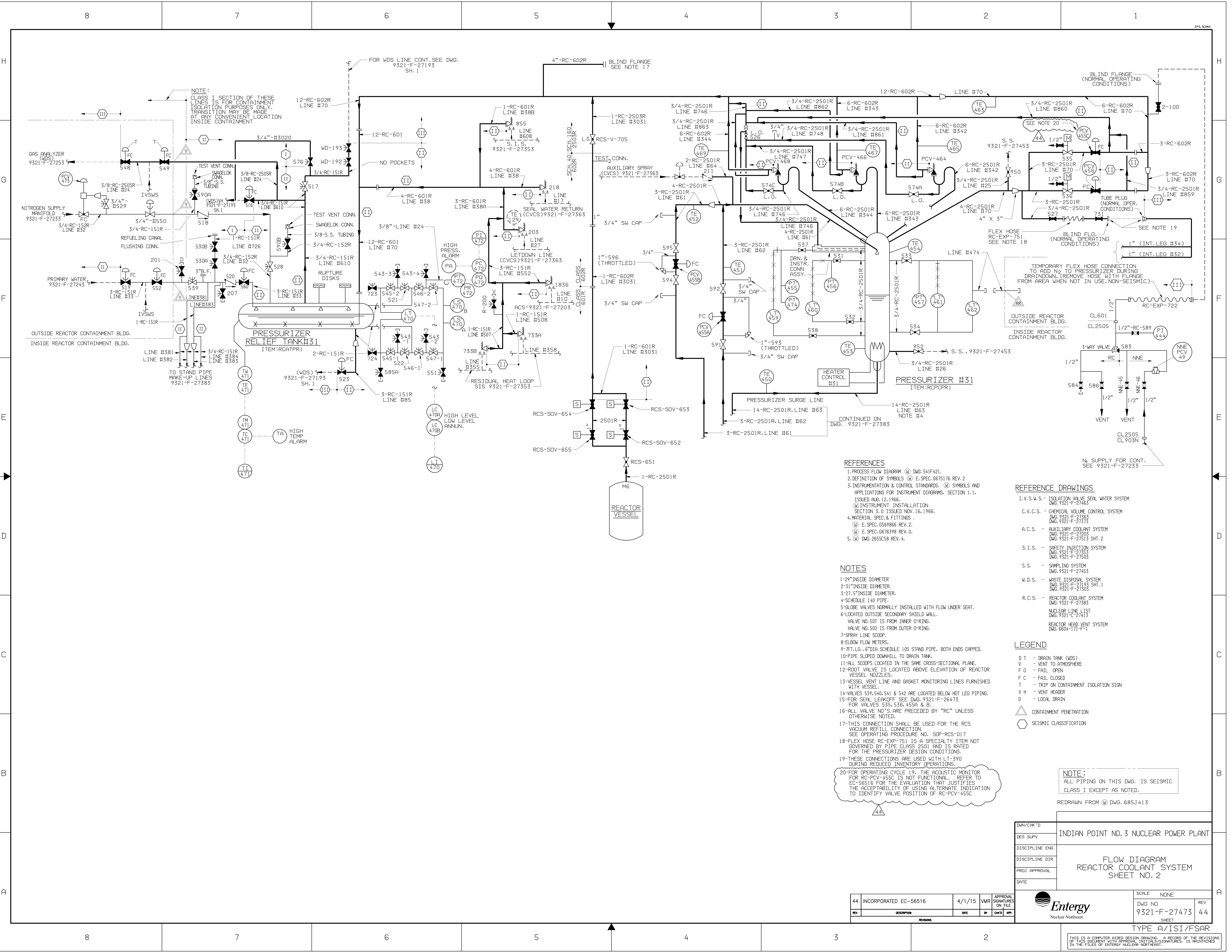
INDIAN POINT NO. 3 NUCLEAR POWER PLANT

FLOW DIAGRAM
SAFETY INJECTION SYSTEM
SHEET NO. 1

SCALE: NONE
DWG NO 9321-F-27353
SHEET 44

TYPE A/ISI/FSAR

REV	DESCRIPTION	DATE	BY	CHK'D	APP.
44	INCORPORATED EC-71098	05/10/17	SM		



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.
- (I.C.S.) INSTRUMENT INSTALLATION SECTION 3.0 ISSUED NOV. 16, 1966.
- 4. MATERIAL SPEC. & FITTINGS (M.S.F.) E.SPEC. 6569866 REV. 2.
- (M.S.F.) E.SPEC. 6676398 REV. 0.
- 5. (M.S.F.) DWG. 2655C58 REV. 4.

NOTES

- 1-29" INSIDE DIAMETER
- 2-31" INSIDE DIAMETER
- 3-27.5" INSIDE DIAMETER
- 4-SCHEDULE 140 PIPE
- 5-GLOBE VALVES NORMALLY INSTALLED WITH FLOW UNDER SEAT.
- 6-LOCATED OUTSIDE SECONDARY SHIELD WALL.
- VALVE NO. 501 IS FROM INNER O-RING.
- VALVE NO. 502 IS FROM OUTER O-RING.
- 7-SPRAY LINE SCOOP
- 8-ELBOW FLOW METERS
- 9-7FT. LG. 6" DIA. SCHEDULE 10S STAND PIPE, BOTH ENDS CAPPED.
- 10-PIPE SLOPED DOWNHILL TO DRAIN TANK.
- 11-ALL SCOPES 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 SPECIALTY ITEM NOT GOVERNED BY PIPE CLASS 2501 AND IS RATED FOR THE PRESSURIZER DESIGN CONDITIONS.
- 19-THese 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 DWG. 9321-F-27373
- A.C.S. - AUXILIARY COOLANT SYSTEM DWG. 9321-F-27203 DWG. 9321-F-27513 SHT. 2
- S.I.S. - SAFETY INJECTION SYSTEM DWG. 9321-F-27353 DWG. 9321-F-27503
- S.S. - SAMPLING SYSTEM DWG. 9321-F-27453
- W.D.S. - WASTE DISPOSAL SYSTEM DWG. 9321-F-27193 SHT. 1 DWG. 9321-F-27303
- R.C.S. - REACTOR COOLANT SYSTEM DWG. 9321-F-27383
- 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 (P) DWG. 685J413

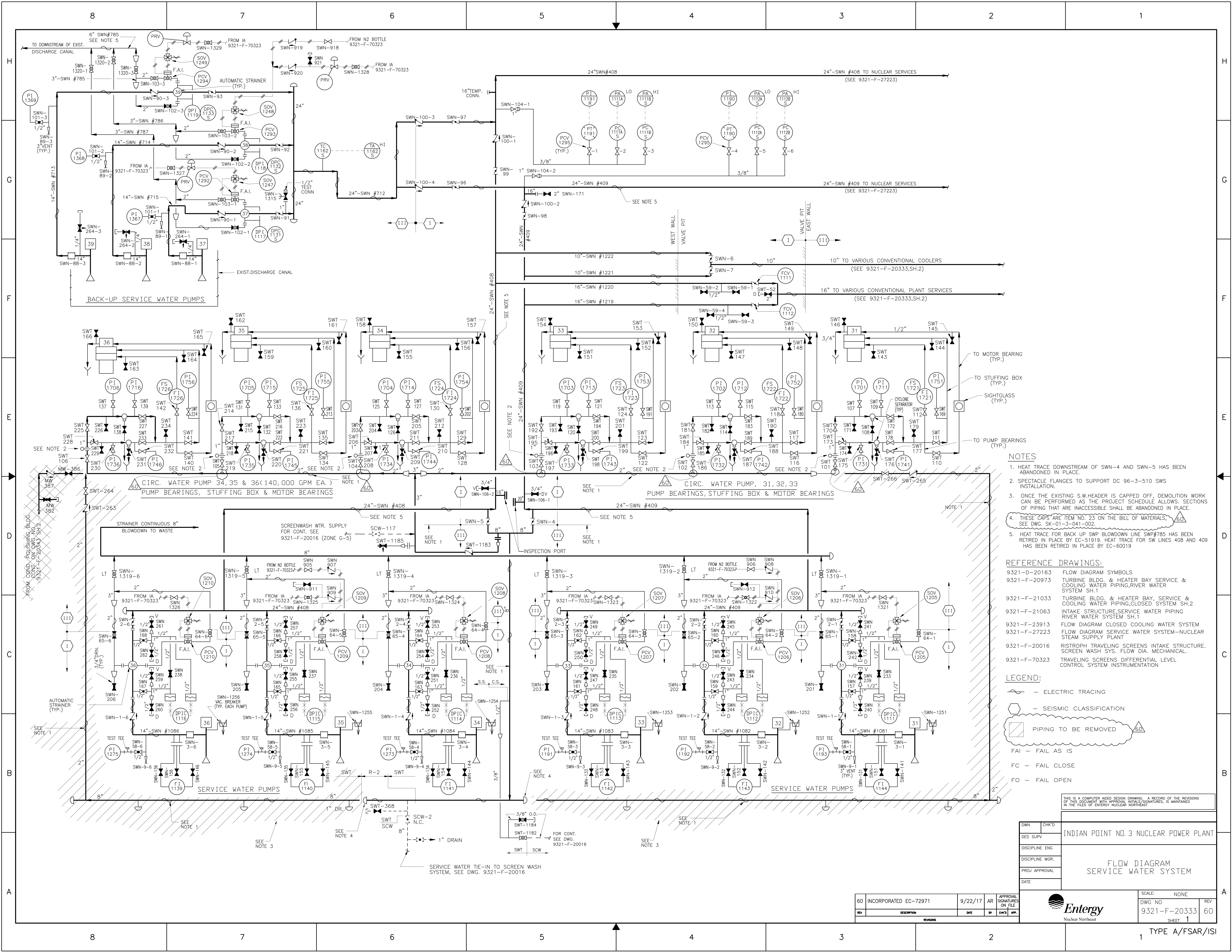
DWG/CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE DIR	
PROJ APPROVAL	
DATE	

SCALE	NONE	REV	
DWG NO	9321-F-27473	44	
SHEET			

TYPE A/ISI/FSAR

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.

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



- 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. SEE DWG. SK-01-3-041-002.
 - 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
 - FAI - FAIL AS IS
 - FC - FAIL CLOSE
 - FO - FAIL OPEN

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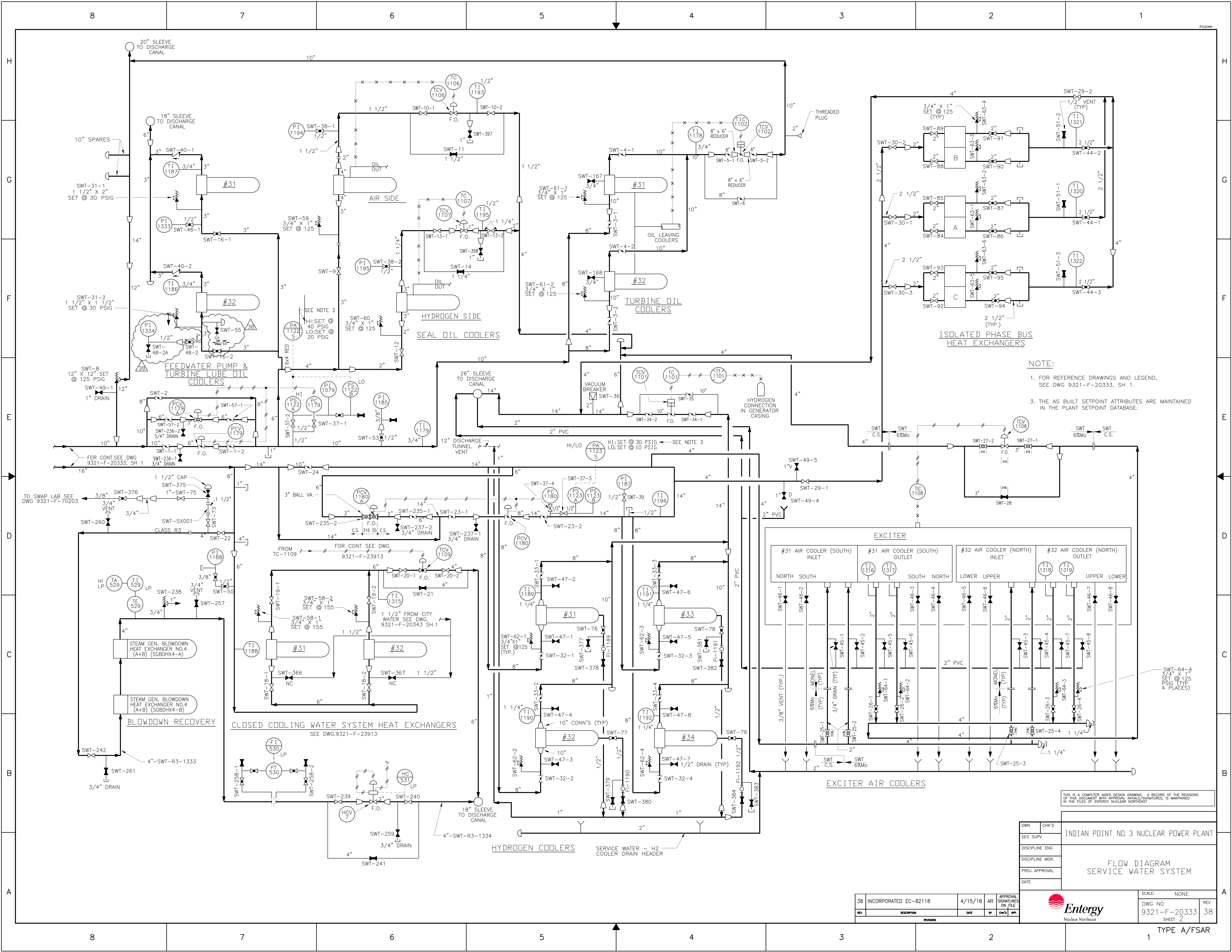
DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DES SUPV			
DISCIPLINE ENG			
DISCIPLINE MGR.		FLOW DIAGRAM SERVICE WATER SYSTEM	
PROJ APPROVAL			
DATE			

60	INCORPORATED EC-72971	9/22/17	AR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D APP.

SCALE: NONE	REV
DWG NO 9321-F-20333	60
SHEET 1	



TYPE A/FSAR/ISI



NOTE:
1. FOR REFERENCE DRAWINGS AND LEGEND, SEE DWG 9321-F-20333, SH 1.
3. 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 ENTERGY NUCLEAR NORTHEAST.

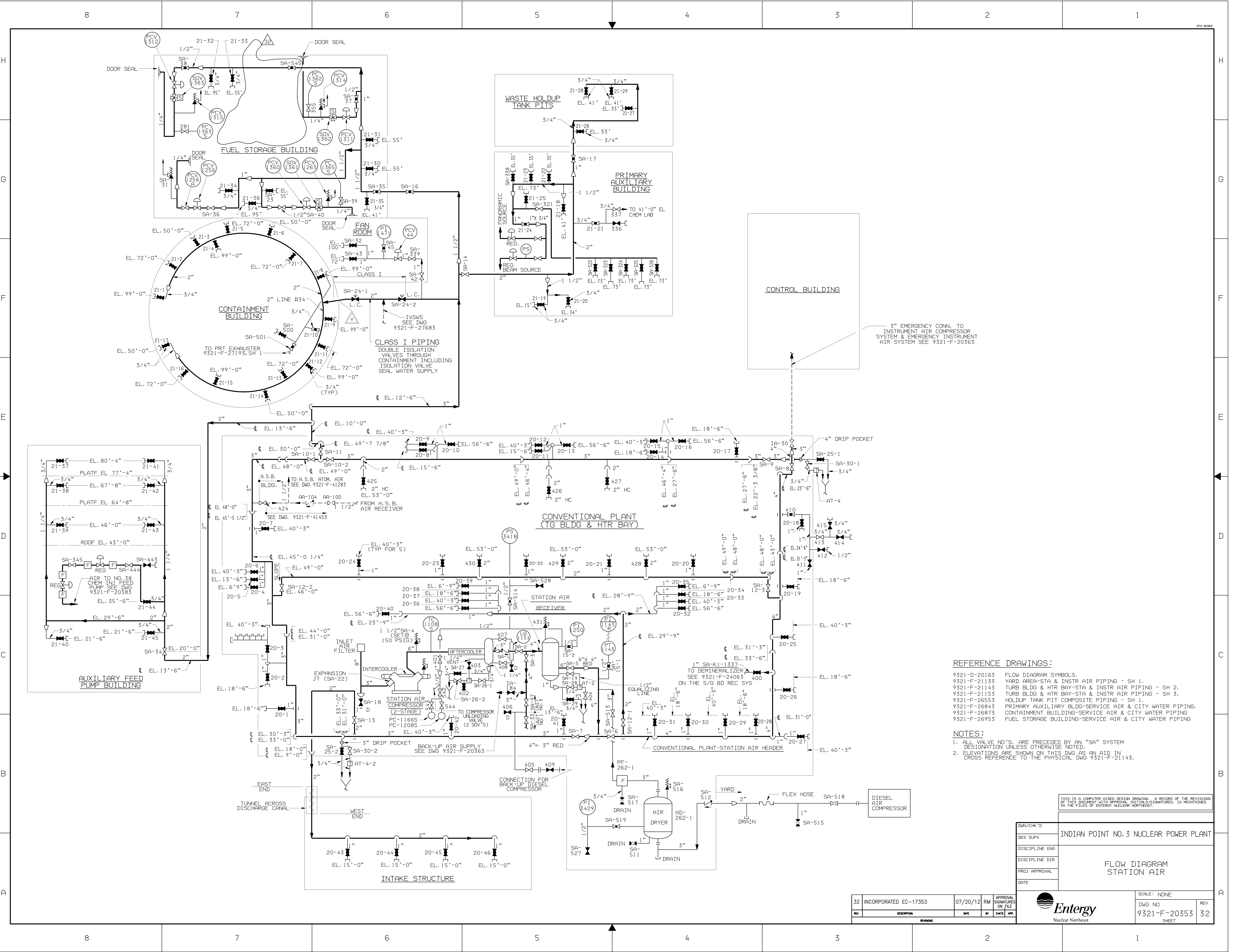
DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENG		
DISCIPLINE MGR		
PROJ APPROVAL		
DATE		FLOW DIAGRAM SERVICE WATER SYSTEM



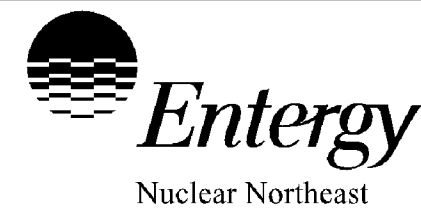
SCALE: NONE	REV
DWG NO 9321-F-20333	38
SHEET 2	

38	INCORPORATED EC-82118	4/15/18	AR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D APP.

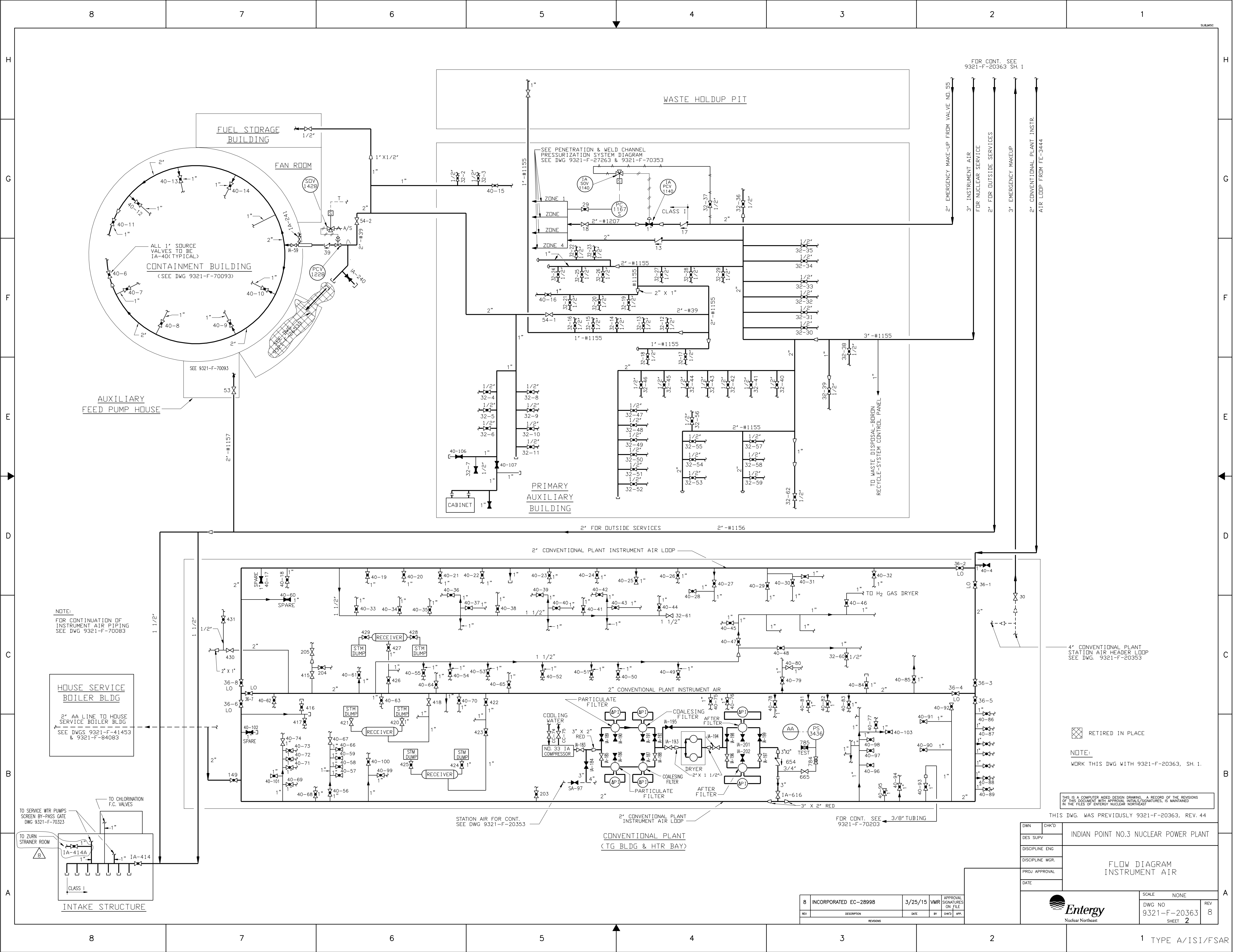
TYPE A/FSAR



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



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



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-64083

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

TO CHLORINATION
F.C. VALVES

TO TURN
STRAINER ROOM

INTAKE STRUCTURE

FOR CONT. SEE
9321-F-20363 SH. 1

4" CONVENTIONAL PLANT
STATION AIR HEADER LOOP
SEE DWG. 9321-F-20353

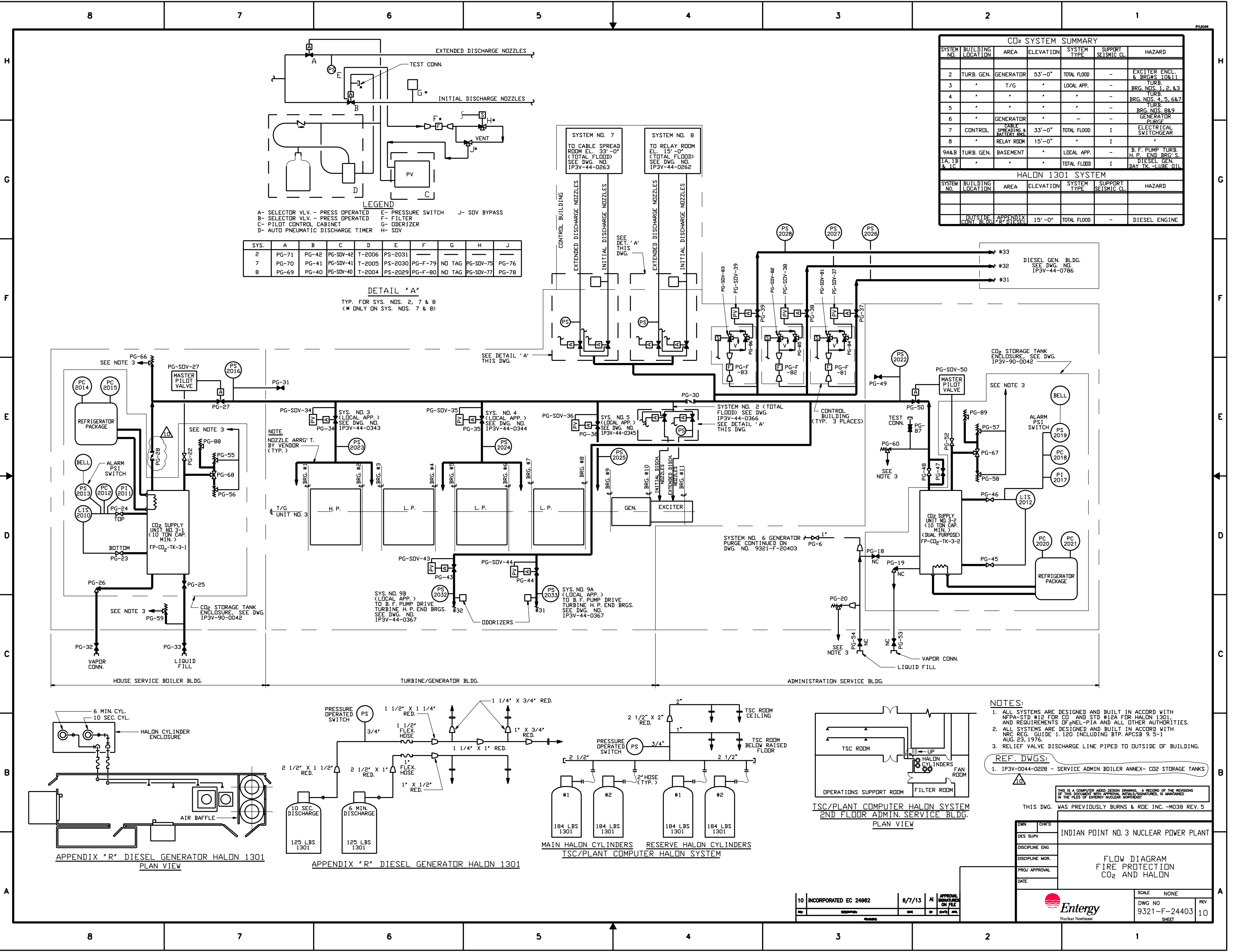
NOTE:
WORK THIS DWG WITH 9321-F-20363, SH. 1.

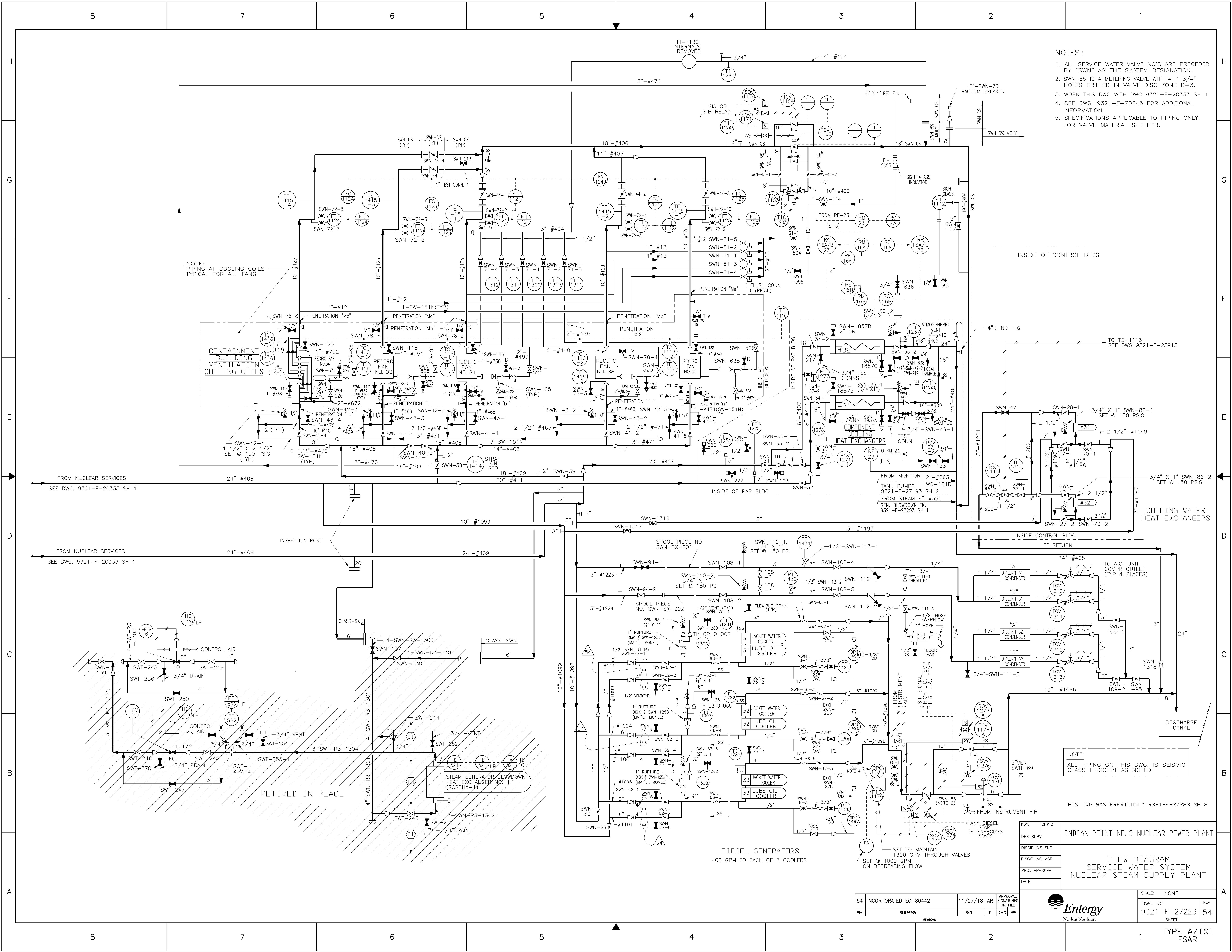
THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS
OF THIS DOCUMENT WITH APPROVAL NOTICES/INITIALS, IS MAINTAINED
IN THE FILES OF ENTERGY NUCLEAR NORTHEAST

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

DWN	CHKD	INDIAN POINT NO.3 NUCLEAR POWER PLANT	
DES SURV			
DISCIPLINE ENG			
DISCIPLINE MGR.			
PROJ APPROVAL		FLOW DIAGRAM INSTRUMENT AIR	
DATE			
		SCALE NONE	REV 8
		DWG NO 9321-F-20363	
		SHEET 2	

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





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

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

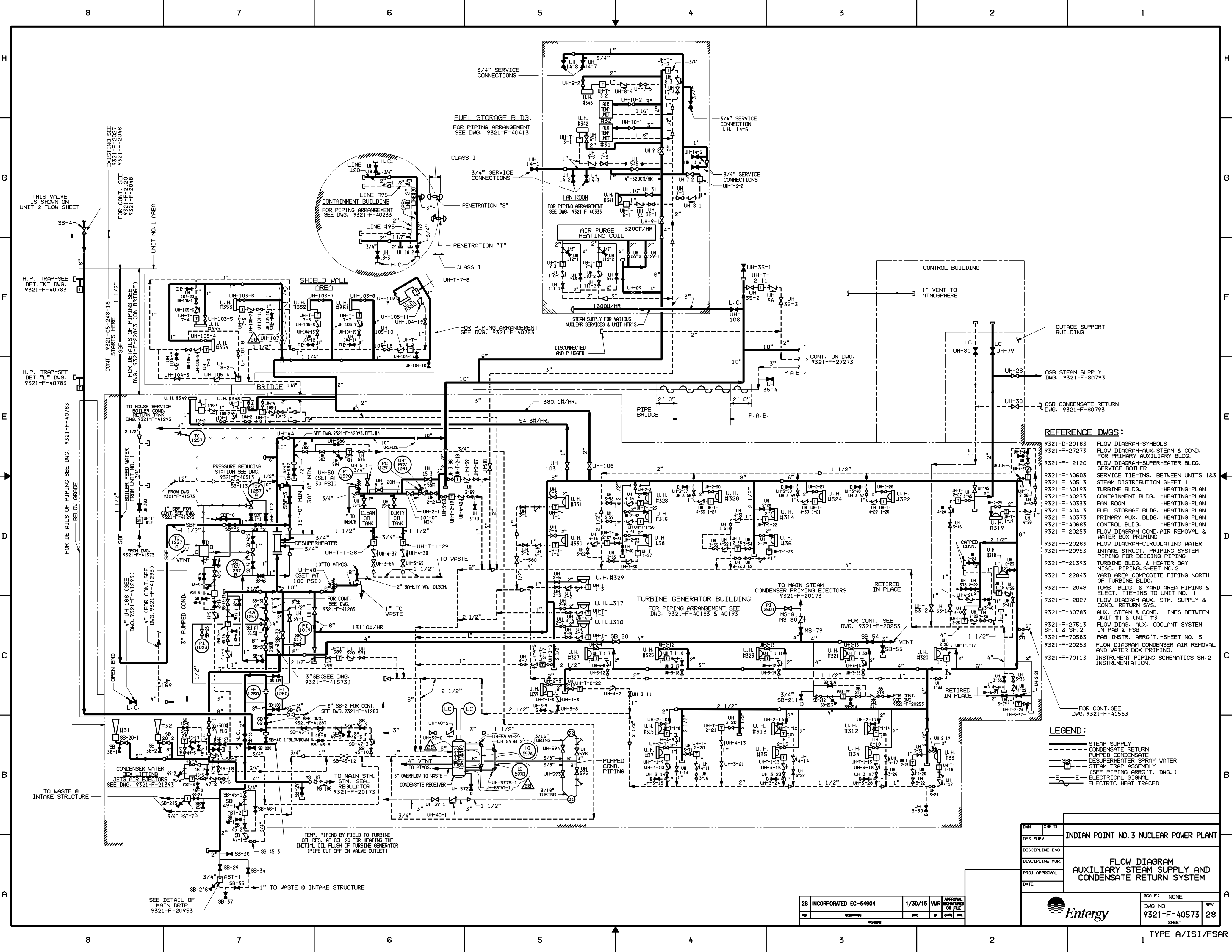
DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENG		
DISCIPLINE MGR.		
PROJ APPROVAL		
DATE		

SCALE: NONE	REV
DWG NO 9321-F-27223	54
SHEET	

TYPE A/ISI
FSAR

54	INCORPORATED EC-80442	11/27/18	AR	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D APP.



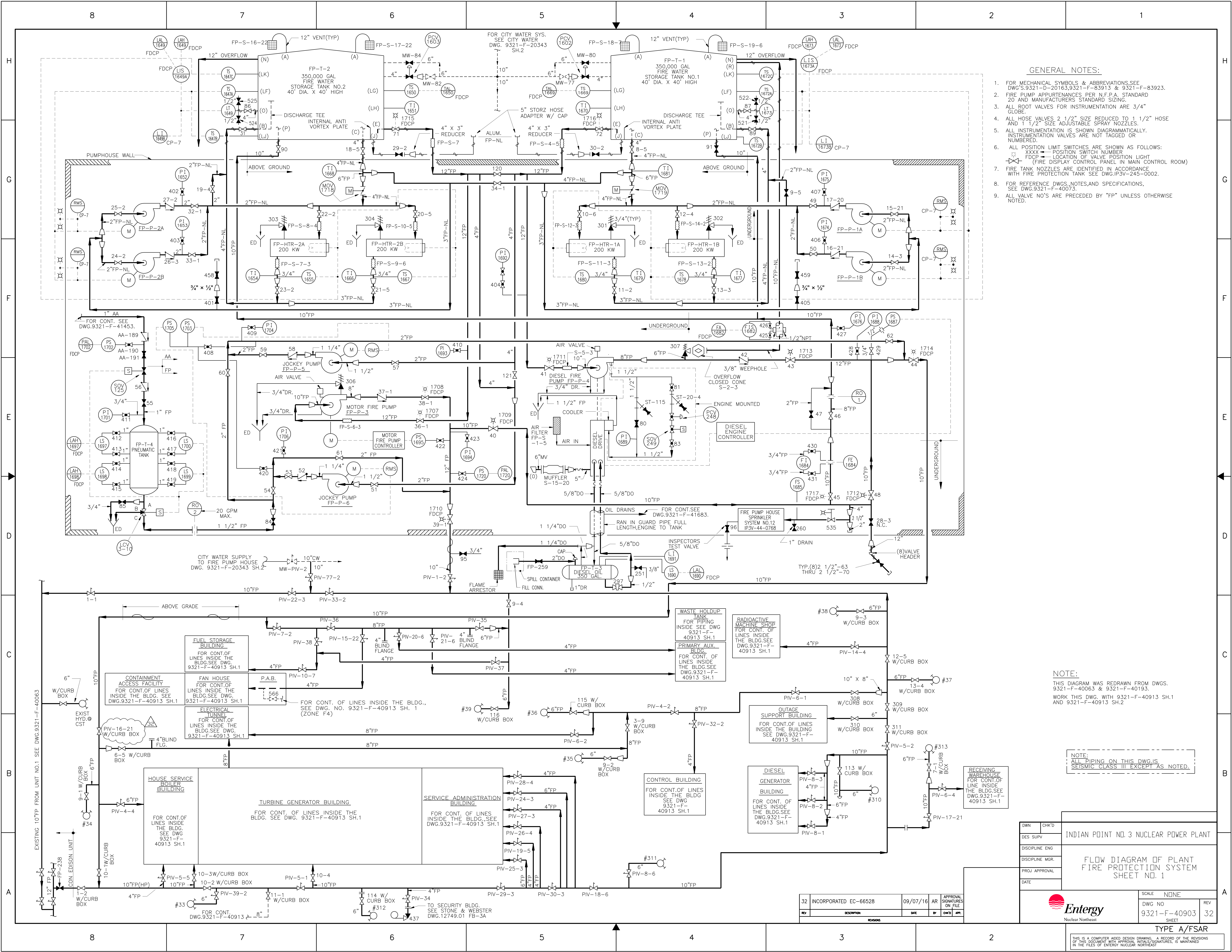


- REFERENCE DWGS:**
- 9321-D-20163 FLOW DIAGRAM-SYMBOLS
 - 9321-F-27273 FLOW DIAGRAM-AUX. STEAM & COND. FOR PRIMARY AUXILIARY BLDG.
 - 9321-F-2120 FLOW DIAGRAM-SUPERHEATER BLDG. SERVICE BOILER
 - 9321-F-40603 SERVICE TIE-INS. BETWEEN UNITS 1&3
 - 9321-F-40513 STEAM DISTRIBUTION-SHEET 1
 - 9321-F-40193 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
 - 9321-F-20953 INTAKE STRUCT. PRIMING SYSTEM PIPING FOR DEICING PIPING
 - 9321-F-21393 TURBINE BLDG. & HEATER BAY MISC. PIPING SHEET NO. 2
 - 9321-F-22843 YARD AREA COMPOSITE PIPING NORTH OF TURBINE BLDG.
 - 9321-F-2048 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-27513 SH. 1 & SH. 2 FLOW DIAG. AUX. COOLANT SYSTEM IN PAB & FSB
 - 9321-F-70583 PAB INSTR. ARR'G'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.
- FOR CONT. SEE DWG. 9321-F-41553

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

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

28	INCORPORATED EC-54904	1/30/15	VMR	APPROVAL
REV	DESCRIPTION	DATE	BY	CHKD



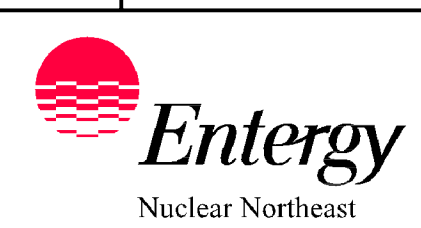
- GENERAL NOTES:
- FOR MECHANICAL SYMBOLS & ABBREVIATIONS, SEE DWG'S 9321-D-20163, 9321-F-83913 & 9321-F-83923.
 - FIRE PUMP APPURTENANCES PER N.F.P.A. STANDARD 20 AND MANUFACTURERS STANDARD SIZING.
 - ALL ROOT VALVES FOR INSTRUMENTATION ARE 3/4" GLOBE.
 - ALL HOSE VALVES 2 1/2" SIZE REDUCED TO 1 1/2" 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 SHOWN 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.

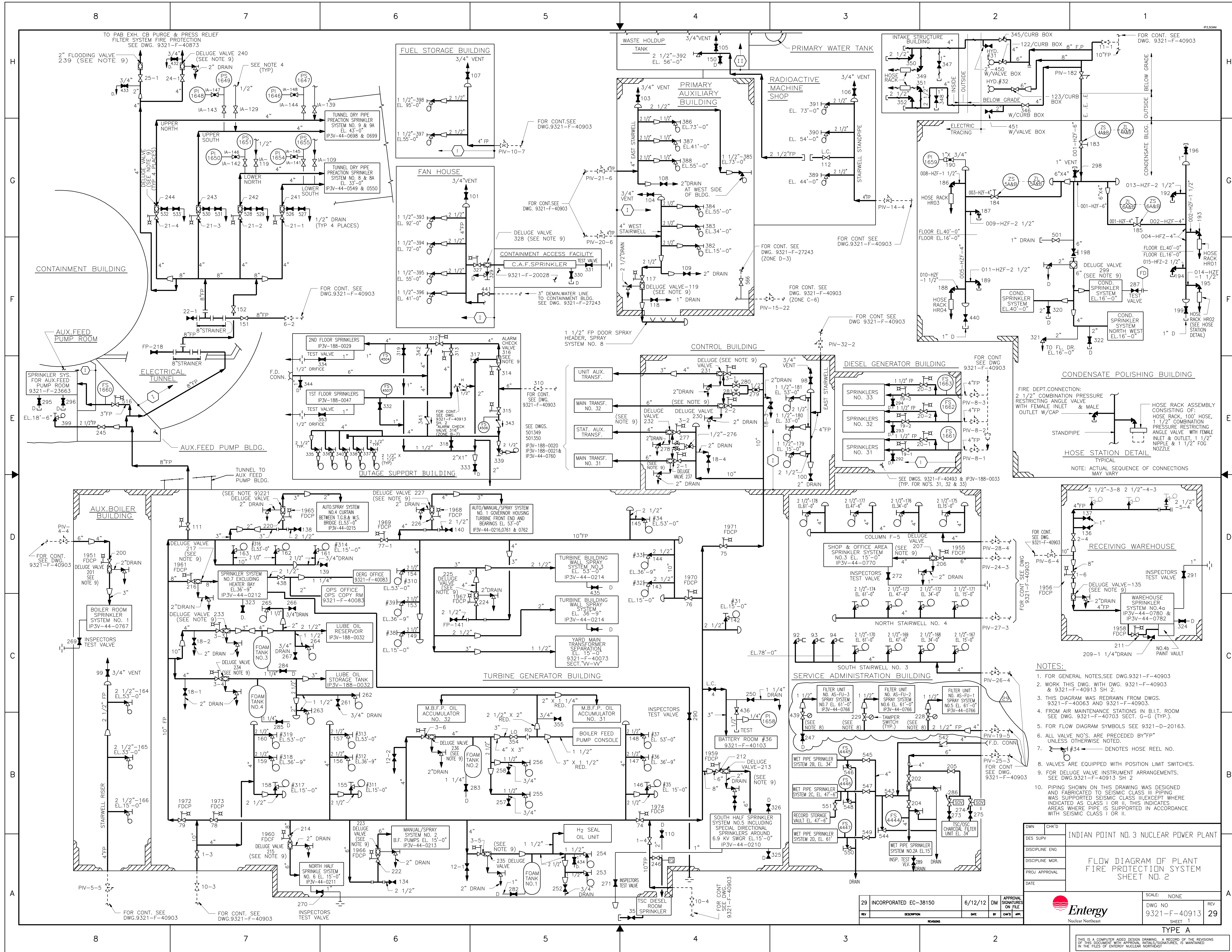
DWN	CHK'D	INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
DES SUPV			
DISCIPLINE ENG			
DISCIPLINE MGR.			
PROJ APPROVAL		FLOW DIAGRAM OF PLANT FIRE PROTECTION SYSTEM SHEET NO. 1	
DATE			
		SCALE NONE	REV
		DWG NO 9321-F-40903	32
		SHEET	

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



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TYPE A/FSAR

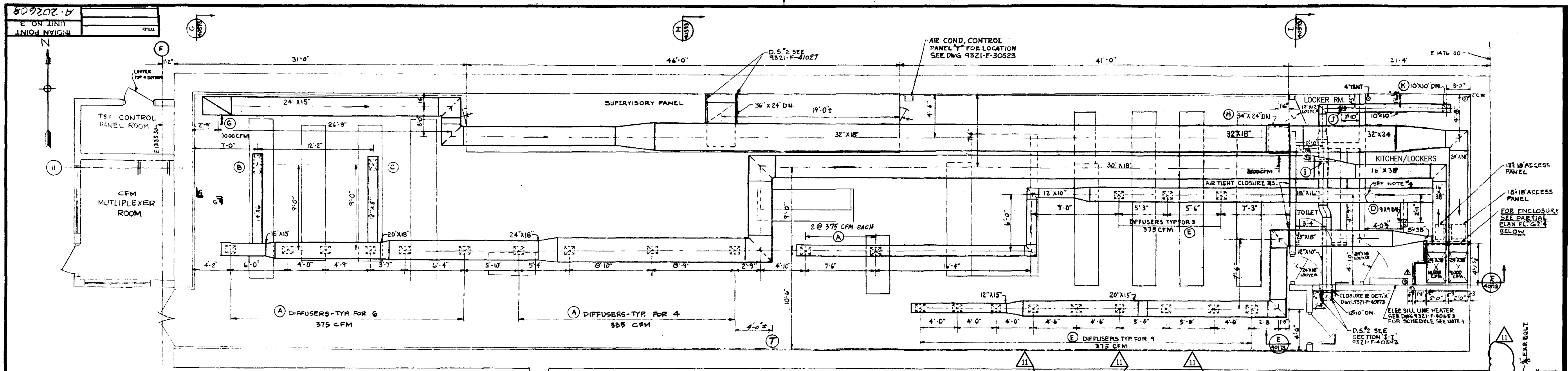


- NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 9321-F-40903
 2. WORK THIS DWG. WITH DWG. 9321-F-40903 & 9321-F-40913 SH. 2.
 3. THIS DIAGRAM WAS REDRAWN FROM DWGS. 9321-F-40063 AND 9321-F-40903.
 4. FROM AIR MAINTENANCE STATIONS IN B.I.T. ROOM SEE DWG. 9321-F-40703 SECT. G-G (TYP.).
 5. FOR FLOW DIAGRAM SYMBOLS SEE 9321-D-20163.
 6. ALL VALVE NO.'S. ARE PRECEDED BY "FV" UNLESS OTHERWISE NOTED.
 7. #34 DENOTES HOSE REEL NO.
 8. VALVES ARE EQUIPPED WITH POSITION LIMIT SWITCHES.
 9. FOR DELUGE VALVE INSTRUMENT ARRANGEMENTS. SEE DWG. 9321-F-40913 SH. 2
 10. PIPING SHOWN ON THIS DRAWING WAS DESIGNED AND FABRICATED TO SEISMIC CLASS III EXCEPT WHERE INDICATED AS CLASS I OR II. THIS INDICATES 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	
DWN: CHKD DES: SUPV DISCIPLINE: ENG DISCIPLINE: MGR PROJ: APPROVAL DATE:	SCALE: NONE DWG NO: 9321-F-40913 SHEET: 1 TYPE: A

29	INCORPORATED EC-38150	6/12/12	DM	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHKD APP.

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

SECTION G-G
DWG 9321-F-40513
SCALE 1/4"=1'-0"

SECTION H-H
DWG 9321-F-40513
SCALE 1/4"=1'-0"

SECTION I-I
DWG 9321-F-40513
SCALE 1/4"=1'-0"

REFERENCE DRAWINGS
 9321-F-13833 CONTROL BLDG SUSPENDED CEILING PLAN.
 9321-F-30523 EQUIP. ROOM CONTROL BLDG (ELEC.)
 9321-F-30103 CONTROL BLDG LOCATION OF SLEEVES/OPENINGS
 9321-F-30399 LIGHTING & PA SYS. CONTROL BLDG.
 9321-F-40173 CONTROL BLDG. AIR EQUIPMENT RM.
 9321-F-13445 TURBINE BLDG. 25' BY EXTENSION.
 9321-F-13813 CONTROL BLDG. DIESEL GEN. BLDG. EL 53' FLOOR PLAN (SECT 9321-F-40627 DUCT SUPPORT DWG.)

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

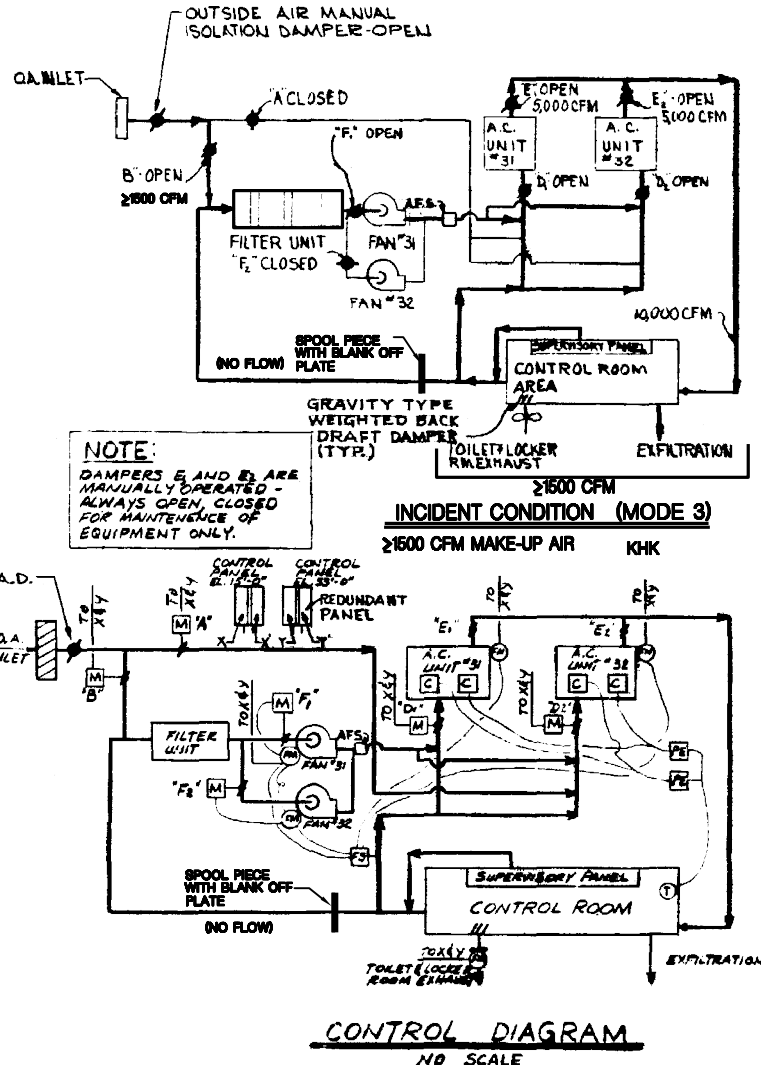
NOTES
 1. ELECTRIC SILL LINE HEATER TO BE FURNISHED UNDER SPEC 9321-05-45-24 BUT INSTALLED BY FIELD.
 2. DUCT WORK ABOVE REFLECTIVE CEILING TO BE INSULATED.
 3. DOOR GRILLES TO BE FURNISHED BY OTHERS.
 4. INFRARED LIGHT WILL BE FURNISHED BY OTHERS.
 5. DUCT SUPPORTS TO BE FABRICATED AS SHOWN IN TABULAR DATA 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.

REGISTER & DIFFUSER SCHEDULE				
REGISTER	QUAN.	SIZE	MFG. & TYPE NO.	REMARKS
(A)	12	12" X 9"	AGITAIR MODEL AYD-20L DAMPER/GRID	SUPPLY
(B)	1	24" X 12"	"	SUPPLY
(C)	1	15" X 9"	"	SUPPLY 340 CFM
(D)	1	9" X 9"	"	SUPPLY 300 CFM
(E)	12	12" X 9"	AGITAIR MODEL AYD-21L	SUPPLY 375 CFM
(G)	1	36" X 24"	AGITAIR MODEL EDHFO	RETURN 3000 CFM
(H)	1	34" X 24"	"	RETURN 3000 CFM
(I)	1	12" X 6"	"	RETURN 200 CFM
(J)	1	9" X 4"	"	RETURN 100 CFM
(K)	1	14" X 10"	"	RETURN 400 CFM

REGISTERS/DIFFUSERS SHALL BE OF TYPE/SIZE LISTED AS MFG. BY AIR DEVICES INC. OR APPROVED EQUAL.

LEGEND

- ⊠ FIRESTAY
- ⊙ FAN MOTOR
- ⊕ PNEUMATIC ELECT. SWITCH (DPST NO.)
- ⊖ DAMPER MOTOR
- ⊞ REFRIGERANT COMPRESSOR
- AIR FLOW SW. TO START 2ND FAN IN EVENT 1ST FAN DOES NOT START
- SPOOL PIECE WITH BLANK OFF PLATE



CONTROL DIAGRAM
NO SCALE

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**

11	INCORPORATED EC9066	7/30/08	JF	APPROVAL
REV	DESCRIPTION	DATE	BY	CHKD