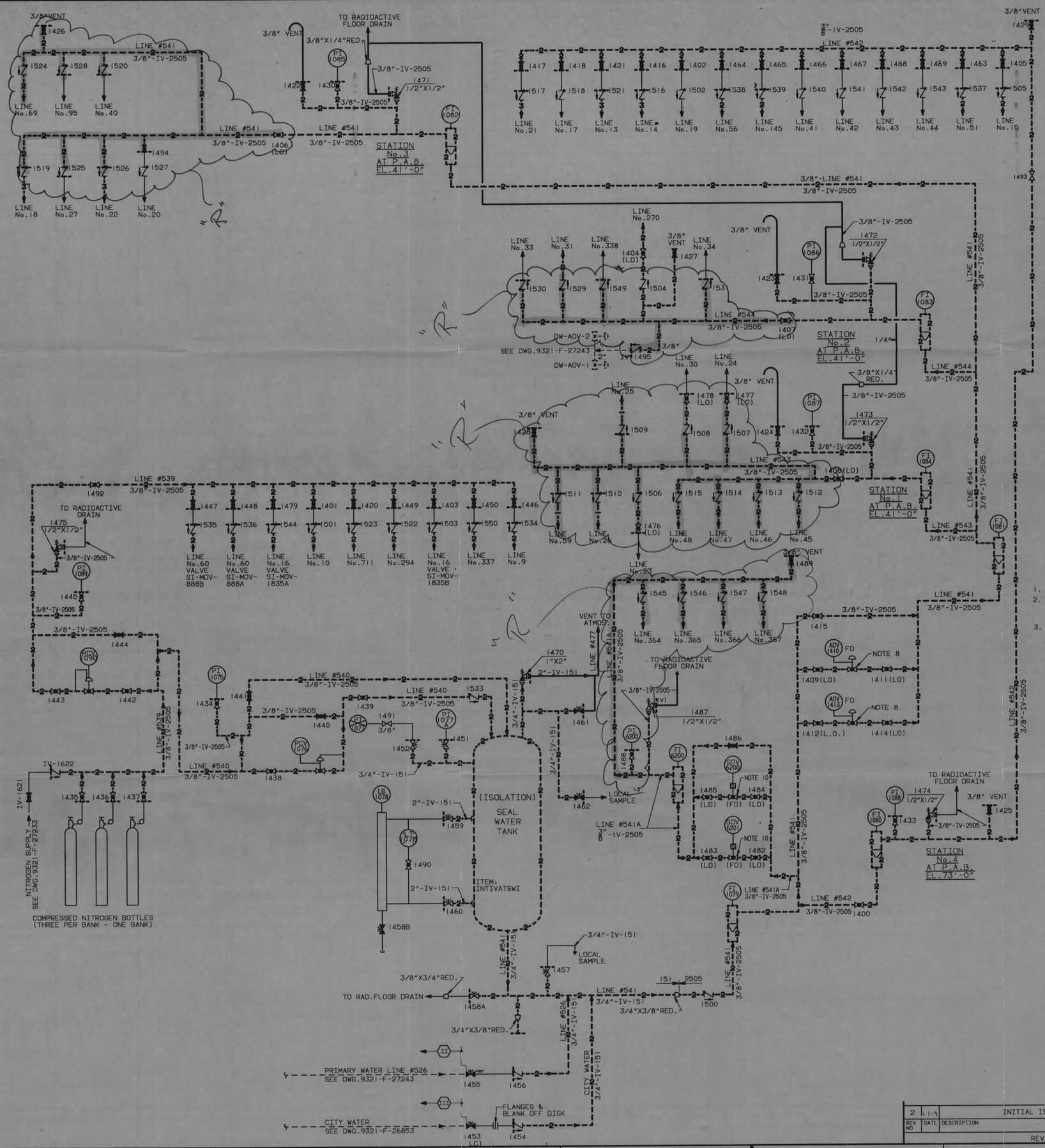

PENETRATION LIST

SEAL CONN. TO LINE No.	INJECTION POINT LOCATION	CONTAINMENT PENETRATION SLEEVE No.	LINE DESCRIPTION	INJECTION POINTS (SEE NOTE 6)	REMARKS
9	PIPE TRENCH	J	RESIDUAL HEAT REMOVAL LOOP IN	AC-MOV-744	N_2 INJ.
10	PIPE TRENCH	K	RESIDUAL HEAT REMOVAL LOOP OUT	AC-732	N_2 INJ.
337	PIPE TRENCH	NONE	RHR PUMP MINIFLOW OUT	AC-MOV-743 & AC-MOV-1870	N_2 INJ.
13	PIPE TRENCH	N	R.C. PUMPS COOLING WATER IN	AC-797	
14	PIPE TRENCH	O	R.C. PUMPS COOLING WATER OUT	AC-MOV-784	
21	PIPE TRENCH	O	R.C. PUMPS COOLING WATER OUT	AC-FCV-625	
15	PIPE TRENCH	P	CONTAINMENT SPRAY HEADER	SI-869B	
270	PIPE TRENCH	Q	SAFETY INJECTION LINE FROM BORON INJECTION TANK	SI-1833A & SI-1833B	
16	PIPE TRENCH	Q	SAFETY INJECTION LINE FROM BORON INJECTION TANK	SI-MOV-1835A	N_2 INJ.
17	PIPE TRENCH	R	R.C. PUMPS SEAL WATER RETURN	CH-MOV-222	
18	PIPE TRENCH	R	EXCESS LETDOWN HEAT EXCH. COOLING WATER RETURN	AC-AOV-793 & AC-AOV-796	
19	PIPE TRENCH	R	CHARGING LINE	CH-MOV-205 & CH-MOV-226	
20	PIPE TRENCH	S	AUXILIARY STEAM	UH-37	
95	PIPE TRENCH	T	AUXILIARY STEAM CONDENSATE	UH-38	
22	PIPE TRENCH	U	EXCESS LETDOWN HEAT EXCH. COOLING WATER SUPPLY	AC-AOV-791 & AC-AOV-798	
23	PIPE TRENCH	V	CONTAINMENT VENT HEADER	WD-AOV-1786 & WD-AOV-1787	
24	PIPE TRENCH	V	P.R.T, GAS ANALYZER LINE	RC-MOV-548 & RC-MOV-549	
25	PIPE TRENCH	W	PRESSURIZER STEAM SAMPLE	SP-AOV-956A & SP-AOV-956B	
26	PIPE TRENCH	W	PRESSURIZER LIQUID SAMPLE	SP-AOV-956C & SP-AOV-956D	
27	PIPE TRENCH	X	LETDOWN LINE	CH-AOV-201 & CH-AOV-202	
30	PIPE TRENCH	V	R.C. DRAIN TANK GAS ANALYZER LINE	WD-AOV-1788 & WD-AOV-1789	
31	PIPE TRENCH	Y	S.I.S. TEST LINE	SI-859A & SI-859C	
33	PIPE TRENCH	Y	P.R.T. MAKE-UP LINE	RC-AOV-519 & RC-AOV-552	
34	PIPE TRENCH	Y	STATION AIR	SA-24-1 & SA-24-2	
40	PIPE TRENCH	Z	R.C. DRAIN TANK PUMP DISCHARGE	WD-AOV-1702 & WD-AOV-1705	
41	PIPE TRENCH	Z	R.C. PUMP 31 SEAL INJECTION SUPPLY	CH-MOV-441 & CH-MOV-250A	
42	PIPE TRENCH	Z	R.C. PUMP 32 SEAL INJECTION SUPPLY	CH-MOV-442 & CH-MOV-250B	
43	PIPE TRENCH	Z	R.C. PUMP 33 SEAL INJECTION SUPPLY	CH-MOV-443 & CH-MOV-250C	
44	PIPE TRENCH	Z	R.C. PUMP 34 SEAL INJECTION SUPPLY	CH-MOV-444 & CH-MOV-250D	
45	PIPE TRENCH	AA	STEAM GENERATOR 32 BLOWDOWN LINE	BD-PCV-1215 & BD-PCV-1215A	
46	PIPE TRENCH	BB	STEAM GENERATOR 31 BLOWDOWN LINE	BD-PCV-1214 & BD-PCV-1214A	
47	PIPE TRENCH	CC	STEAM GENERATOR 33 BLOWDOWN LINE	BD-PCV-1216 & BD-PCV-1216A	
48	PIPE TRENCH	DD	STEAM GENERATOR 34 BLOWDOWN LINE	BD-PCV-1217 & BD-PCV-1217A	
51	PIPE TRENCH	GG	CONTAINMENT SPRAY HEADER	SI-869A	
16	IN PAB	Q	SAFETY INJECTION LINE FROM BORON INJECTION TANK	SI-MOV-1835B	N_2 INJ.
145	IN PAB	NN	SAFETY INJECTION LINE FROM SAFETY INJECTION PUMPS	SI-851A	
56	PIPE TRENCH	NN	SAFETY INJECTION LINE FROM SAFETY INJECTION PUMPS	SI-MOV-850A & SI-MOV-850C	
59	PIPE TRENCH	W	REACTOR COOLANT SAMPLE LINE	SP-AOV-956E & SP-AOV-956F	
60	PIPE TRENCH	QQ	RESIDUAL HEAT EXCH. TO SAFETY INJECTION PUMPS	SI-MOV-888A	N_2 INJ.
60	PIPE TRENCH	QQ	RESIDUAL HEAT EXCH. TO SAFETY INJECTION PUMPS	SI-MOV-888B	N_2 INJ.
69	PIPE TRENCH	RR	ACCUMULATOR SAMPLE LINE	SP-AOV-956G & SP-AOV-956H	
338	PIPE TRENCH	Y	V.C. SUMP PUMP DISCHARGE	WD-AOV-1723 & WD-AOV-1728	
364	PIPE TRENCH	W	STEAM GENERATOR 31 BLOWDOWN SAMPLE	BD-PCV-1223 & BD-PCV-1223A	
365	PIPE TRENCH	W	STEAM GENERATOR 32 BLOWDOWN SAMPLE	BD-PCV-1224 & BD-PCV-1224A	
366	PIPE TRENCH	W	STEAM GENERATOR 33 BLOWDOWN SAMPLE	BD-PCV-1225 & BD-PCV-1225A	
367	PIPE TRENCH	W	STEAM GENERATOR 34 BLOWDOWN SAMPLE	BD-PCV-1226 & BD-PCV-1226A	
711	PIPE TRENCH	TT	RECIRC. PUMP DISCHARGE SAMPLE	SP-MOV-990A & SP-MOV-990B	N_2 INJ.
294	PIPE TRENCH	NONE	RESIDUAL HEAT REMOVAL LOOP SAMPLE	AC-MOV-958 & SP-AOV-959	N_2 INJ.

REFERENCES:

1. DEFINITION OF SYMBOLS---------- (M) E.SPEC. G.675176 REV.2
2. INSTRUMENT & CONTROL STD.---------- (M) SYMBOLS & APPLICATIONS FOR INST.DIAGRAMS SECTION 1.1. ISSUED AUG.12,1966
   INSTRUMENT & CONTROL STD.---------- (M) INST.INSTALLATION: SECTION 3.0 ISSUED IN 666
3. MATERIAL SPEC. & FITTINGS---------- (M) E.SPEC. G.569866 REV.2

REFERENCE DRAWINGS

9321-C-27413-----NUCLEAR LINE SCHEDULE
9321-F-27473-----REACTOR COOLANT SYSTEM
9321-F-27363-----CHEMICAL VOLUME CONTROL SHEET No.1
9321-F-27193-----WASTE DISPOSAL SYSTEM SHEET No.1
9321-F-27503-----SAFETY INJECTION SYSTEM SHEET No.2
9321-F-27453-----SAMPLE SYSTEM
9321-F-27293-----STEAM GEN. BLOWDOWN SYSTEM
9321-F-40523-----STEAM & COND. DISTRIBUTION HEADERS SHEET No.2
9321-F-27513-----AUXILIARY COOLANT SYSTEM SHEET No.2
9321-F-27243-----PRIMARY WATER MAKE-UP SYSTEM
9321-F-27683-----ISOLATION VALVE SEAL WATER PIPING SHEET No.1
9321-F-27693-----ISOLATION VALVE SEAL WATER PIPING SHEET No.2

8911140089

SI APERTURE CARD

GENERAL NOTES

1. ALL PIPING TO BE 3/8"S.S.,O.D.TUBING (LINE DESIGNATION 3/8"-IV-2505 EXCEPT AS NOTED.
2. ADDITIONAL VENTS AND DRAINS MAY BE REQUIRED BY PIPING LAYOUT.
3. THE INDIVIDUAL SEAL WATER LINES ARE ROUTED TO THE CONTAINMENT ISOLATION POINTS BY THE VALVE NUMBERS INDICATED.
4. VALVES AOV-1410 & AOV-1413 & SOV-6200 & SOV-6201 ARE OPENED AUTOMATICALLY BY A PHASE "A" CONTAINMENT ISOLATION SIGNAL.
5. ALL VALVE No'S ARE PRECEDED BY "IV" AS THE SYSTEM DESIGNATION EXCEPT AS NOTED.
6. SEAL WATER IS INJECTED BETWEEN THE SEATS AND STEM PACKING OF SINGLE VALVES AND INTO THE PIPING. BETWEEN TWO VALVES.ONE AND TWO VALVE NO.'S ARE THEREFORE FURNISHED,RESPECTIVELY.
7. (XX) =PENETRATION NUMBER(REF.F.S.A.R.)
8. THIS DWG.SHALL BE USED ONLY FOR DETERMINING THE EXTENT OF THE INSERVICE INSPECTION BOUNDARIES.
9. BOUNDARIES SHOWN TO INCLUDE BOUNDARY VALVES WHERE APPROPRIATE.THE ACTUAL PRESSURE RETAINING I.S.I.BOUNDARIES FOR LEAKAGE AND HYDROSTATIC TESTING EXTEND ONLY TO VALVE INTERNALS THAT COMPRISE THE EFFECTIVE OBTURATOR ASSEMBLY.

LEGEND

PW -----PRIMARY WATER
F.C.-----FAIL CLOSED
⬡ -----SEISMIC CLASSIFICATION
F.O.-----FAIL OPEN
CW -----CITY WATER
LO -----LOCKED OPEN
D ------LOCAL DRAIN
LC -----LOCKED CLOSED

ISI LEGEND
---1---1--- ISI CLASS I
---2---2--- ISI CLASS II
---3---3--- ISI CLASS III

THIS ISI DWG.IS BASED ON U.E.& C.DWG.NO.9321-F-27463-14

Duplicate-Do Not Use for Design Changes

REV NO	DATE	DESCRIPTION	DWN/CHK	DS	DE/DM	PROJ APP.
2	6-1-9	INITIAL ISSUE				

REVISIONS

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

INDIAN POINT NO.3 NUCLEAR POWER PLANT

FLOW DIAGRAM
ISOLATION VALVE SEAL
WATER SYSTEM

New York Power Authority

SCALE | DWG NO ISI-27463 | REV 2 | SHEET OF

50-286
89108006 2
11/20/89