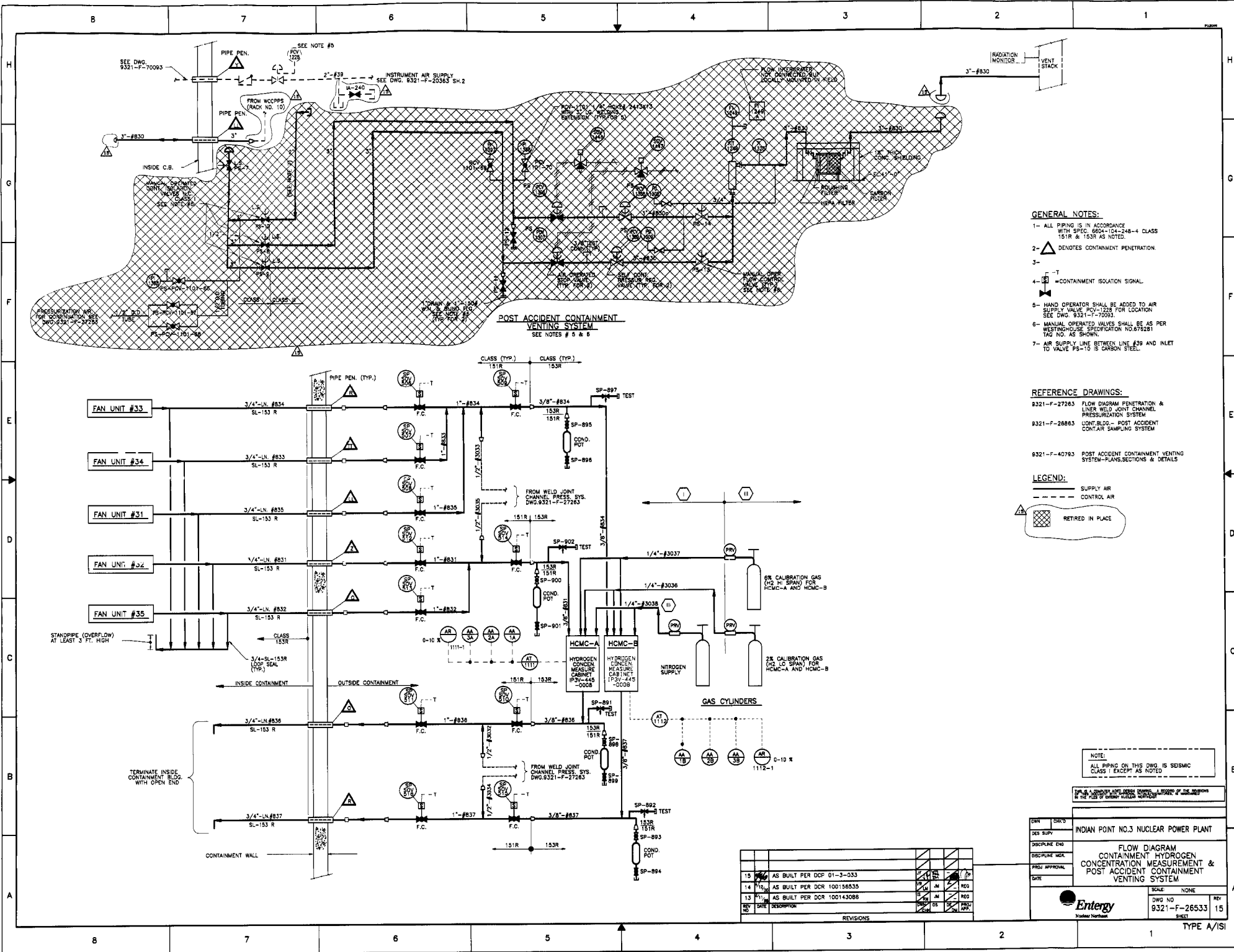


REV	DESCRIPTION	DATE	BY	CHKD	APP.
8	INCORPORATED EC-28998	3/25/15	VMR		

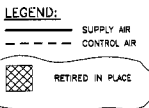
DWN	CHKD	INDIAN POINT NO.3 NUCLEAR POWER PLANT	
DES SURV			
DISCIPLINE ENG			
DISCIPLINE MGR			
PROJ APPROVAL			
DATE			
		SCALE	NONE
		DWG NO	9321-F-20363
		SHEET	2
		REV	8

1 TYPE A/ISI/FSAR



- GENERAL NOTES:**
- 1- ALL PIPING IS IN ACCORDANCE WITH SPEC. 6804-104-248-4 CLASS 151R & 153R AS NOTED.
 - 2- DENOTES CONTAINMENT PENETRATION.
 - 3- = CONTAINMENT ISOLATION SIGNAL.
 - 4- HAND OPERATOR SHALL BE ADDED TO AIR SUPPLY VALVE PCV-1228 FOR LOCATION SEE DWG. 9321-F-70093.
 - 5- MANUAL OPERATED VALVES SHALL BE AS PER WESTINGHOUSE SPECIFICATION NO. 675281 TAG NO. AS SHOWN.
 - 6- AIR SUPPLY LINE BETWEEN LINE #39 AND INLET TO VALVE PS-10 IS CARBON STEEL.

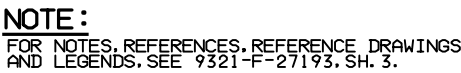
- REFERENCE DRAWINGS:**
- 9321-F-27263 FLOW DIAGRAM PENETRATION & LINER WELD JOINT CHANNEL PRESSURIZATION SYSTEM
 - 9321-F-26863 CONT. BLDG. - POST ACCIDENT CONTAINMENT SAMPLING SYSTEM
 - 9321-F-40763 POST ACCIDENT CONTAINMENT VENTING SYSTEM-PLANS, SECTIONS & DETAILS

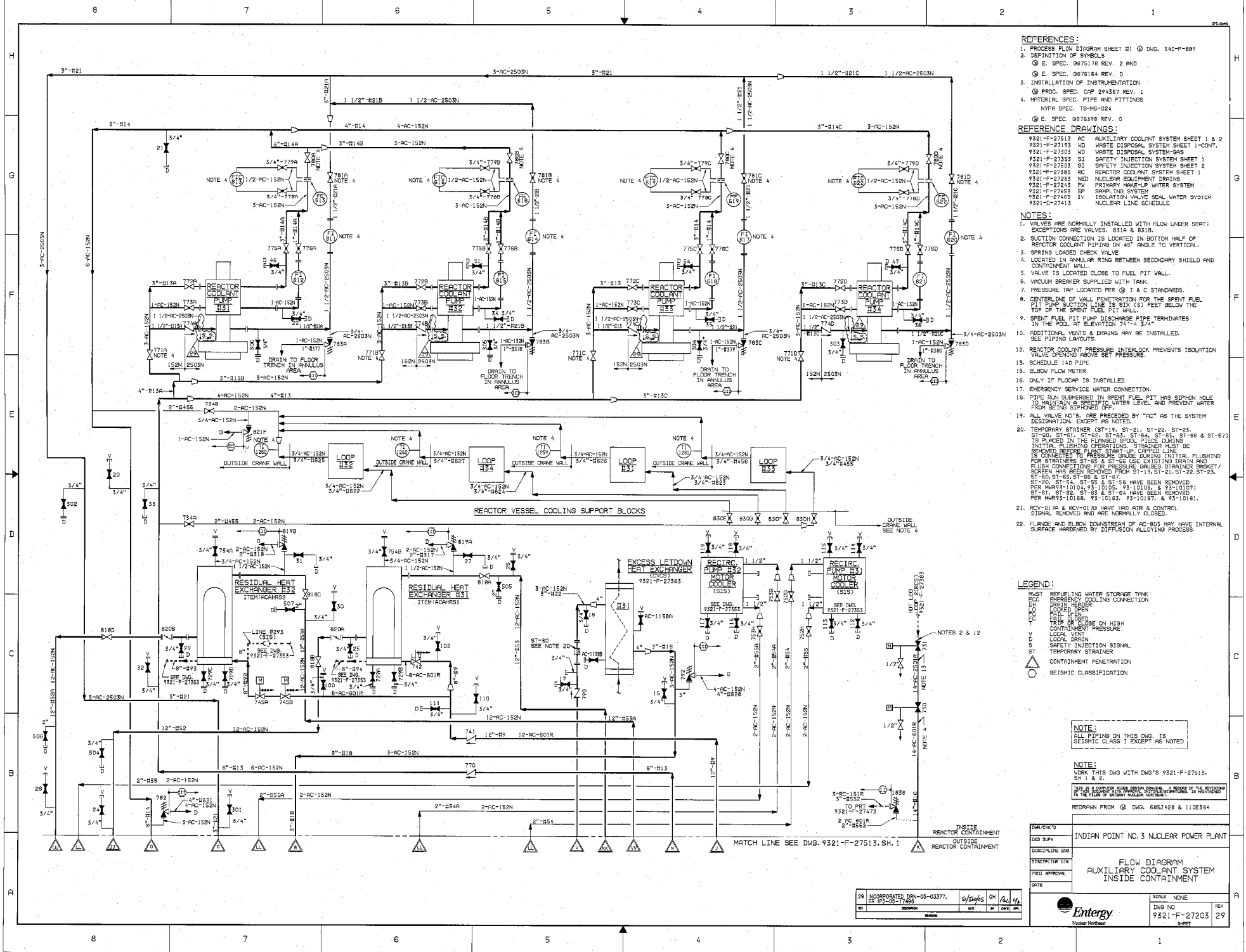


NOTE:
ALL PIPING ON THIS DWG. IS SEISMIC CLASS I EXCEPT AS NOTED

INDIAN POINT NO.3 NUCLEAR POWER PLANT	
FLOW DIAGRAM CONTAINMENT HYDROGEN CONCENTRATION MEASUREMENT & POST ACCIDENT CONTAINMENT VENTING SYSTEM	
DWN: [] DES. SUP: [] DISCIPLINE ENG: [] DISCIPLINE MGR: [] PROJ. APPROVAL: [] DATE: []	SCALE: NONE DWG NO: 9321-F-26533 SHEET: 15 TYPE: A/ISI

REV	DATE	DESCRIPTION	BY	CHKD	APP'D
15		AS BUILT PER DCR 01-3-033			
14		AS BUILT PER DCR 100156535			
13		AS BUILT PER DCR 100143088			
12					
11					
10					
9					
8					
7					
6					
5					
4					
3					
2					
1					





REFERENCES:

- PROCESS FLOW DIAGRAM SHEET #1 @ DWG. 540-F-889
- DEFINITION OF SYMBOLS
- E. SPEC. 9875176 REV. 2 AND
- E. SPEC. 9876164 REV. 0
- INSTALLATION OF INSTRUMENTATION
- PROC. SPEC. CAP 214157 REV. 1
- MATERIAL SPEC. PIPE AND FITTINGS
- NYP&C SPEC. TS-MS-024
- E. SPEC. 9876398 REV. 0

REFERENCE DRAWINGS:

- 9321-F-27513 AC AUXILIARY COOLANT SYSTEM SHEET 1 & 2
- 9321-F-27193 WD WASTE DISPOSAL SYSTEM SHEET 1-CONT.
- 9321-F-27303 WD WASTE DISPOSAL SYSTEM SHEET 2
- 9321-F-27503 SI SAFETY INJECTION SYSTEM SHEET 1
- 9321-F-27503 SI SAFETY INJECTION SYSTEM SHEET 2
- 9321-F-27503 AC REACTOR COOLANT SYSTEM SHEET 1
- 9321-F-27283 ND NUCLEAR EQUIPMENT DRAWING
- 9321-F-27245 PW PRIMARY MAKE-UP WATER SYSTEM
- 9321-F-27455 SP SUMPING SYSTEM
- 9321-F-27403 IV ISOLATION VALVE SEAL WATER SYSTEM
- 9321-F-27415 NUCLEAR LINE SCHEDULE

NOTES:

- VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER SEAT. EXCEPTIONS ARE VALVES 831A & 831B.
- SUCTON CONNECTION IS LOCATED IN BOTTOM HALF OF REACTOR COOLANT PIPING ON 45° ANGLE TO VERTICAL.
- SPRING LOADED CHECK VALVE
- LOCATED IN ANNULAR RING BETWEEN SECONDARY SHIELD AND CONTAINMENT WALL.
- VALVE IS LOCATED CLOSE TO FUEL PIT WALL.
- VACUUM BREAKER SUPPLIED WITH TANK.
- PRESSURE TAP LOCATED PER @ 1 & C STANDARDS.
- CENTERLINE OF WALL PENETRATION FOR THE SPENT FUEL PIT PUMP SUCTON (1.6) FEET BELOW THE TOP OF THE SPENT FUEL PIT WALL.
- SPENT FUEL PIT PUMP DISCHARGE PIPE TERMINATES IN THE POOL AT ELEVATION 774.0
- ADDITIONAL VENTS & DRAINS MAY BE INSTALLED. SEE PIPING LAYOUTS.
- REACTOR COOLANT PRESSURE INTERLOCK PREVENTS ISOLATION VALVE OPENING ABOVE SET PRESSURE.
- SCHEDULE 140 PIPE
- ELEW. FLOW METER
- ONLY IF FLOCCAP IS INSTALLED.
- EMERGENCY SERVICE WATER CONNECTION
- PIPE RUN SUBMERGED IN SPENT FUEL PIT HAS SIPHON HOLE TO MAINTAIN A SUFFICIENT WATER LEVEL AND PREVENT WATER FROM BEING SIPHONED OFF.
- ALL VALVE NO'S. ARE PRECEDED BY "AC" AS THE SYSTEM DESIGNATION, EXCEPT AS NOTED.
- TEMPORARY STRAINER (ST-19, ST-21, ST-22, ST-23, ST-24, ST-25, ST-26, ST-27, ST-28, ST-29, ST-30, ST-31, ST-32, ST-33, ST-34, ST-35, ST-36 & ST-37) IS PLACED IN THE PLANNED SPOT DURING INITIAL FLUSHING OPERATION. STRAINERS BE REMOVED BEFORE PLANT START-UP. CAPPED LINE IS CONNECTED TO THE PLANT DURING INITIAL FLUSHING FOR STRAINERS ST-26 & ST-27. USE EXISTING DRAIN AND FLOW CONNECTIONS FOR STRAINERS ST-28, ST-29, ST-30, ST-31, ST-32, ST-33, ST-34, ST-35, ST-36 & ST-37. PER MAR93-10168, Y3-10163, Y3-10167, & Y3-10161.
- RY-0174 & RY-0175 HAVE 145 AIR & CONTROL SIGNAL REMOVED AND ARE NORMALLY CLOSED.
- FLANGE AND ELBOW DOWNSTREAM OF AC-803 MAY HAVE INTERNAL SURFACE HARDENED BY DIFFUSION ALLOYING PROCESS.

LEGEND:

- FWST REFUELING WATER STORAGE TANK
- EMERGENCY COOLING CONNECTION
- DRAIN HEADER
- DRAIN OPEN
- DRAIN CLOSED
- TRIP OR CLOSE ON HIGH CONTAINMENT PRESSURE
- LOCAL VENT
- LOCAL DRAIN
- SAFETY INJECTION SIGNAL
- TEMPORARY STRAINER
- CONTAINMENT PENETRATION
- SEISMIC CLASSIFICATION

NOTE:

ALL PIPING ON THIS DWG. IS SEISMIC CLASS 1 EXCEPT AS NOTED

NOTE:

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

DATE 11/1/83 BY 6/2/83

REDRAWN FROM @ DWG. 685342 & 110364

INDIAN POINT NO. 3 NUCLEAR POWER PLANT

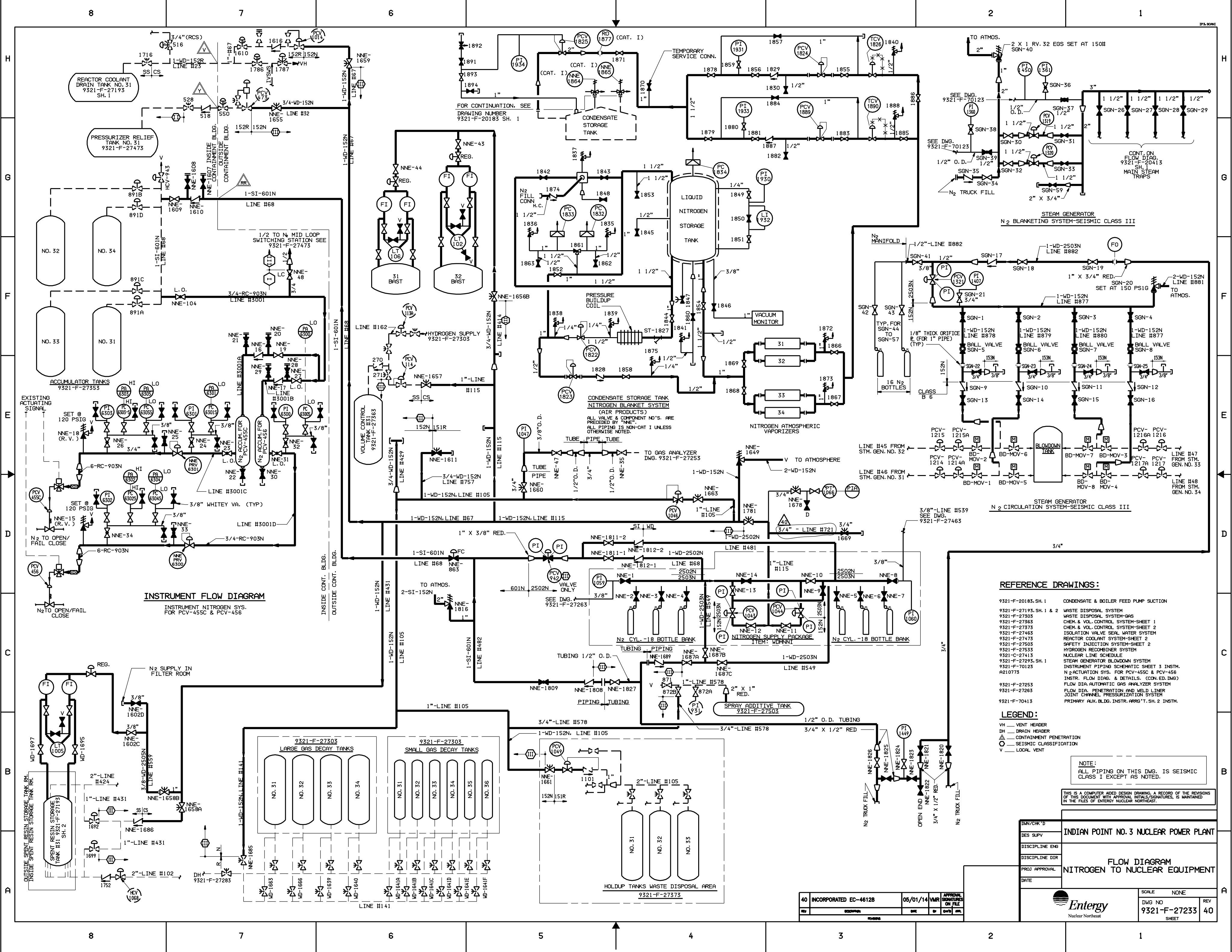
FLOW DIAGRAM
AUXILIARY COOLANT SYSTEM
INSIDE CONTAINMENT

DATE 11/1/83 BY 6/2/83

SCALE NONE

DWG NO 9321-F-27203

REV 29



REFERENCE DRAWINGS:

9321-F-20183, SH. 1 CONDENSATE & BOILER FEED PUMP SUCTION
9321-F-27193, SH. 1 & 2 WASTE DISPOSAL SYSTEM
9321-F-27303 WASTE DISPOSAL SYSTEM-GAS
9321-F-27365 CHEM. & VOL. CONTROL SYSTEM-SHEET 1
9321-F-27373 CHEM. & VOL. CONTROL SYSTEM-SHEET 2
9321-F-27463 ISOLATION VALVE SEAL WATER SYSTEM
9321-F-27473 REACTOR COOLANT SYSTEM-SHEET 2
9321-F-27503 SAFETY INJECTION SYSTEM-SHEET 2
9321-F-27533 HYDROGEN RECOMBINER SYSTEM
9321-F-27413 NUCLEAR LINE SCHEDULE
9321-F-27293, SH. 1 STEAM GENERATOR BLOWDOWN SYSTEM
9321-F-70123 INSTRUMENT PIPING SCHEMATIC SHEET 3 INSTR.
9321-F-27253 N2 ACTUATION SYS. FOR PCV-455C & PCV-456
9321-F-27263 INSTR. FLOW DIAG. & DETAILS. (CON. ED. DIAG)
9321-F-70413 FLOW DIA. AUTOMATIC GAS ANALYZER SYSTEM
9321-F-27263 FLOW DIA. PENETRATION AND WELD LINE
9321-F-70413 JOINT CHANNEL PRESSURIZATION SYSTEM
9321-F-70413 PRIMARY AUX. BLDG. INSTR. ROOM T. SH. 2 INSTR.

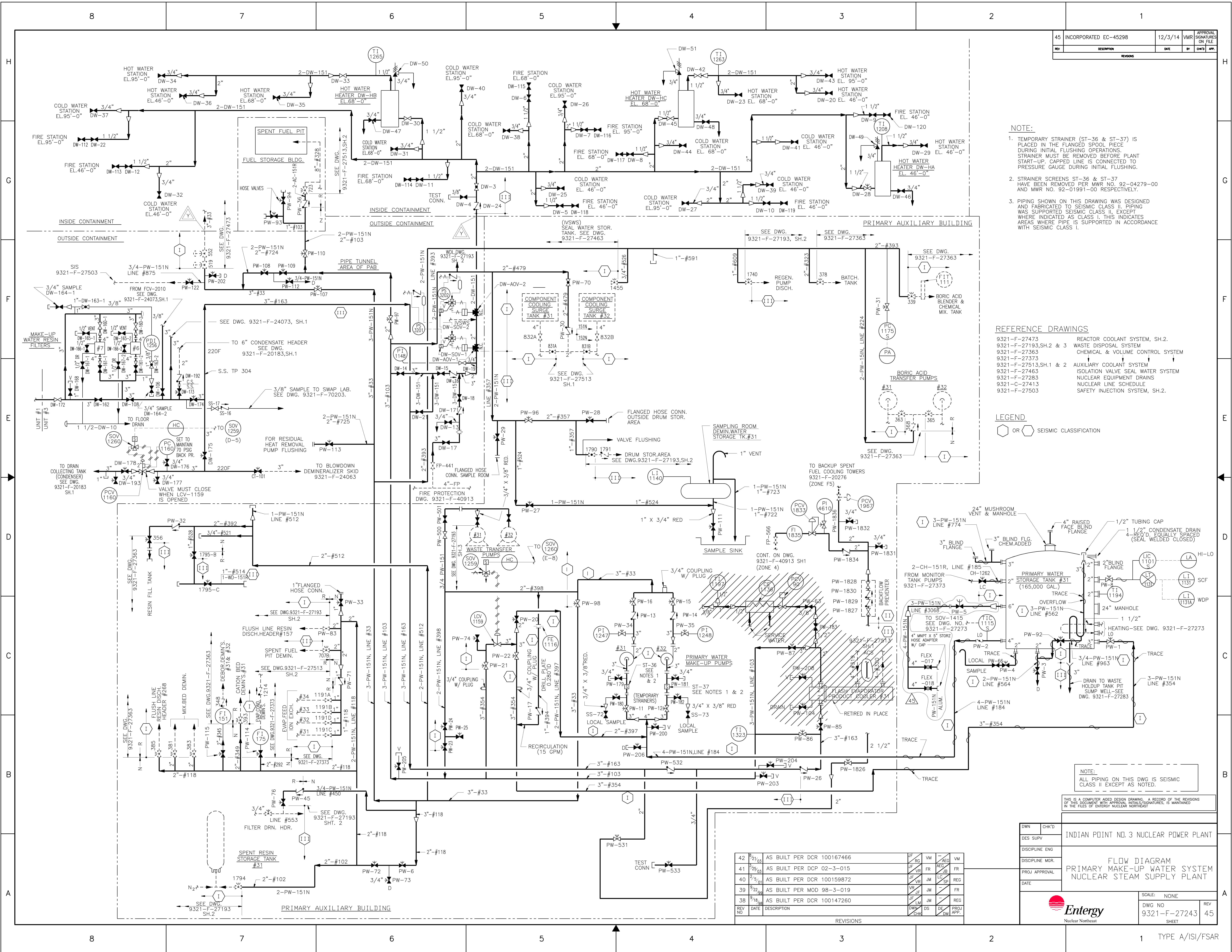
LEGEND:

VH — VENT HEADER
DH — DRAIN HEADER
△ — CONTAINMENT PENETRATION
○ — SEISMIC CLASSIFICATION
V — LOCAL VENT

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

DWN/CHK'D		DES SUPV		DISCIPLINE ENG		DISCIPLINE DIR		PROJ APPROVAL		DATE	
INDIAN POINT NO. 3 NUCLEAR POWER PLANT											
FLOW DIAGRAM											
NITROGEN TO NUCLEAR EQUIPMENT											
SCALE NONE											
DWG NO 9321-F-27233											
REV 40											
SHEET											
Entergy Nuclear Northeast											

40	INCORPORATED EC-46128	05/01/14	VMR	APPROVAL	SIGNATURE	ON FILE
REV	DESCRIPTION	DATE	BY	CHKD	APPD	



REV	DESCRIPTION	DATE	BY	CHK'D	APP.
45	INCORPORATED EC-45298	12/3/14	VMR		

- NOTE:**
- TEMPORARY STRAINER (ST-36 & ST-37) IS PLACED IN THE FLANGED SPOOL PIECE DURING INITIAL FLUSHING OPERATIONS. STRAINER MUST BE REMOVED BEFORE PLANT START-UP. CAPPED LINE IS CONNECTED TO PRESSURE GAUGE DURING INITIAL FLUSHING.
 - STRAINER SCREENS ST-36 & ST-37 HAVE BEEN REMOVED PER MWR NO. 92-04279-00 AND MWR NO. 92-01991-00 RESPECTIVELY.
 - PIPING SHOWN ON THIS DRAWING WAS DESIGNED AND FABRICATED TO SEISMIC CLASS II. PIPING WAS SUPPORTED SEISMIC CLASS II, EXCEPT WHERE INDICATED AS CLASS I. THIS INDICATES AREAS WHERE PIPE IS SUPPORTED IN ACCORDANCE WITH SEISMIC CLASS I.

- REFERENCE DRAWINGS**
- 9321-F-27473 REACTOR COOLANT SYSTEM, SH.2.
 - 9321-F-27193, SH.2 & 3 WASTE DISPOSAL SYSTEM
 - 9321-F-27363 CHEMICAL & VOLUME CONTROL SYSTEM
 - 9321-F-27373 AUXILIARY COOLANT SYSTEM
 - 9321-F-27463 ISOLATION VALVE SEAL WATER SYSTEM
 - 9321-F-27283 NUCLEAR EQUIPMENT DRAINS
 - 9321-C-27413 NUCLEAR LINE SCHEDULE
 - 9321-F-27503 SAFETY INJECTION SYSTEM, SH.2.

LEGEND

OR SEISMIC CLASSIFICATION

NOTE:

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

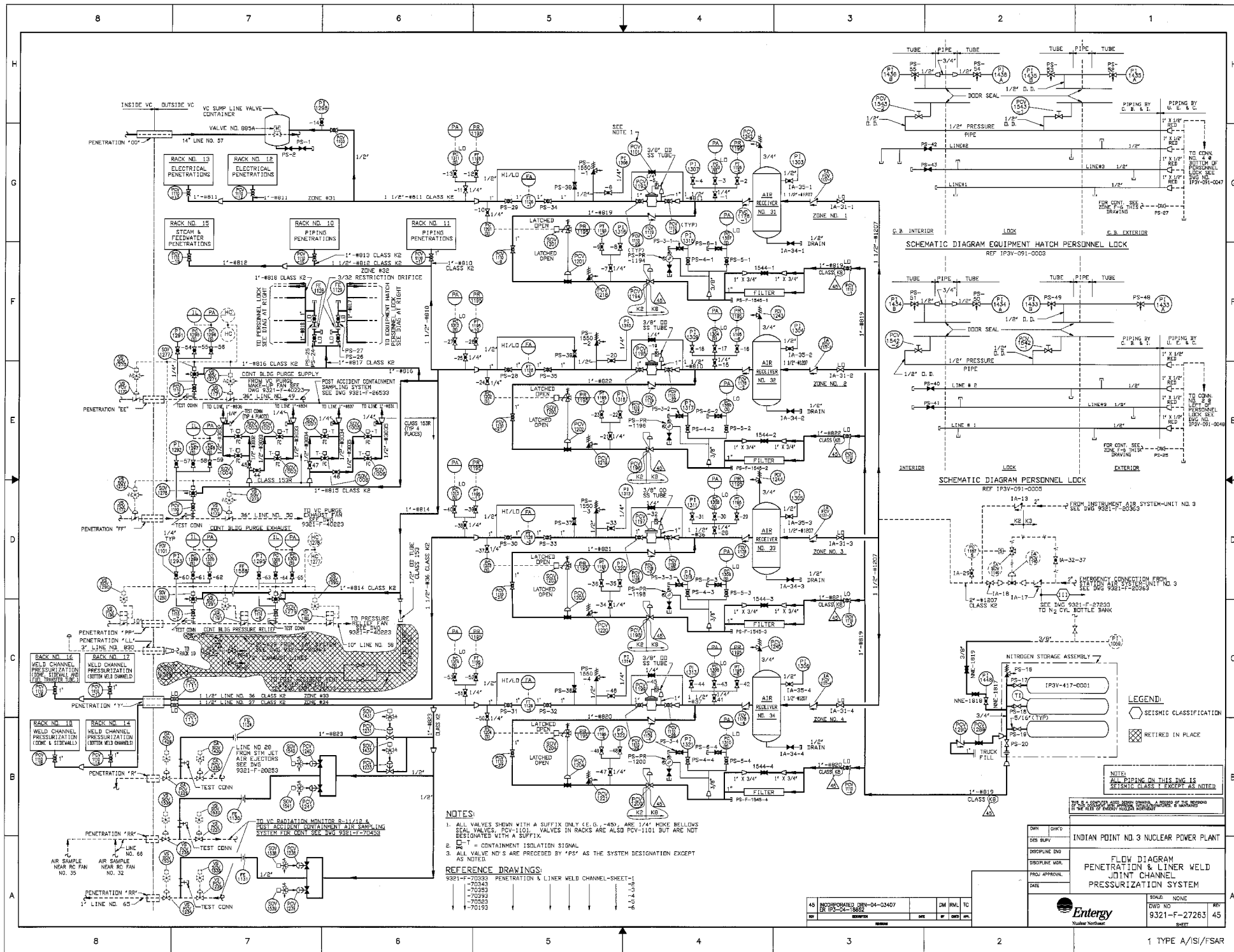
THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL INITIALS/SIGNATURES, IS MAINTAINED IN THE FILES OF ENTERGY NUCLEAR NORTHEAST

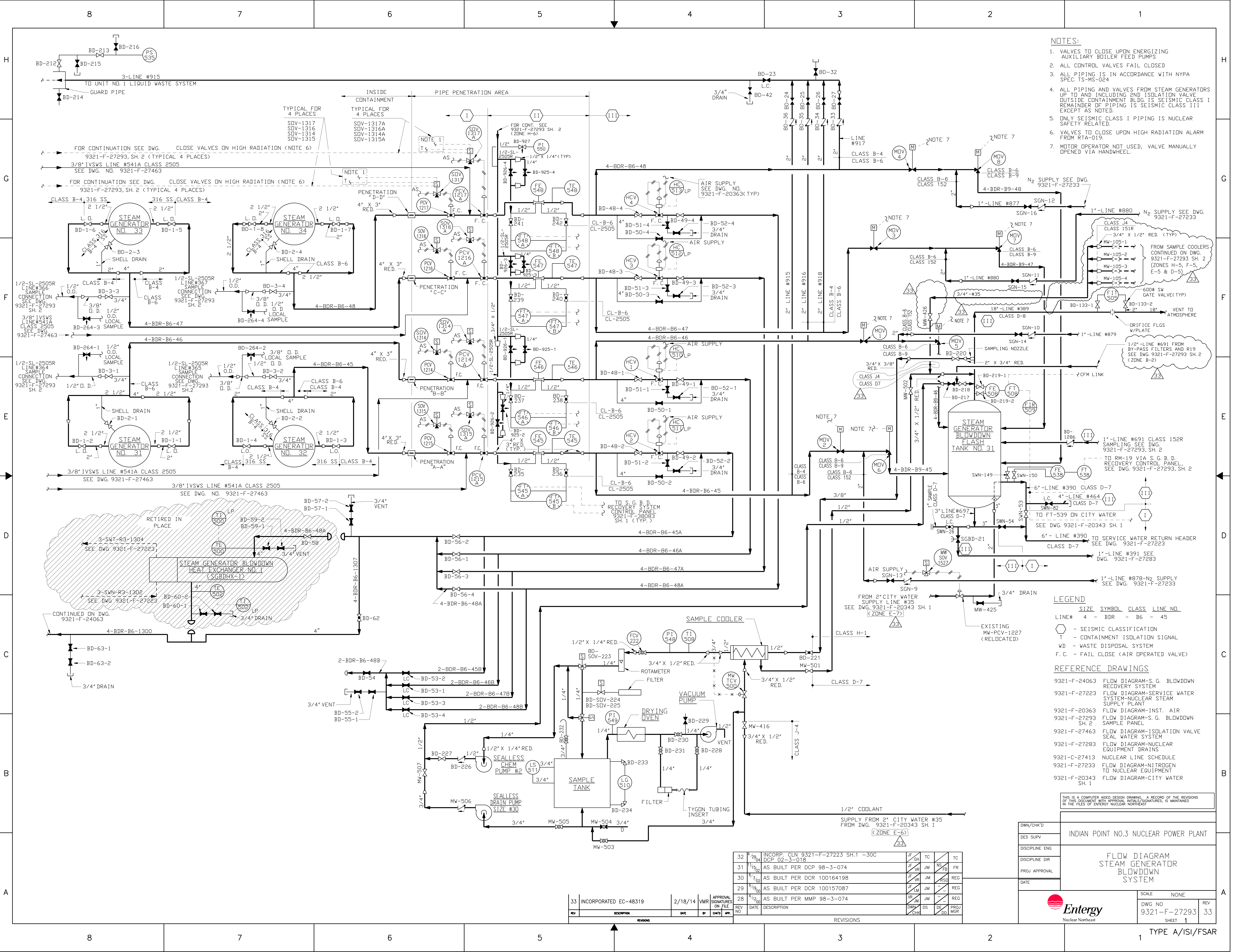
REV	DATE	DESCRIPTION	DESIGNED	CHECKED	APPROVED	DATE	DESCRIPTION	DESIGNED	CHECKED	APPROVED	DATE	DESCRIPTION
42	2/21/03	AS BUILT PER DCR 100167466	JF	RG	VM			JF	RG	VM		
41	2/25/03	AS BUILT PER DCP 02-3-015	JF	VR	FR			JF	VR	FR		
40	2/5/01	AS BUILT PER DCR 100159872	JF	VR	JM			JF	VR	JM		
39	2/22/99	AS BUILT PER MOD 98-3-019	JF	VR	JM			JF	VR	JM		
38	1/18/98	AS BUILT PER DCR 100147260	JF	LM	JM			JF	LM	JM		

DWN	CHK'D
DES SUPV	
DISCIPLINE ENG	
DISCIPLINE MGR.	
PROJ APPROVAL	
DATE	

INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
FLOW DIAGRAM	
PRIMARY MAKE-UP WATER SYSTEM	
NUCLEAR STEAM SUPPLY PLANT	
SCALE: NONE	REV
DWG NO 9321-F-27243	45
SHEET	

Entergy
Nuclear Northeast





- NOTES:
- VALVES TO CLOSE UPON ENERGIZING AUXILIARY BOILER FEED PUMPS
 - ALL CONTROL VALVES FAIL CLOSED
 - ALL PIPING IS IN ACCORDANCE WITH NYPA SPEC. TS-MS-024
 - ALL PIPING AND VALVES FROM STEAM GENERATORS UP TO AND INCLUDING 2ND ISOLATION VALVE OUTSIDE CONTAINMENT BLDG. IS SEISMIC CLASS I. REMAINDER OF PIPING IS SEISMIC CLASS III EXCEPT AS NOTED.
 - ONLY SEISMIC CLASS I PIPING IS NUCLEAR SAFETY RELATED.
 - VALVES TO CLOSE UPON HIGH RADIATION ALARM FROM RTA-019.
 - MOTOR OPERATOR NOT USED, VALVE MANUALLY OPENED VIA HANDWHEEL.

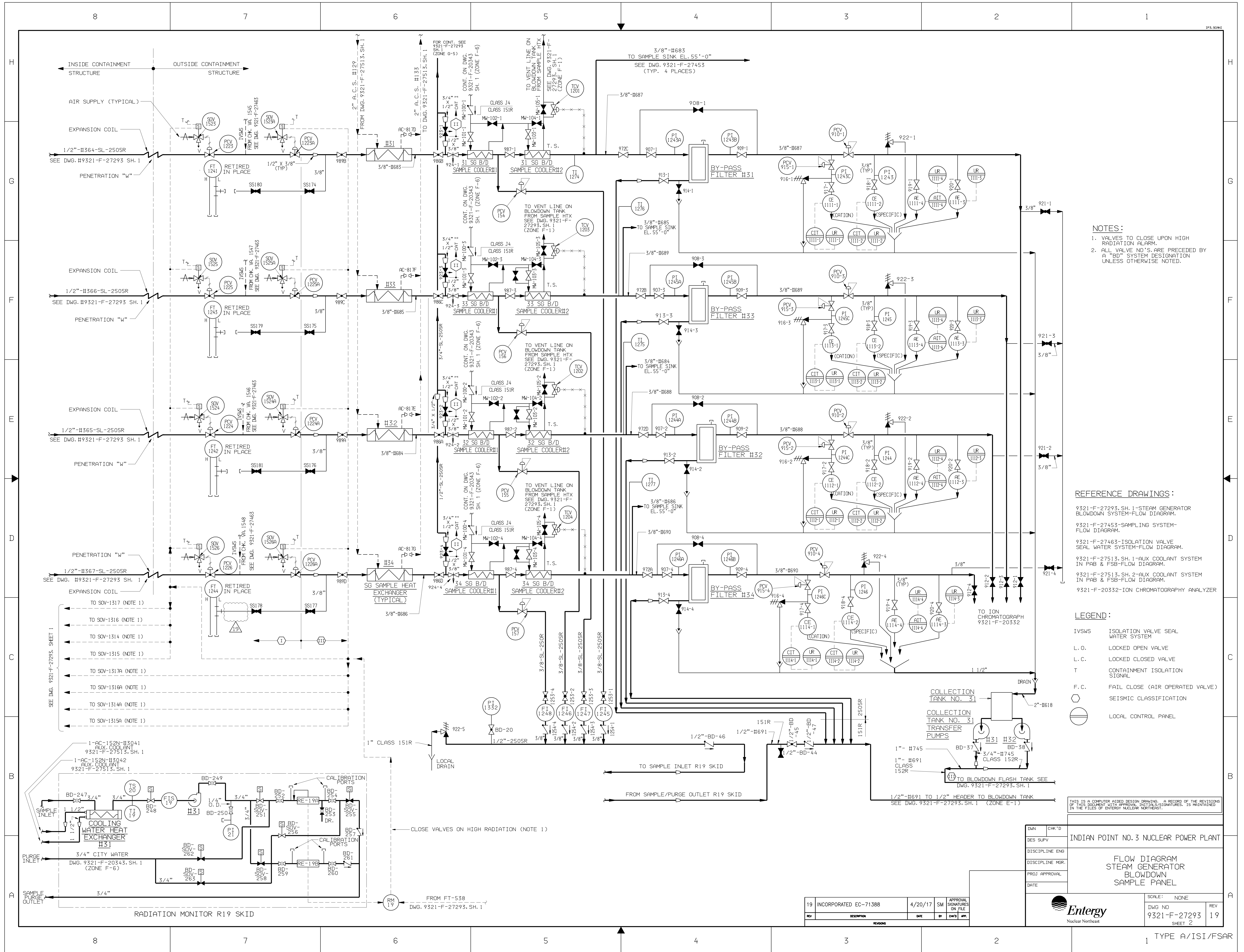
- LEGEND
- | SIZE | SYMBOL | CLASS | LINE NO. |
|------|--------|-------|----------|
| 4 | BDR | B6 | 45 |
- SEISMIC CLASSIFICATION
- CONTAINMENT ISOLATION SIGNAL
- WASTE DISPOSAL SYSTEM
- FAIL CLOSE (AIR OPERATED VALVE)
- REFERENCE DRAWINGS
- 9321-F-24063 FLOW DIAGRAM-S.G. BLOWDOWN RECOVERY SYSTEM
 - 9321-F-27223 FLOW DIAGRAM-SERVICE WATER SYSTEM-NUCLEAR STEAM SUPPLY PLANT
 - 9321-F-20363 FLOW DIAGRAM-INST. AIR
 - 9321-F-27293 SH. 2 FLOW DIAGRAM-S.G. BLOWDOWN SAMPLE PANEL
 - 9321-F-27463 FLOW DIAGRAM-ISOLATION VALVE SEAL WATER SYSTEM
 - 9321-F-27283 FLOW DIAGRAM-NUCLEAR EQUIPMENT DRAINS
 - 9321-C-27413 NUCLEAR LINE SCHEDULE
 - 9321-F-27233 FLOW DIAGRAM-NITROGEN TO NUCLEAR EQUIPMENT
 - 9321-F-20343 SH. 1 FLOW DIAGRAM-CITY WATER

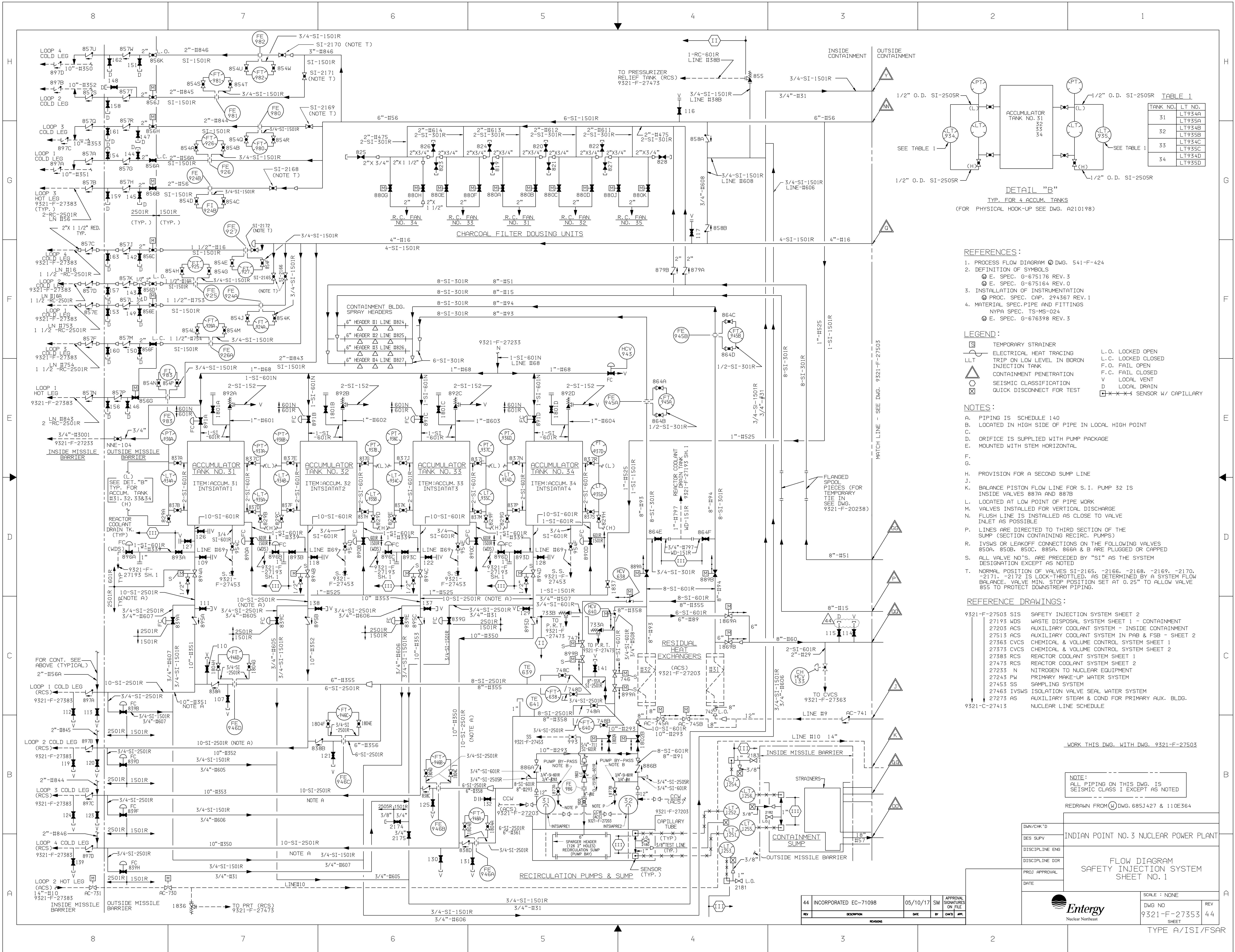
THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS OF THIS DOCUMENT WITH APPROVAL SIGNATURES, IS MAINTAINED IN THE FILES OF ENERGY NUCLEAR NORTH EAST

DWN/CHK'D	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DES. SUPV.	
DISCIPLINE ENG.	
DISCIPLINE DIR.	
PROJ. APPROVAL	
DATE	
FLOW DIAGRAM STEAM GENERATOR BLOWDOWN SYSTEM	
SCALE	NONE
DWG NO.	9321-F-27293
SHEET	1
REV	33



REV	DESCRIPTION	DATE	BY	CHKD	APP.	REV	DATE	DESCRIPTION	DWN	CHK	DES	PROJ
33	INCORPORATED EC-48319	2/18/14	VMR			28	12/20/00	AS BUILT PER MMP 98-3-074	VR	JM	DS	DD
32	INCORP. CLN 9321-F-27223 SH.1 -30C DCP 02-3-018					31	11/30/00	AS BUILT PER DCP 98-3-074	JF	VR	JM	FR
31						30	9/3/02	AS BUILT PER DCR 100164198	JF	VR	JM	REG
30						29	9/19/00	AS BUILT PER DCR 100157087	JF	VR	JM	REG
29						28	12/20/00	AS BUILT PER MMP 98-3-074	VR	JM	DS	DD





REFERENCES:

- PROCESS FLOW DIAGRAM DWG. 541-F-424
- DEFINITION OF SYMBOLS
 - E. SPEC. G-675176 REV. 3
 - E. SPEC. G-675164 REV. 0
- INSTALLATION OF INSTRUMENTATION
 - PROC. SPEC. CAP. 294367 REV. 1
- 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
- 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)
- 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

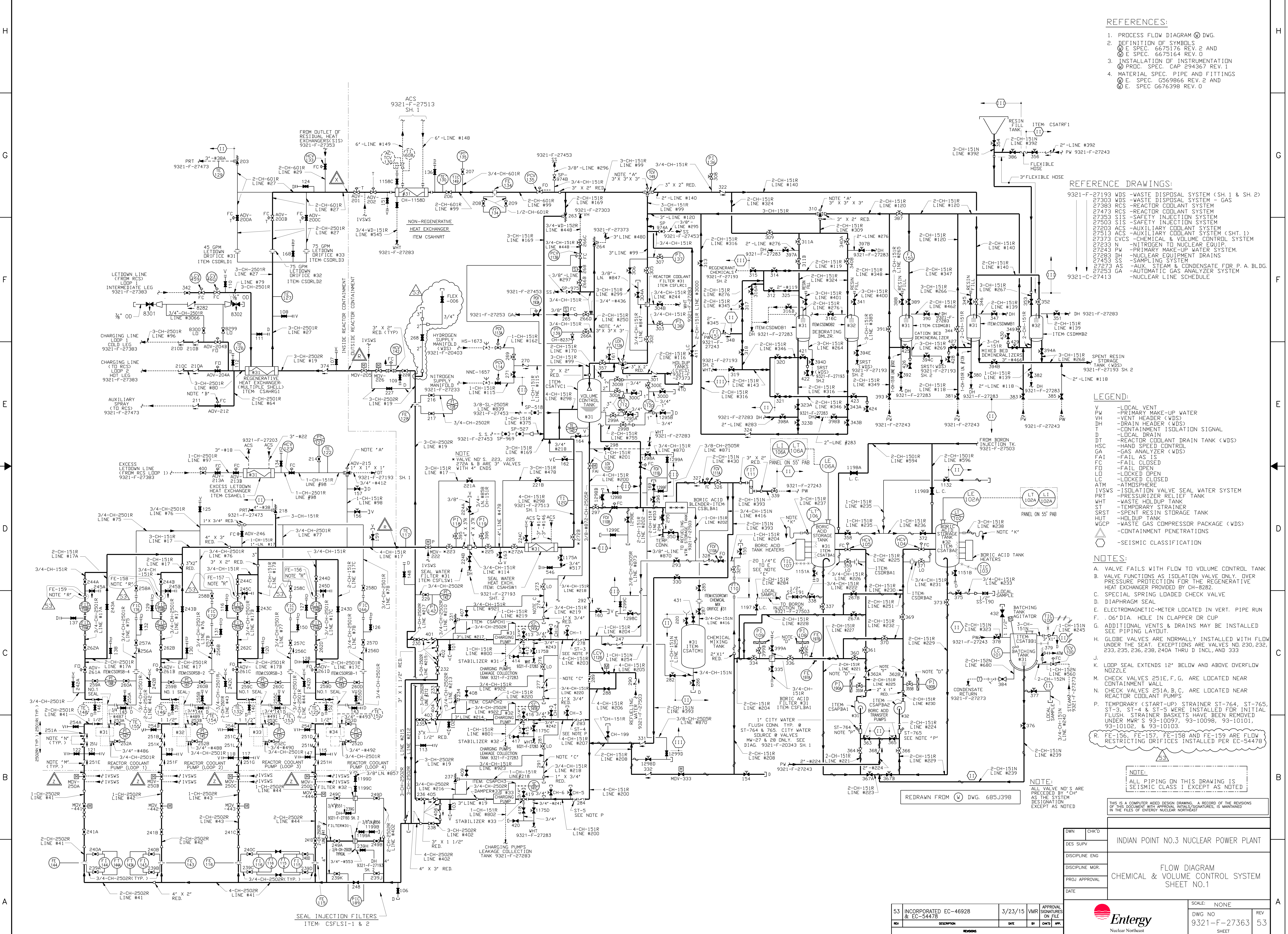
REDRAWN FROM (W) DWG. 685J427 & 110E364

INDIAN POINT NO. 3 NUCLEAR POWER PLANT

FLOW DIAGRAM
SAFETY INJECTION SYSTEM
SHEET NO. 1

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

TYPE A/ISI/FSAR



- REFERENCES:
1. PROCESS FLOW DIAGRAM (PFD) DWG.
 2. DEFINITION OF SYMBOLS
 - ① E. SPEC. 6675176 REV. 2 AND
 - ② E. SPEC. 6675164 REV. 0
 3. INSTALLATION OF INSTRUMENTATION
 - ③ PROC. SPEC. CAP 294367 REV. 1
 4. MATERIAL SPEC. PIPE AND FITTINGS
 - ④ E. SPEC. 6569866 REV. 2 AND
 - ⑤ E. SPEC. 6676398 REV. 0

- REFERENCE DRAWINGS:
- 9321-F-27193 WDS - WASTE DISPOSAL SYSTEM (SH. 1 & SH. 2)
 - 27303 N - WASTE DISPOSAL SYSTEM - GAS
 - 27383 RCS - REACTOR COOLANT SYSTEM
 - 27473 RCS - REACTOR COOLANT SYSTEM
 - 27353 SIS - SAFETY INJECTION SYSTEM
 - 27503 SIS - SAFETY INJECTION SYSTEM
 - 27203 ACS - AUXILIARY COOLANT SYSTEM
 - 27513 ACS - AUXILIARY COOLANT SYSTEM (SHT. 1)
 - 27373 CVCS - CHEMICAL & VOLUME CONTROL SYSTEM
 - 27233 N - NITROGEN TO NUCLEAR EQUIP.
 - 27243 PW - PRIMARY MAKE-UP WATER SYSTEM
 - 27283 DH - AUXILIARY EQUIPMENT DRAINS
 - 27273 AS - SAMPLING SYSTEM
 - 27253 GA - AUX. STEAM & CONDENSATE FOR P. A. BLDG.
 - 9321-C-27413 - AUTOMATIC GAS ANALYZER SYSTEM
 - 9321-F-27413 - NUCLEAR LINE SCHEDULE

- LEGEND:
- V - LOCAL VENT
 - PW - PRIMARY MAKE-UP WATER
 - DH - DRAIN HEADER (WDS)
 - WHT - WASTE HOLDUP TANK
 - IS - ISOLATION VALVE SEAL WATER SYSTEM
 - LO - LOCKED OPEN
 - LC - LOCKED CLOSED
 - ATM - ATMOSPHERE
 - ISVWS - ISOLATION VALVE SEAL WATER SYSTEM
 - PRT - PRESSURIZER RELIEF TANK
 - WHT - WASTE HOLDUP TANK
 - TEMP - TEMPORARY STRAINER
 - SRST - SPENT RESIN STORAGE TANK
 - HUT - HOLDUP TANK
 - WGCP - WASTE GAS COMPRESSOR PACKAGE (WDS)
 - CONT - CONTAINMENT PENETRATIONS
 - SEIS - SEISMIC CLASSIFICATION

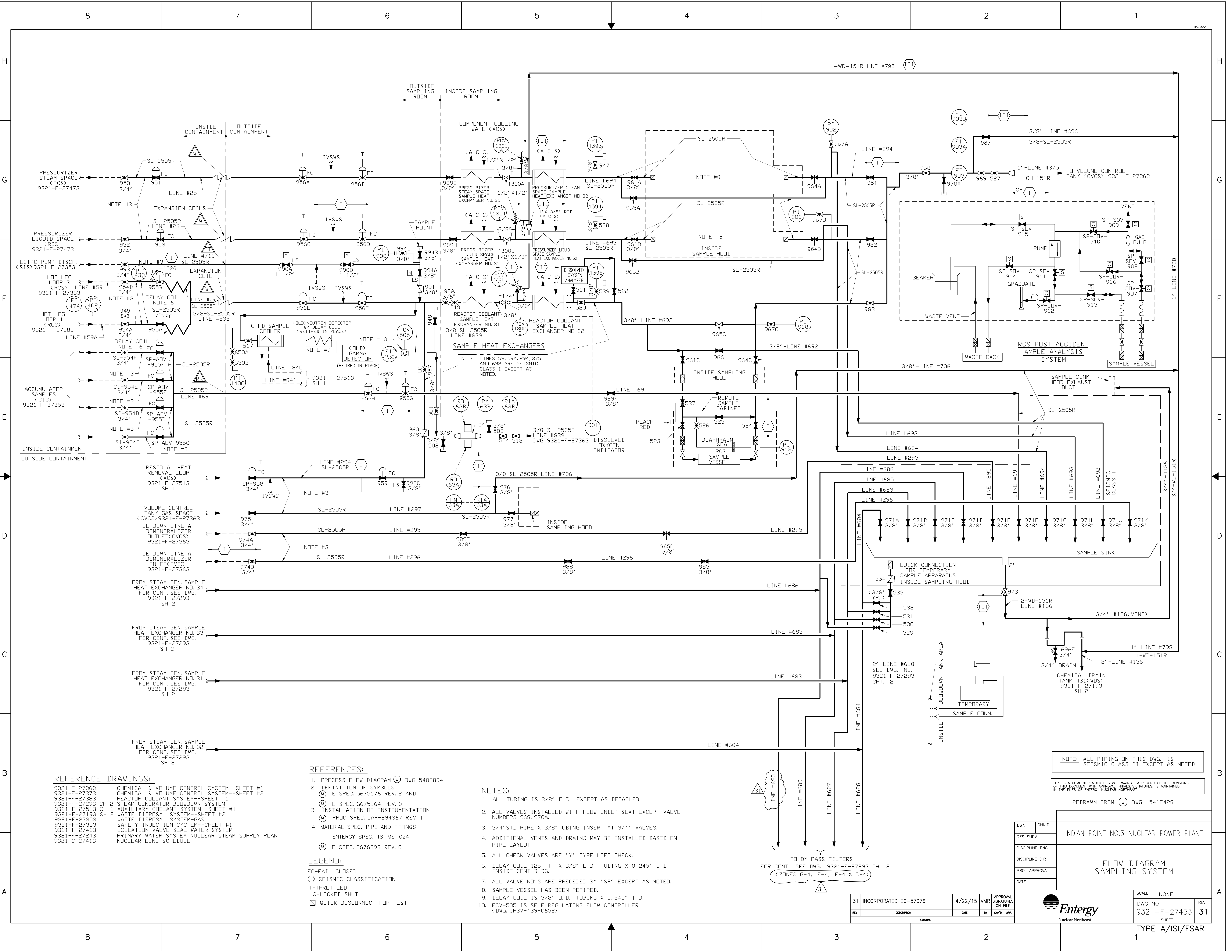
- NOTES:
- VALVE FAILS WITH FLOW TO VOLUME CONTROL TANK
 - VALVE FUNCTIONS AS ISOLATION VALVE ONLY. OVER PRESSURE PROTECTION FOR THE REGENERATIVE HEAT EXCHANGER PROVIDED BY CH-8282.
 - SPECIAL SPRING LOADED CHECK VALVE
 - DIAPHRAGM SEAL
 - ELECTROMAGNETIC-METER LOCATED IN VERT. PIPE RUN
 - 0.6" DIA. HOLE IN CLAPPER OR CUP
 - 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-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, ST-885, ST-886, ST-887, ST-888, ST-889, ST-890, ST-891, ST-892, ST-893, ST-894, ST-895, ST-896, ST-897, ST-898, ST-899, ST-900, ST-901, ST-902, ST-903, ST-904, ST-905, ST-906, ST-907, ST-908, ST-909, ST-910, ST-911, ST-912, ST-913, ST-914, ST-915, ST-916, ST-917, ST-918, ST-919, ST-920, ST-921, ST-922, ST-923, ST-924, ST-925, ST-926, ST-927, ST-928, ST-929, ST-930, ST-931, ST-932, ST-933, ST-934, ST-935, ST-936, ST-937, ST-938, ST-939, ST-940, ST-941, ST-942, ST-943, ST-944, ST-945, ST-946, ST-947, ST-948, ST-949, ST-950, ST-951, ST-952, ST-953, ST-954, ST-955, ST-956, ST-957, ST-958, ST-959, ST-960, ST-961, ST-962, ST-963, ST-964, ST-965, ST-966, ST-967, ST-968, ST-969, ST-970, ST-971, ST-972, ST-973, ST-974, ST-975, ST-976, ST-977, ST-978, ST-979, ST-980, ST-981, ST-982, ST-983, ST-984, ST-985, ST-986, ST-987, ST-988, ST-989, ST-990, ST-991, ST-992, ST-993, ST-994, ST-995, ST-996, ST-997, ST-998, ST-999, ST-1000

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

THIS IS A COMPUTER AIDED DESIGN DRAWING. A RECORD OF THE REVISIONS IN THIS DOCUMENT WITH APPROVAL INITIALS, IS MAINTAINED IN THE FILE OF ENTRY NUCLEAR NORTH EAST

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





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
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
ENTERTY SPEC. TS-MS-024
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).

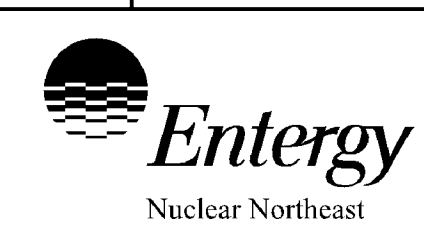
NOTE: ALL PIPING ON THIS DWG. IS SEISMIC CLASS II EXCEPT AS NOTED

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REDRAWN FROM (W) DWG. 541F428

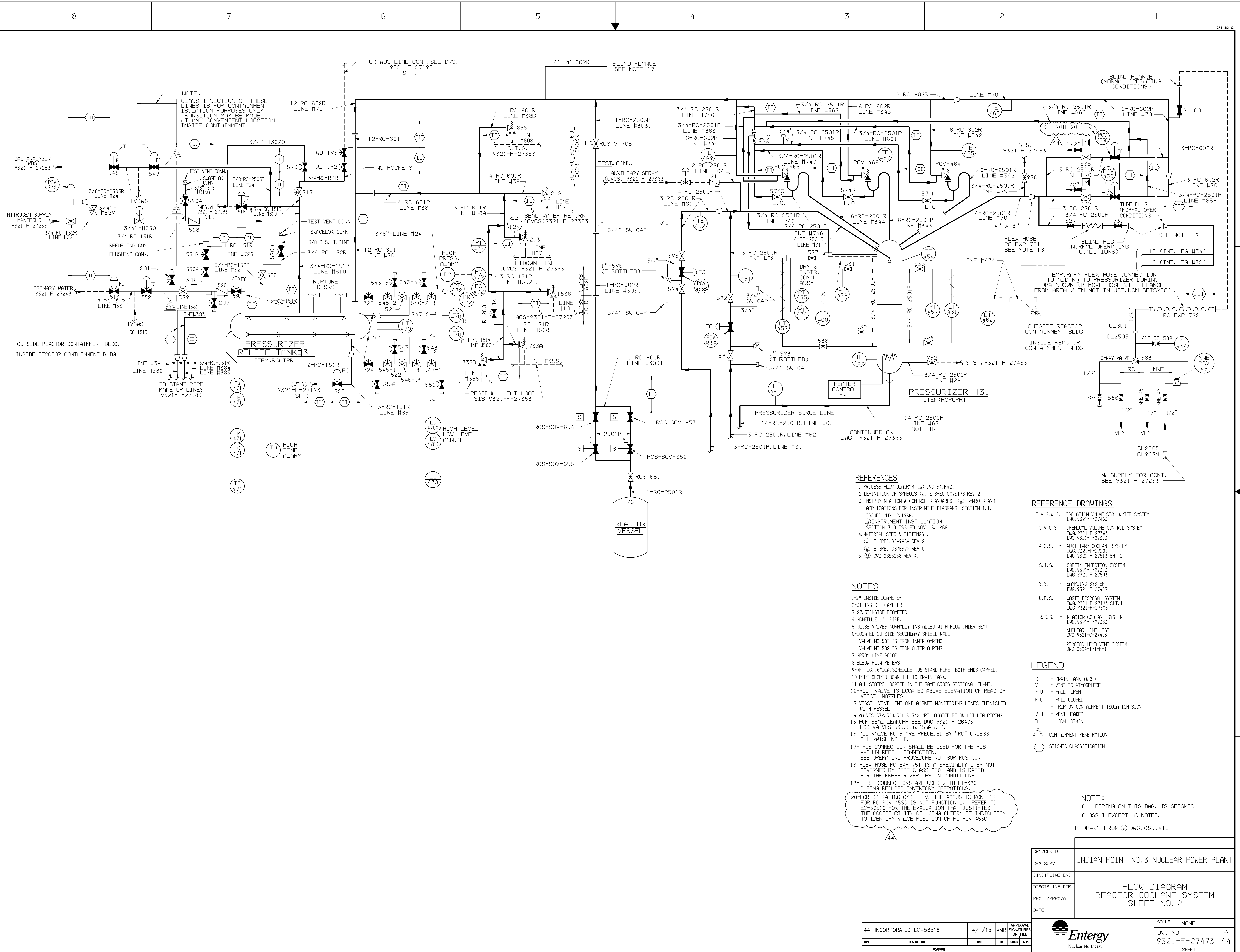
DWN	CHK'D	INDIAN POINT NO.3 NUCLEAR POWER PLANT
DES SUPV		
DISCIPLINE ENG		
DISCIPLINE DIR		
PROJ APPROVAL		
DATE		

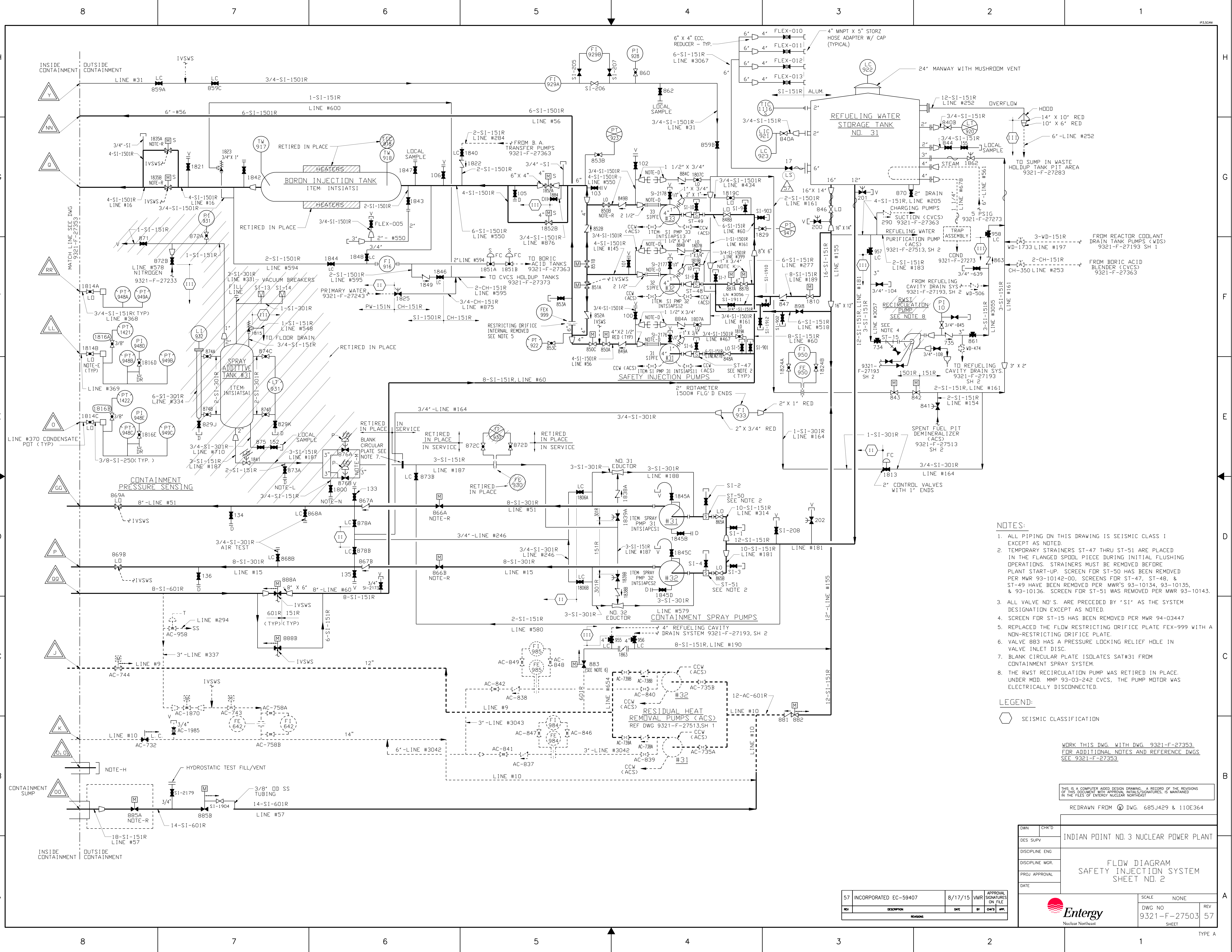
FLOW DIAGRAM
SAMPLING SYSTEM



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

REV	DESCRIPTION	DATE	BY	CHK'D	APP.
31	INCORPORATED EC-57076	4/22/15	VMR		





NOTES:

1. ALL PIPING ON THIS DRAWING IS SEISMIC CLASS I EXCEPT AS NOTED.
2. TEMPORARY STRAINERS ST-47 THRU ST-51 ARE PLACED IN THE FLANGED SPOOL PIECE DURING INITIAL FLUSHING OPERATIONS. STRAINERS MUST BE REMOVED BEFORE PLANT START-UP. SCREEN FOR ST-50 HAS BEEN REMOVED PER MWR 93-10142-00. SCREENS FOR ST-47, ST-48, & ST-49 HAVE BEEN REMOVED PER MWR'S 93-10134, 93-10135, & 93-10136. SCREEN FOR ST-51 WAS REMOVED PER MWR 93-10143.
3. ALL VALVE NO.'S ARE PRECEDED BY 'SI' AS THE SYSTEM DESIGNATION EXCEPT AS NOTED.
4. SCREEN FOR ST-15 HAS BEEN REMOVED PER MWR 94-03447
5. REPLACED THE FLOW RESTRICTING ORIFICE PLATE FEX-999 WITH A NON-RESTRICTING ORIFICE PLATE.
6. VALVE 883 HAS A PRESSURE LOCKING RELIEF HOLE IN VALVE INLET DISC.
7. BLANK CIRCULAR PLATE ISOLATES SATH31 FROM CONTAINMENT SPRAY SYSTEM.
8. THE RWST RECIRCULATION PUMP WAS RETIRED IN PLACE. UNDER MOD. MMP 93-03-242 CVCS, THE PUMP MOTOR WAS ELECTRICALLY DISCONNECTED.


WORK THIS DWG. WITH DWG. 9321-F-27353.
FOR ADDITIONAL NOTES AND REFERENCE DWGS
SEE 9321-F-27353

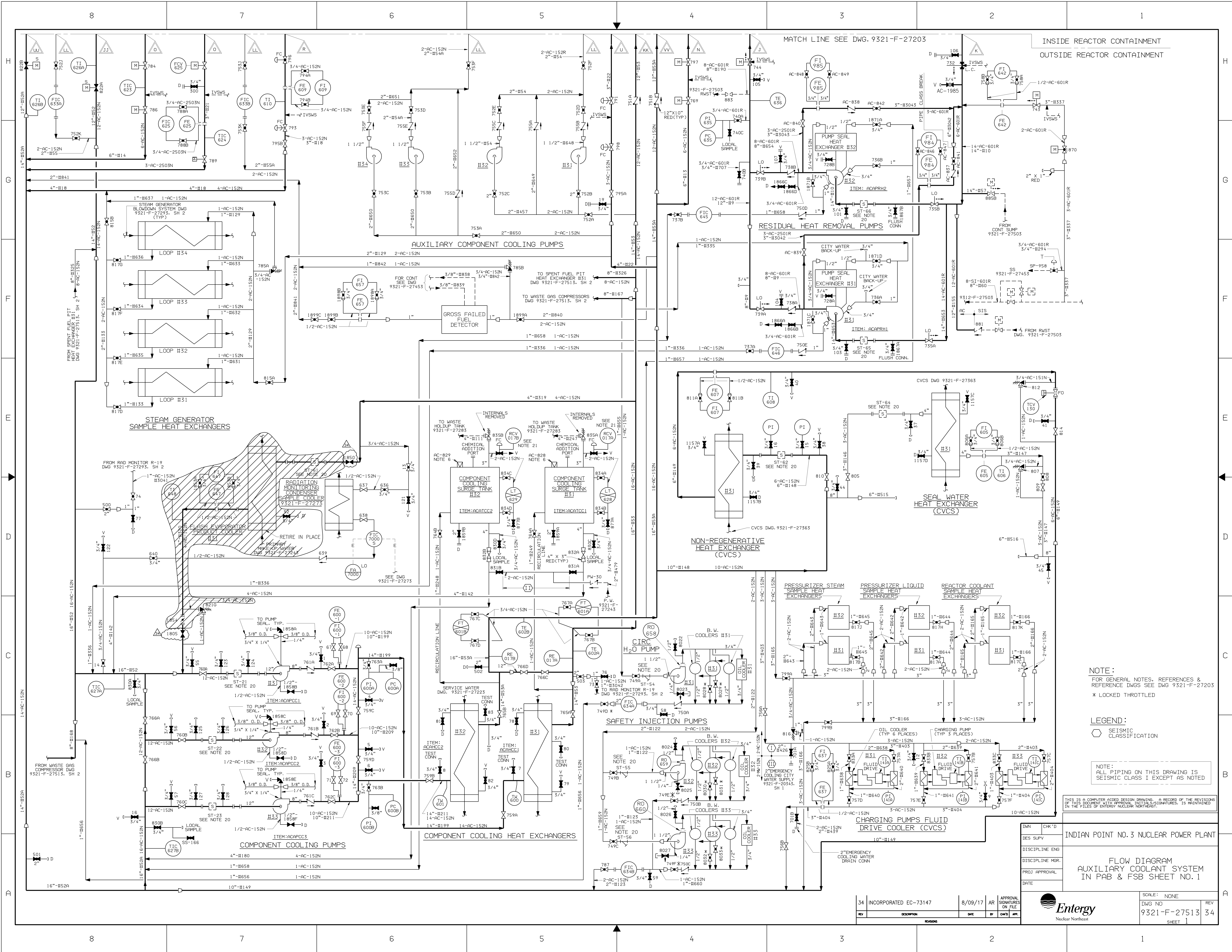
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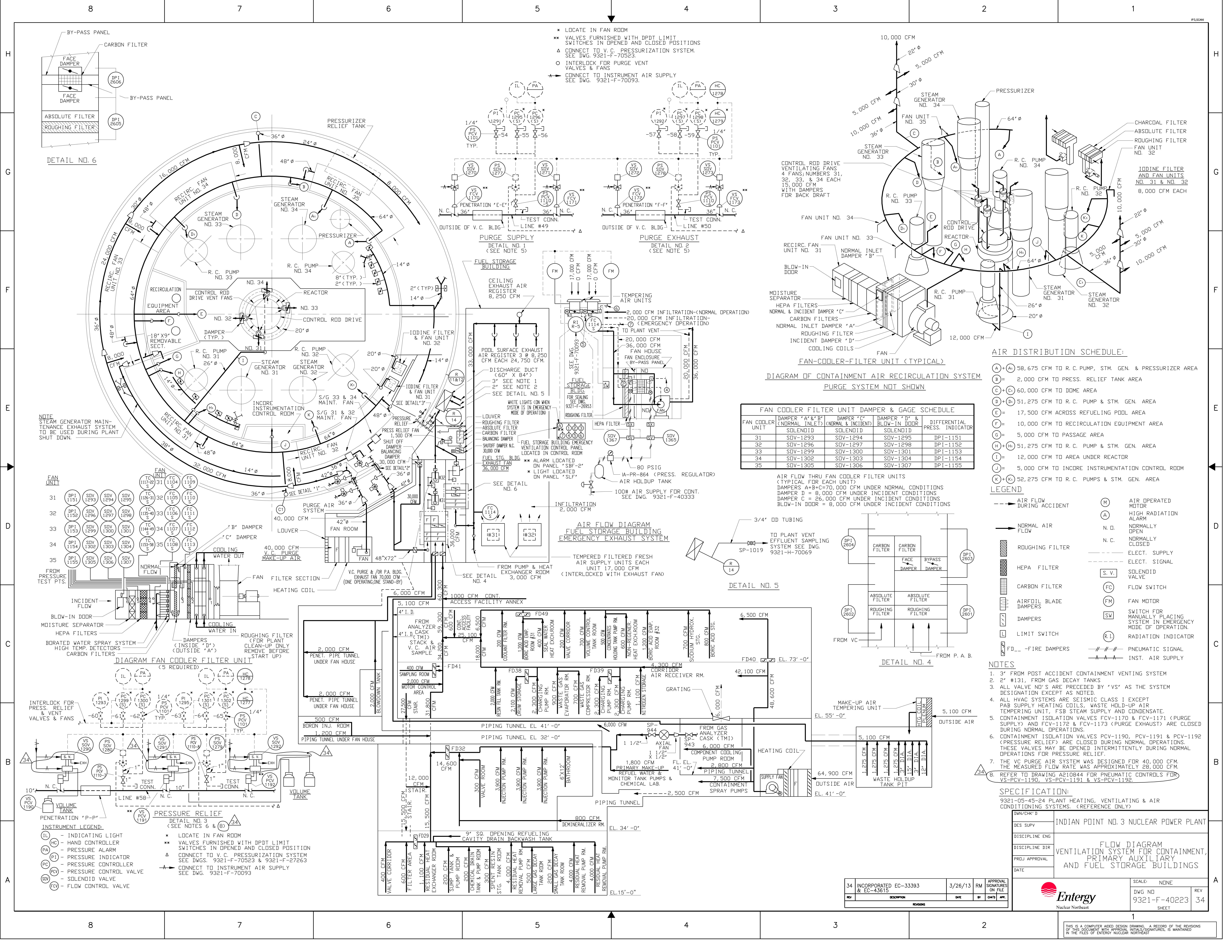
REDRAWN FROM (W) DWG. 685J429 & 110E36

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

FLOW DIAGRAM
SAFETY INJECTION SYSTEM
SHEET NO. 2

 Entergy	SCALE	NONE	
	DWG NO		REV
	9321-F-27503		57





LOCATE IN FAN ROOM
VALVES FURNISHED WITH DPDT LIMIT SWITCHES IN OPENED AND CLOSED POSITIONS
CONNECT TO V.C. PRESSURIZATION SYSTEM. SEE DWG. 9321-F-70523.
INTERLOCK FOR PURGE VENT VALVES & FANS
CONNECT TO INSTRUMENT AIR SUPPLY SEE DWG. 9321-F-70093.

AIR DISTRIBUTION SCHEDULE:

- (A)+(H) 58,675 CFM TO R.C. PUMP, STM. GEN. & PRESSURIZER AREA
- (B) = 2,000 CFM TO PRESS. RELIEF TANK AREA
- (C)+(G) 60,000 CFM TO DOME AREA
- (D)+(H) 51,275 CFM TO R.C. PUMP & STM. GEN. AREA
- (E) = 17,500 CFM ACROSS REFUELING POOL AREA
- (F) = 10,000 CFM TO RECIRCULATION EQUIPMENT AREA
- (G) = 5,000 CFM TO PASSAGE AREA
- (H)+(H) 51,275 CFM TO R.C. PUMP & STM. GEN. AREA
- (I) = 12,000 CFM TO AREA UNDER REACTOR
- (J) = 5,000 CFM TO INCORE INSTRUMENTATION CONTROL ROOM
- (K)+(K) 52,275 CFM TO R.C. PUMPS & STM. GEN. AREA

LEGEND

- AIR FLOW DURING ACCIDENT (M) AIR OPERATED MOTOR
- NORMAL AIR FLOW (A) HIGH RADIATION ALARM
- ROUGHING FILTER (N.D.) NORMALLY OPEN
- HEPA FILTER (N.C.) NORMALLY CLOSED
- CARBON FILTER (S.V.) SOLENOID VALVE
- AIRFOIL BLADE DAMPERS (FC) FLOW SWITCH
- DAMPERS (FM) FAN MOTOR
- LIMIT SWITCH (SW) SWITCH FOR MANUALLY PLACING SYSTEM IN EMERGENCY MODE OF OPERATION
- FD... - FIRE DAMPERS (R.I.) RADIATION INDICATOR
- PNEUMATIC SIGNAL
- INST. AIR SUPPLY

NOTES

- 3" FROM POST ACCIDENT CONTAINMENT VENTING SYSTEM
- 2" #131, FROM GAS DECAY TANKS
- ALL VALVE NO.'S ARE PRECEDED BY 'VS' AS THE SYSTEM DESIGNATION EXCEPT AS NOTED
- ALL HVAC SYSTEMS ARE SEISMIC CLASS 1 EXCEPT PAB SUPPLY HEATING COILS, WASTE HOLD-UP AIR TEMPERING UNIT, FSB STEAM SUPPLY AND CONDENSATE.
- CONTAINMENT ISOLATION VALVES PCV-1170 & FCV-1171 (PURGE SUPPLY) AND FCV-1172 & FCV-1173 (PURGE EXHAUST) ARE CLOSED DURING NORMAL OPERATIONS.
- CONTAINMENT ISOLATION VALVES PCV-1170, PCV-1191 & PCV-1192 (PRESSURE RELIEF) ARE CLOSED DURING NORMAL OPERATIONS. THESE VALVES MAY BE OPENED INTERMITTENTLY DURING NORMAL OPERATIONS FOR PRESSURE RELIEF.
- THE VC PURGE AIR SYSTEM WAS DESIGNED FOR 40,000 CFM. THE MEASURED FLOW RATE WAS APPROXIMATELY 28,000 CFM.
- REFER TO DRAWING A210844 FOR PNEUMATIC CONTROLS FOR VS-PCV-1190, VS-PCV-1191 & VS-PCV-1192.

SPECIFICATION

9321-05-45-24 PLANT HEATING, VENTILATING & AIR CONDITIONING SYSTEMS. (REFERENCE ONLY)

INDIAN POINT NO. 3 NUCLEAR POWER PLANT	
FLOW DIAGRAM VENTILATION SYSTEM FOR CONTAINMENT, PRIMARY AUXILIARY AND FUEL STORAGE BUILDINGS	
DATE	3/26/13
BY	CHY
APPROVED	RM
SCALE	NONE
DWG NO	9321-F-40223
SHEET	34



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