9321-F-2736

INSIDE REACTOR CONTAINMENT FOR CONTINUATION SEE DWG. A208168
OUTSIDE REACTOR CONTAINMENT

CHART B

VALVE NO	A	B	C	D	E	F
310	ZC-310-1S	ZC-310-2S	SOV-310		IA-857	
FCV-110B	ZC-FCV-110B-1S	ZC-FCV-110B-2S	SOV-110B		IA-856	
FCV-111B	ZC-FCV-111B-1S	ZC-FCV-111B-2S	SOV-111B		IA-849	
LCV-112A	ZC-LCV-112A-1S	ZC-LCV-112A-2S	SOV-112A		IA-848	
LCV-112B	ZC-LCV-112B-1S	ZC-LCV-112B-2S	SOV-112B		IA-852	
LCV-113B	ZC-PCV-113B-1S	ZC-PCV-113B-2S	SOV-113B		IA-1702	
TCV-149	ZC-TCV-149-1S	ZC-TCV-149-2S	SOV-149		IA-847	IA-1699

CHART A

FI/FE/FXE	A	B	C	D	E	F	G	H
116	239C	240C	5026	5027	5028	5029	5030	5031
115	239D	240D	5032	5033	5034	5035	5036	5037
143	239B	240B	5038	5039	5040	5041	5042	5043
144	239A	240A	5044	5045	5046	5047	5048	5049
116B	4916	4918	—	—	—	5071	5070	5069
115B	4919	4917	—	—	—	5067	5068	5066
143B	4914	4913	—	—	—	5077	5075	5076
144B	4912	4911	—	—	—	5080	5079	5078

REFERENCE DRAWINGS:

FP9321-2293 - RCS - REACTOR COOLANT SYSTEM
9321-F-2720 - ACS - AUXILIARY COOLANT SYSTEM
9321-F-2745 - SS - SAMPLING SYSTEM
9321-F-2725 - GA - GAS ANALYZER SYSTEM
9321-F-2522 - SIS - SAFETY INJECTION SYSTEM
9321-F-2719 - WDS - WASTE DISPOSAL SYSTEM (SHT.1)
9321-F-2730 - WDS - WASTE DISPOSAL SYSTEM (SHT.2)
208168 - CVCS - CHEMICAL & VOLUME CONTROL SYSTEM (SHT. 2)
235309 - CVCS - CHEMICAL & VOLUME CONTROL SYSTEM (SHT. 4)
9321-F-2737 -CVCS - CHEMICAL & VOLUME CONTROL SYSTEM (SHT. 3)
9321-F-2724 - PW - PRIMARY MAKE-UP WATER
9321-F-2728 -(DH) - NUCLEAR EQUIPMENT DRAINS
9321-C-2016 ------- FLOW DIAGRAM SYMBOLS
9321-F-2746 -IVSWS- ISOLATION VALVE SEAL WATER SYSTEM

NOTES:

A. VALVES FAILS WITH FLOW TO VOLUME CONTROL TANK.
B. SPECIAL VALVE - FUNCTIONS AS BOTH ISOLATION RELIEF VALVE.
C. SPECIAL SPRING LOADED CHECK VALVE.
E. ELECTROMAGNETIC - LOCATE METER IN VERTICAL PIPE RUN.
F. 1/8" HOLE OR 0.18" WIDE X 0.09" DEEP GROOVE IN DISC
G. ADDITIONAL VENTS & DRAINS MAY BE REQUIRED BY THE PIPE LAYOUT.
H. GLOBE VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER THE SEAT. EXCEPTIONS ARE VALVES NO. 230, 232, 233, 235, 236, 238 240A, 250A, 250B, 250C & 250D.
J. STEAM TRAP AND STRAINER SUPPLIED BY UE & C.
K. ITEM NO'S IN PARENTHESIS ARE PROCEDED BY IPP.
L. DRAIN, CHARGING PUMPS LEAKAGE COLLECTIVE SYSTEM.
M. ••• INDICATES CONTROL VALVE HAS ADDITIONAL ASSOCIATED CONTROL EQUIPMENT & IS REPRESENTED ON CONTROL VALVE HOOK-UP DETAIL DWG. 9321-F-7056.
N. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

INSERVICE INSPECTION NOTES:

1.CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2.FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP 'A', 'B' OR 'C' QUALITY GROUP 'MC' DESIGNATION SHALL BE APPLIED.

A: HI SIDE ROOT STOP
B: LO SIDE ROOT STOP
C: FXE HI SIDE ROOT STOP
D: FXE LO SIDE ROOT STOP
E: FXE EQUALIZING VALVE
F: FI HI SIDE INST. STOP
G: FI LO SIDE INST. STOP
H: FI EQUALIZING VALVE
C,D,E & F,G,H, : 3 WAY VALVE MANIFOLDS.

EVERYTHING ON THIS DRAWING (EXCLUDING THOSE PORTIONS SHOWN WITH DASHED LINES) IS PART OF THE CHEMICAL AND VOLUME CONTROL SYSTEM (CVCS) LISTED IN EXHIBIT "A" QAPD

NOTE:
FOR INSTRUMENT AIR & N_2 BACK-UP TO CHARGING PUMP CONTROLS SEE DWG.A242656

WORK THIS DWG.WITH DWG.A208168

21ZA ZINC ADDITION SKID
SEE DWG 501355

REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE CHK'D	APP.
130	INCORPORATED EC-50139	06/13/16	SJB		

REVISIONS

	F.A.	W.J.KING 1/27/88			
A.G.					
CKR.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.	
REVIEW		APPROVALS			

DATE: 1/27/88

THIS DWG. TO BE REVISED ONLY IN AUTOCAD

TITLE: FLOW DIAGRAM
CHEMICAL & VOLUME CONTROL
SYSTEM -
UFSAR FIGURE No. 9.2-1 (SHT. 1)

DRAWN BY GIBBS&HILL | SCALE NONE | REC'D

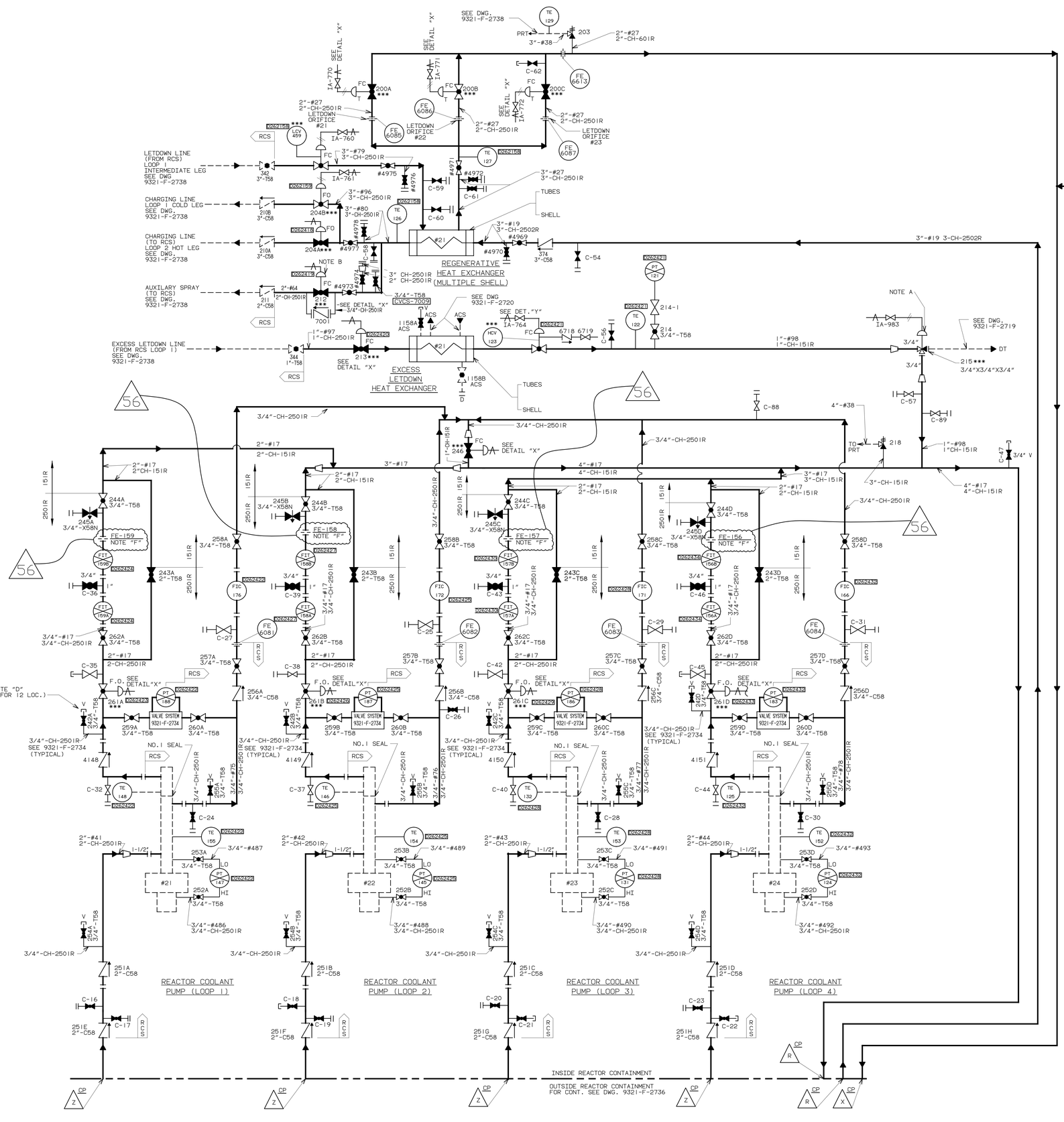
Entergy Nuclear Northeast

STATION: INDIAN POINT

DWG. NO. 9321-F-2736-130 | MY

REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE CHK'D	APP.
56	INCORPORATED EC-56002	06/13/16	SJB		

REVISIONS



VALVE NO.	A	B	C	D	E
246	ZC-246-1	ZC-246-2	SOV-246	PRV-246	IA-773
261A	ZC-261A-1S	ZC-261A-2S	SOV-261A	PRV-261A	IA-766
261B	ZC-261B-1S	ZC-261B-2S	SOV-261B	PRV-261B	IA-767
261C	ZC-261C-1S	ZC-261C-2S	SOV-261C	PRV-261C	IA-768
261D	ZC-261D-1S	ZC-261D-2S	SOV-261D	PRV-261D	IA-769
212	ZC-212-1S	ZC-212-2S	SOV-212	PRV-212	IA-1312
213	ZC-213-1S	ZC-213-2S	SOV-213	PRV-213	IA-765
200A	ZC-200A-1	ZC-200A-2	SOV-200A	PRV-200A	IA-770
200B	ZC-200B-1	ZC-200B-2	SOV-200B	PRV-200B	IA-771
200C	ZC-200C-1	ZC-200C-2	SOV-200C	PRV-200C	IA-772
215	ZC-215-1	ZC-215-2	SOV-215	PRV-215	IA-983
204A	ZC-204A-1	ZC-204A-2	SOV-204A	PRV-204A	IA-762
204B	ZC-204B-1	ZC-204B-2	SOV-204B	PRV-204B	IA-761
LCV-459	ZC-LCV-459-1	ZC-LCV-459-2	SOV-459	PRV-LCV-459	IA-760

DETAIL "X"

DETAIL "Y"

NOTES

A. VALVE FAILS WITH FLOW TO VOLUME CONTROL TANK
B. SPECIAL VALVE-FUNCTIONS AS BOTH ISOLATION & RELIEF VALVE.
C. *** INDICATES CONTROL VALVE HAS ADDITIONAL ASSOCIATED CONTROL EQUIPMENT & IS REPRESENTED ON CONTROL VALVE HOOK-UP DETAIL DRAWING 9321-F-7056.
D. FOR CONTINUATION SEE DWG. 9321-F-2734 (TYP. FOR 12 LOC.)
E. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

56 F. FE-156, FE-157, FE-158, AND FE-159 ARE FLOW RESTRICTION ORIFICES INSTALLED PER EC 56002.

INSERVICE INSPECTION NOTES:

1. CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2. FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP 'A', 'B' OR 'C' QUALITY GROUP 'MC' DESIGNATION SHALL BE APPLIED.

WORK THIS DRAWING WITH DWG. 9321-F-2734 AND DWG. 9321-F-2736

EVERYTHING ON THIS DRAWING (EXCLUDING THOSE PORTIONS WITH DASHED LINES) IS PART OF THE CHEMICAL AND VOLUME CONTROL SYSTEM (CVCS) LISTED IN EXHIBIT A, C1-240-1 EXCEPT AS SPECIFICALLY INDICATED HEREIN

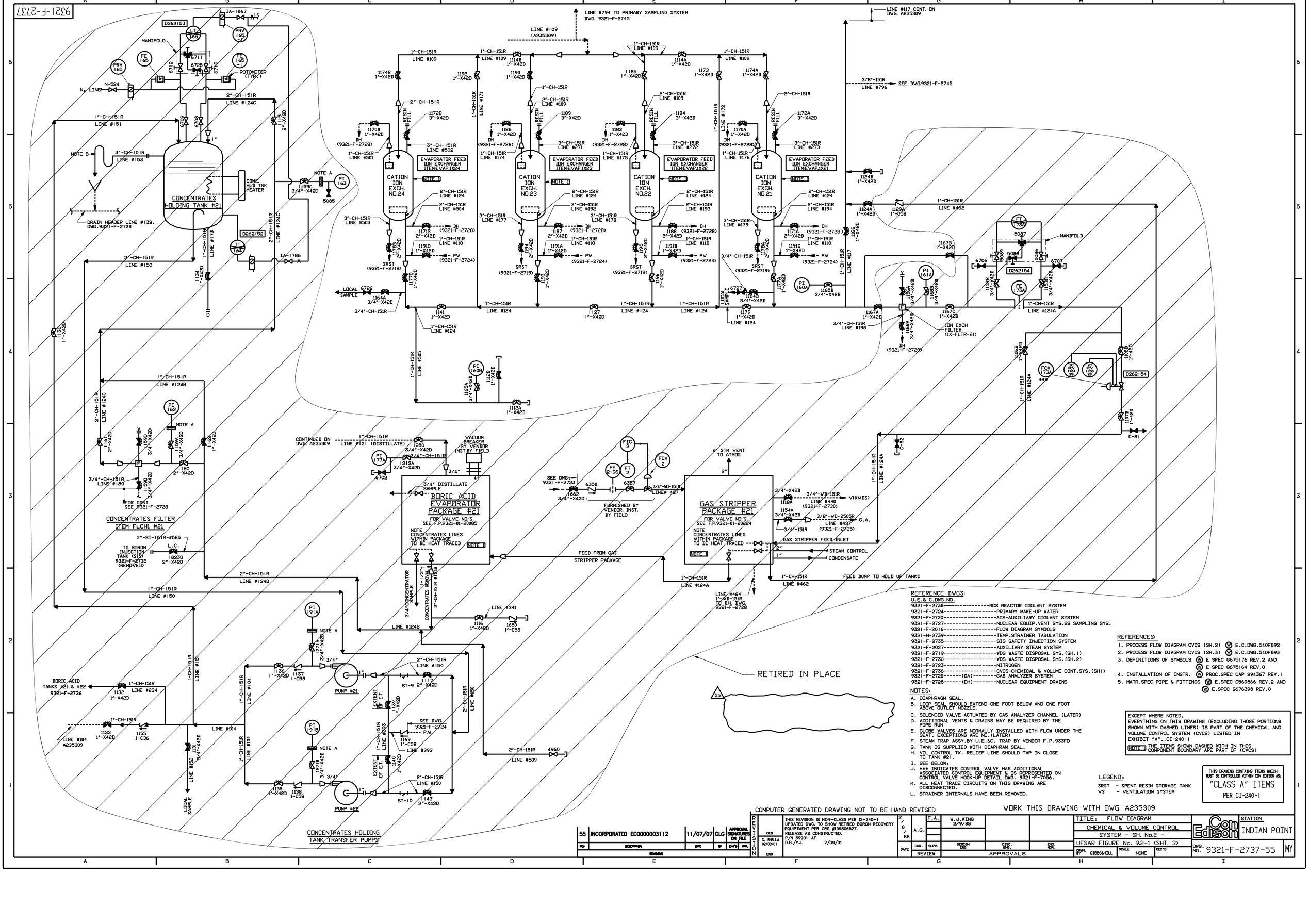
RCS REACTOR COOLANT SYSTEM

REF. DWG:

9321-C-2016	FLOW DIAGRAM SYMBOLS
9321-F-2538	CONTAINMENT BLDG PRIMARY COOLANT PRESSURIZER PIPING PLAN (SOUTH HALF)
9321-F-2734	PIPING AT REACTOR COOLANT PUMPS

DWG. NO.	A208168-56
DWG. SIZE	A
DWG. TYPE	COMPANY
STATION	INDIAN POINT
BORO:	WESTCHESTER
TITLE:	FLOW DIAGRAM
	CHEMICAL & VOLUME CONTROL SYSTEM
	UFSAR FIGURE No. 9.2-1 (SHT. 2)
	APPROVALS
	ENGINEERING
ENGINEER MANAGER:	
DISCIPLINE ENGINEER:	
	DESIGN
DESIGN MANAGER:	W.J. KING 11-6-87
DESIGN SUPERVISOR:	F.A. 8-17-90
DRAWN BY:	MARZULLO 8-17-90
DESIGN CHECKER:	L.H. 8-17-90
SCALE:	NONE
DISCIPLINE CODE:	MY

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED



REFERENCE DWGS:

U.E.& C.DWG.NO.

9321-F-2738----------RCS REACTOR COOLANT SYSTEM
9321-F-2724----------PRIMARY MAKE-UP WATER
9321-F-2720----------ACS-AUXILIARY COOLANT SYSTEM
9321-F-2727----------NUCLEAR EQUIP.VENT SYS.SS SAMPLING SYS.
9321-F-2016----------FLOW DIAGRAM SYMBOLS
9321-H-2739----------TEMP.STRAINER TABULATION
9321-F-2735----------SIS SAFETY INJECTION SYSTEM
9321-F-2027----------AUXILIARY STEAM SYSTEM
9321-F-2719----------WDS WASTE DISPOSAL SYS.(SH.1)
9321-F-2730----------WDS WASTE DISPOSAL SYS.(SH.2)
9321-F-2723----------NITROGEN
9321-F-2736----------CVCS-CHEMICAL & VOLUME CONT.SYS.(SH1)
9321-F-2726------(GA)------GAS ANALYZER SYSTEM
9321-F-2728------(DH)------NUCLEAR EQUIPMENT DRAINS

NOTES:

A. DIAPHRAGM SEAL.
B. LOOP SEAL SHOULD EXTEND ONE FOOT BELOW AND ONE FOOT ABOVE OUTLET NOZZLE.
C. SOLENOID VALVE ACTUATED BY GAS ANALYZER CHANNEL (LATER)
D. ADDITIONAL VENTS & DRAINS MAY BE REQUIRED BY THE PIPE RUN
E. GLOBE VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER THE SEAT. EXCEPTIONS ARE NC.(LATER)
F. STEAM TRAP ASSY.BY U.E.&C. TRAP BY VENDOR F.P.933FD
G. TANK IS SUPPLIED WITH DIAPHRAM SEAL.
H. VOL CONTROL TK. RELIEF LINE SHOULD TAP IN CLOSE TO TANK #21.
I. SEE BELOW:
J. *** INDICATES CONTROL VALVE HAS ADDITIONAL ASSOCIATED CONTROL EQUIPMENT & IS REPRESENTED ON CONTROL VALVE HOOK-UP DETAIL DWG. 9321-F-7056.
K. ALL HEAT TRACE CIRCUITS ON THIS DRAWING ARE DISCONNECTED.
L. STRAINER INTERNALS HAVE BEEN REMOVED.

REFERENCES:

1. PROCESS FLOW DIAGRAM CVCS (SH.2) (W) E.C.DWG.540F892
2. PROCESS FLOW DIAGRAM CVCS (SH.3) (W) E.C.DWG.540F893
3. DEFINITIONS OF SYMBOLS (W) E SPEC G675176 REV.2 AND (W) E SPEC G675164 REV.0
4. INSTALLATION OF INSTR. (W) PROC.SPEC CAP 294367 REV.1
5. MATR.SPEC PIPE & FITTINGS (W) E.SPEC G569866 REV.2 AND (W) E.SPEC G676398 REV.0

EXCEPT WHERE NOTED, EVERYTHING ON THIS DRAWING (EXCLUDING THOSE PORTIONS SHOWN WITH DASHED LINES) IS PART OF THE CHEMICAL AND VOLUME CONTROL SYSTEM (CVCS) LISTED IN EXHIBIT "A",.CI-240-1

NOTE 1 THE ITEMS SHOWN DASHED WITH IN THIS COMPONENT BOUNDARY ARE PART OF (CVCS)

LEGEND:

SRST - SPENT RESIN STORAGE TANK
VS - VENTILATION SYSTEM

THIS DRAWING CONTAING ITEMS WHICH MUST BE CONTROLLED WITHIN CON EDISON AS: "CLASS A" ITEMS PER CI-240-1

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

WORK THIS DRAWING WITH DWG. A235309

REVISION	DES					
REV	DESCRIPTION	DATE	BY	CHK'D	APPR.	
55	INCORPORATED EC0000003112	11/07/07	CLG	APPROVAL SIGNATURES ON FILE		
	THIS REVISION IS NON-CLASS PER CI-240-1 UPDATED DWG. TO SHOW RETIRED BORON RECOVERY EQUIPTMENT PER CRS #199806527. RELEASE AS CONSTRUCTED. P/N 69901-AF D.B./Y.J. 2/09/01	G. BHALLA 02/09/01	ENG			

DATE	2/8/88	F.A.	W.J.KING 2/9/88		
		A.G.			
	DR.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
	REVIEW	APPROVALS			

TITLE:	FLOW DIAGRAM CHEMICAL & VOLUME CONTROL SYSTEM - SH. No.2 - UFSAR FIGURE No. 9.2-1 (SHT. 3)	STATION	INDIAN POINT
DRWN. BY	GIBBSHILL	SCALE	NONE
REC'D		DWG. NO.	9321-F-2737-55
			MY

MECHANICAL

A235309

RETIRED IN PLACE

FOR CONT SEE DWG 9321-F-2719

REGENERANT CHEMICALS

FOR CONT SEE DWG 9321-F-2724

EVAPORATOR CONDENSATE DEMINERALIZERS

#21

#22

RESIN FILL CONN.

NOTE B

REACTOR COOLANT LETDOWN CVCS (VOLUME CONTROL TANK) DWG 9321-F-2736

FOR CONT SEE DWG 9321-F-2736

REACTOR COOLANT DRAIN PUMP

FOR CONT SEE DWG 9321-F-2719

RETIRED IN PLACE

FOR CONT. SEE DWG. 9321-F-2737

BORIC ACID BLENDER OR SPENT FUEL PIT TEMP. DRAIN

FE 3000

FI 3000

FE 3001

FI 3001

FOR CONT SEE DWG 9321-F-2719

SRST (WDS)

W.H.T.

FOR CONT SEE 9321-F-2728

LOCAL SAMPLE

CONDENSATE FILTER ITEM NO.22

CONDENSATE FILTER ITEM NO.21

SAMPLE/DRAIN

EXT. OF E.T. (DISCONNECTED)

RETIRED IN PLACE

MONITOR TANK #21 RETIRED IN PLACE

MONITOR TANK #22 RETIRED IN PLACE

MONITOR TANK #23 RETIRED IN PLACE

HEATER

NOTE "G"

6"-OVERFLOW BY TANK FAB.

E.T. DISCONNECTED (TYP. FOR MONITOR TK'S. 21,22,&23)

MONITOR TANK PUMPS RETIRED IN PLACE

ELECT. TRACE (DISCONNECTED)

PRIMARY WATER STORAGE TANK DWG 9321-F-2724

PREVIOUSLY RETIRED IN PLACE

TO WASTE HOLD-UP TANK VIA #261

2"LINE #261 DWG 9321-F-2719

RETIRED IN PLACE

2" LINE # 109 DWG. 9321-F-2737

LINE # 794 TO PRIMARY SAMPLING SYSTEM DWG. 9321-F-2745

UNIT #2 WASTE TRANSFER PUMP DISCH. SEE DWG. A188852

CVCS HOLDUP TANK TRANSFER PUMPS

DRIP PAN (TYP)

DRAIN

HOLD-UP TANK #21

HOLD-UP TANK #22

HOLD-UP TANK #23

RECIRCULATION PUMP

SPOOL PIECE FOR TEMP. STRAINTO BE REMOVED UPON COMPLETION OF TEST PRIOR TO START UP.

NOTE "L"

SEE NOTE H

FOR CONTINUATION SEE DWG. 9321-F-2723

EXCEPT WHERE NOTED, EVERYTHING ON THIS DRAWING (EXCLUDING THOSE PORTIONS SHOWN WITH DASHED LINES) IS PART OF THE CHEMICAL AND VOLUME CONTROL SYSTEM (CVCS) LISTED IN EXHIBIT "A", CI-240-1

NOTE 1 THE ITEMS SHOWN DASHED WITHIN THIS COMPONENT BOUNDARY ARE PART OF (CVCS)

NOTE;

SEE DWG. 9321-F-2737 FOR ALL NOTES, REFERENCES AND LEGEND

THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

* FOR CONTINUATION SEE DWG. 9321-F-2730

WORK THIS DRAWING WITH 9321-F-2737

37

REVISION	DESCRIPTION	DATE	BY	CHK'D	APP.
37	INCORPORATED EC 16545	8/05/09	VMR	APPROVAL SIGNATURES ON FILE	
	G. BHALLA 03/12/01 ENG	THIS REVISION IS NON-CLASS PER CI-240-1. UPDATED DWG. TO SHOW RETIRED BORON RECOVERY EQUIPTMENT PER CRS #199806527. RELEASED AS CONSTRUCTED. P/N 69901-AF D.B./G.B. 03/12/01			

DATE	CHK. REVIEW	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
2/23/88	D.P.	F.A.	W.J.KING 2/23/88		

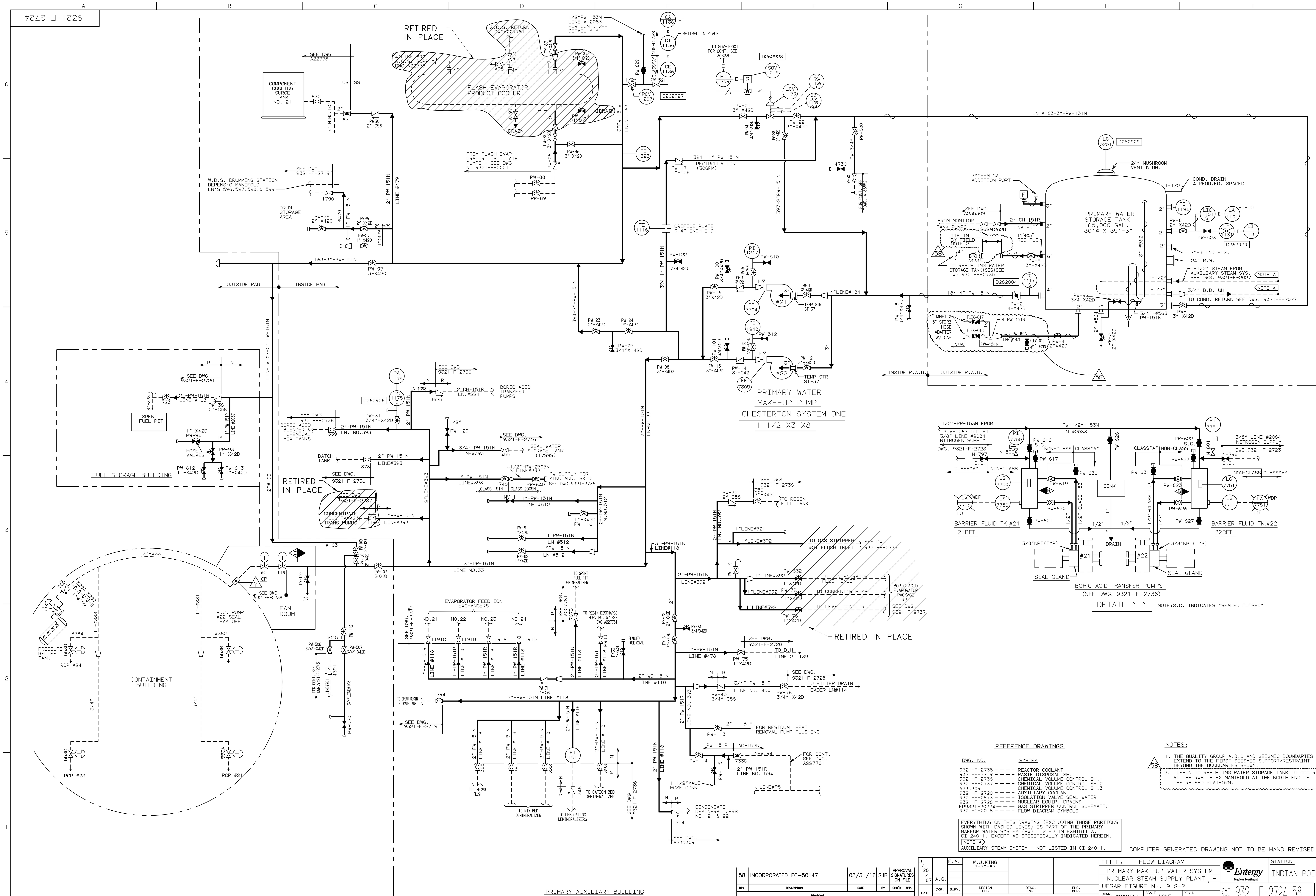
DRWN. BY GIBBS&HILL | SCALE NONE | REC'D

TITLE: FLOW DIAGRAM CHEMICAL & VOLUME CONTROL SYSTEM - UFSAR FIGURE No. 9.2-1 (SHT. 4)

Entergy Nuclear Northeast

STATION INDIAN POINT

DWG. NO. A235309-37 MY



REFERENCE DRAWINGS

DWG. NO.	SYSTEM
9321-F-2738	REACTOR COOLANT
9321-F-2719	WASTE DISPOSAL SH.1
9321-F-2736	CHEMICAL VOLUME CONTROL SH.1
9321-F-2737	CHEMICAL VOLUME CONTROL SH.2
A235309	CHEMICAL VOLUME CONTROL SH.3
9321-F-2720	AUXILIARY COOLANT
9321-F-2673	ISOLATION VALVE SEAL WATER
9321-F-2728	NUCLEAR EQUIP. DRAINS
FP9321-20224	GAS STRIPPER CONTROL SCHEMATIC
9321-C-2016	FLOW DIAGRAM-SYMBOLS

EVERYTHING ON THIS DRAWING (EXCLUDING THOSE PORTIONS SHOWN WITH DASHED LINES) IS PART OF THE PRIMARY MAKEUP WATER SYSTEM (PW) LISTED IN EXHIBIT A. CI-240-1. EXCEPT AS SPECIFICALLY INDICATED HEREIN.

NOTE A
AUXILIARY STEAM SYSTEM - NOT LISTED IN CI-240-1.

NOTES:

1. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.
2. TIE-IN TO REFUELING WATER STORAGE TANK TO OCCUR AT THE RWST FLEX MANIFOLD AT THE NORTH END OF THE RAISED PLATFORM.

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

REV	DESCRIPTION	DATE	BY	CHK'D	APP.
58	INCORPORATED EC-50147	03/31/16	SJB	APPROVAL SIGNATURES ON FILE	

TITLE: FLOW DIAGRAM
PRIMARY MAKE-UP WATER SYSTEM
NUCLEAR STEAM SUPPLY PLANT. -
UFSAR FIGURE No. 9.2-2

DRAWN BY: GIBBS&HILL — SCALE: NONE — F.A. W.J.KING 3-30-87 — A.G. 3/28/87

Entergy Nuclear Northeast
STATION: INDIAN POINT
DWG. NO. 9321-F-2724-58 MY

A227781

RETIRED IN PLACE

BORIC ACID EVAPORATOR DISTILLATE COOLER (CVCS) ITEM EVEA#2A

BORIC ACID EVAPORATOR (CVCS) ITEM EVEA#2I

AIR EJECTOR COOLER

OUTSIDE EQUIP. SHIELD WALL

INSIDE EQUIP. SHIELD WALL

WASTE GAS COMPRESSOR (WDS) NO. 21

WASTE GAS COMPRESSOR (WDS) NO. 22

COMP. SEAL WATER MAKE UP 9321-F-2730

RETIRED IN PLACE

RECIRCULATION LINE

VENT TO ATMOS. 2"-AC-152N 2"-#248

#21 COMPONENT COOLING SURGE TANK

TO WASTE HOLD UP TANK 9321-F-2728

2" LINE #2056

2" CCW-2

SEE NOTE #6

21CCSTV

SEE NOTE #11

LOCAL SAMPLE

P.W.

PW-30

L.O.

COMPONENT COOLING HEAT EXCHANGERS

SEE NOTE#7

SERVICE WATER RETURN

21CCHX

22CCHX

TUBES SHELL

SERVICE WATER SUPPLY A209762

3/4"-#730 (CLASS-153N)

3/4" LINE #730

3/4" SAMPLE LINE #730 TO RAD. MON. R-47 FOR CONT. SEE 235122

FOR RESIDUAL HEAT REMOVAL PUMPS CONTINUATION SEE DRAWING A251783

FLASH EVAP. PRODUCT COOLER

QUICK DISCONNECT (TYP.) MANIFOLD VALVE (TYP.) CLASS 152N (TYP.)

3/8" S.ST. HOSE TO MECHANICAL SEALS CLASS 153N (TYP.)

CLASS EVAP. PRODUCT DWG. 9321-F-2729

RETIRE IN PLACE

CHARGING PUMPS FLUID DRIVE COOLERS

TO CONDENSATE SAMPLE COOLER 9321-F-2027

RETIRE IN PLACE FLANGE W/ WELL ASSY.

COMPONENT COOLING PUMPS

PUMP #23

PUMP #22

PUMP #21

CIRC. WTR. PUMP

CCW COOLER (TYP.)

OIL COOLER (TYP.)

AC TEST CONN.

1 1/2"HOSE CONN. (SEE NOTE 15)

LUBE OIL SEE 313335

SAFETY INJECTION PUMPS (S.I.S.)

2"-EMERGENCY SERVICE WATER CONNS.

PRESSURIZER LIQUID SAMPLE HEAT EXCH'R (S.S)

PRESSURIZER STEAM SAMPLE HEAT EXCH'R (S.S.)

REACTOR COOLANT SAMPLE HEAT EXCH'R (S.S.)

PRIMARY WATER FOR CONT. SEE DWG. 9321-F-2724

FLR. DRAIN

FROM RESIN FILL TANK

SPENT FUEL DEMINERALIZER

TO SPENT RESIN STORAGE TK#21 (W.D.S.) 9321-F-2719

SPENT FUEL PIT FILTER

REFUELING WATER PURIFICATION PUMP

AUX. COMPONENT COOLING PUMPS

QUICK DISCONNECT (TYP) MANIFOLD VA. (TYP.)

LINE #54

LINE #155 9321-F-2735

TO LINE #161 9321-F-2735

LOOP 21

LOOP 22

LOOP 23

LOOP 24

4-STEAM GENERATOR BLOWDOWN SAMPLE HEAT EXCHANGERS (S.S.)

NON-REGENERATIVE HEAT EXCHANGER (CVCS)

SEAL WATER HEAT EXCHANGER (CVCS)

RETIRED IN PLACE

2" CITY WATER SUPPLY SEE DWG. 9321-F-2696.

CLASS J4

INSIDE CONTAINMENT BLDG.

OUTSIDE CONTAINMENT BLDG.

INSIDE SPENT FUEL STORAGE BLDG.

FOR CONTINUATION SEE DWG.#9321-F-2720

WORK THIS DRAWING WITH DRAWING 9321-F-2720

NOTES

1. VALVES ARE NORMALLY INSTALLED WITH FLOW UNDER SEAT, EXCEPT FOR VALVE NO. 831.
2. LOCATE SUCTION CONNECTION IN BOTTOM HALF OF REACTOR COOLANT PIPING ON 45° ANGLE TO VERTICAL.
3. SPRING LOADED CHECK VALVE.
4. LOCATE IN ANNULAR RING BETWEEN SECONDARY SHIELD AND CONTAINMENT WALL.
5. LOCATE VALVE CLOSE TO SPENT FUEL PIT WALL
6. VACUUM BREAKER, SUPPLIED WITH TANK.
7. PRESSURE TAP LOCATED PER @ I&C STANDARDS.
8. PENETRATE WALL 6 FT. ABOVE FUEL ASSEMBLIES.
9. TERMINATE PIPE 6 FT. ABOVE FUEL ASSEMBLIES.
10. VENT AND DRAIN REQUIREMENT DEPEND UPON PIPING LAYOUT TO BE SPECIFIED BY A.E..
11. ELEVATION OF SURGE TANK NORMAL WATER LEVEL TO BE HIGHEST POINT IN COMPONENT COOLING SYSTEM.
12. REACTOR COOLANT PRESSURE INTERLOCK PREVENTS ISOLATION VALVE OPENING ABOVE SET PRESSURE.
13. SCHEDULE 140 PIPE.
14. FOR MISC. VENTS AND DRAINS REFER TO PHYSICAL PIPING DRAWINGS.
15. HOSE PROVIDED TO ENABLE COOLING WATER TO BE PIPED OUTSIDE THE BUILDING.
16. FOR LENGTH TABLE SEE 9321-F-2720.
17. ●●● INDICATES CONTROL VALVE HAS ADDITIONAL ASSOCIATED CONTROL EQUIPMENT AND IS REPRESENTED ON CONTROL VALVE HOOK-UP DETAIL DWG. 9321-F-7056.
18. ●● -INDICATES INSTRUMENT HAS ADDITIONAL VALVES. DETAILS & VALVE IDENTIFICATION SHOWN ON DWGS. B242828.
19. ●●●● ST-21, ST-22, ST-23, ST-54, ST-55 AND ST-56 ARE TEMPORARY START-UP STRAINERS WITH INTERNAL SCREENS REMOVED.
20. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.
21. 14" DIA. LINE NO 10 HAS 6" THICK INSULATION BETWEEN VALVES #730 AND #731.

INSERVICE INSPECTION NOTES:

1. CP=CONTAINMENT PENETRATIONS. ASME CLASS MC APPLIES.
2. FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

REF. DWG.
B207540-INSTRU. PIPING ARR'GT FOR FE-3201, FE-3202 & FE-3203.

9321-F-2016-FLOW DIAGRAM SYMBOLS

EVERYTHING ON THIS DRAWING (EXCEPT FOR DASHED LINES) IS PART OF THE COMPONENT COOLING SYSTEM (CCS) AS DESCRIBED IN EXHIBIT "A" TO CI-240-1. UNLESS OTHERWISE INDICATED HEREIN.
(CWS) CITY WATER SYSTEM (PORTION NOT LISTED IN CI-240-1)
(SFPCS) SPENT FUEL POOL COOLING SYSTEM
(RHR) RESIDUAL HEAT REMOVAL

LEGEND
T-VALVE TO TRIP OR CLOSE ON HIGH CONTAINMENT PRESSURE
P-VALVE TO TRIP OR CLOSE ON HIGH-HIGH CONTAINMENT PRESSURE

82	INCORPORATED EC-3298	7/6/09	RM		6/30/89	D.M.	F.A.	W.J.KING 1/29/88			
REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE CHK'D	APPR.	DATE	CHK.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
REVISIONS						REVIEW	APPROVALS				

TITLE: FLOW DIAGRAM
AUXILIARY COOLANT SYSTEM -
UFSAR FIGURE No. 9.3-1 (SHT. 1)

Entergy Nuclear Northeast

STATION: INDIAN POINT

DRWN. BY D. BALADO | SCALE NONE | REC'D

DWG. NO. A227781-82 | MY

9321-F-2720

MECHANICAL

RECIRCULATION PUMPS (S.I.S.)

RESIDUAL HEAT EXCHANGERS

REACTOR VESSEL COOLING SUPPORT BLOCKS

REACTOR COOLANT PUMPS

EXCESS LETDOWN HEAT EXCHANGER #21 (CVCS) A20816

SPENT FUEL PIT HEAT EXCHANGER #21

SPENT FUEL PIT PUMPS

SPENT FUEL PIT

SPENT FUEL PIT SKIMMER PUMP #21 (RETIRED IN PLACE)
FILTER #21 (RETIRED IN PLACE)

EQUIPMENT RETIRED IN PLACE

INSIDE CONTAINMENT BUILDING

INSIDE SPENT FUEL STORAGE BUILDING

OUTSIDE CONTAINMENT BLDG. FOR CONTINUATION SEE DWG. #A227781

INSIDE SPENT FUEL PIT STORAGE BLDG.

INSIDE CONTAINMENT

REFERENCES

1. PROCESS FLOW DIAGRAM SHEET #1 (M) DWG.540F889
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
   (M) E. SPEC G569866 REV. 2 AND
   (M) E. SPEC G676398 REV. 0

INSERVICE INSPECTION NOTES:

1. CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2. FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

REFERENCE DRAWINGS

9321-F-2719 ----- WDS- WASTE DISPOSAL SYSTEM SHT #1
9321-F-2730 ----- WDS- WASTE DISPOSAL SYSTEM SHT #2
9321-F-2724 ----- PW- PRIMARY MAKE-UP WATER SYSTEM
9321-F-2720 ----- AUX. STM. SUPPLY & COND. RETURN SYSTEM
9321-F-2735 ----- SIS- SAFETY INJECTION SYSTEM.
9321-F-2736 ----- CVCS- CHEM. & VOLUME CONTROL SYS. SHT #1
9321-F-2737 ----- CVCS- CHEM. & VOLUME CONTROL SYS. SHT #2
9321-F-2738 ----- RCS- REACTOR COOLANT SYSTEM
9321-F-2745 ----- SS- SAMPLING SYSTEM
9321-F-2746 ----- IVSWS- ISOLATION VALVE SEAL WATER SYS.
9321-F-2734 ----- PIPING AT REACTOR COOLANT PUMPS
9321-C-2016 ----- FLOW DIAGRAM SYMBOLS
A251783 ----- AUXILIARY COOLANT SYSTEM RESIDUAL HEAT REMOVAL PUMPS

EVERYTHING ON THIS DRAWING (EXCEPT FOR DASHED LINES) IS PART OF THE COMPONENT COOLING SYSTEM AS DESCRIBED IN EXHIBIT A, TO CI-240-1 UNLESS OHTERWISE INDICATED

- SFPCS > SPENT FUEL POOL COOLING SYSTEM
- RHR > RESIDUAL HEAT REMOVAL SYSTEM
- RCS > REACTOR COOLANT SYSTEM

NOTES:

1. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

WORK THIS DWG. WITH DWG. A-22781
FOR NOTES SEE DRAWING #A-22781

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

REV	DESCRIPTION	DATE	BY	CH'D	APP.
94	INCORPORATED EC-3527	4/14/18	OG	APPROVAL SIGNATURES ON FILE	

REVISIONS

DATE	1/29/88	F.A.	W.J.KING 1/29/88		
		A.G.			
CKR.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.	
REVIEW		APPROVALS			

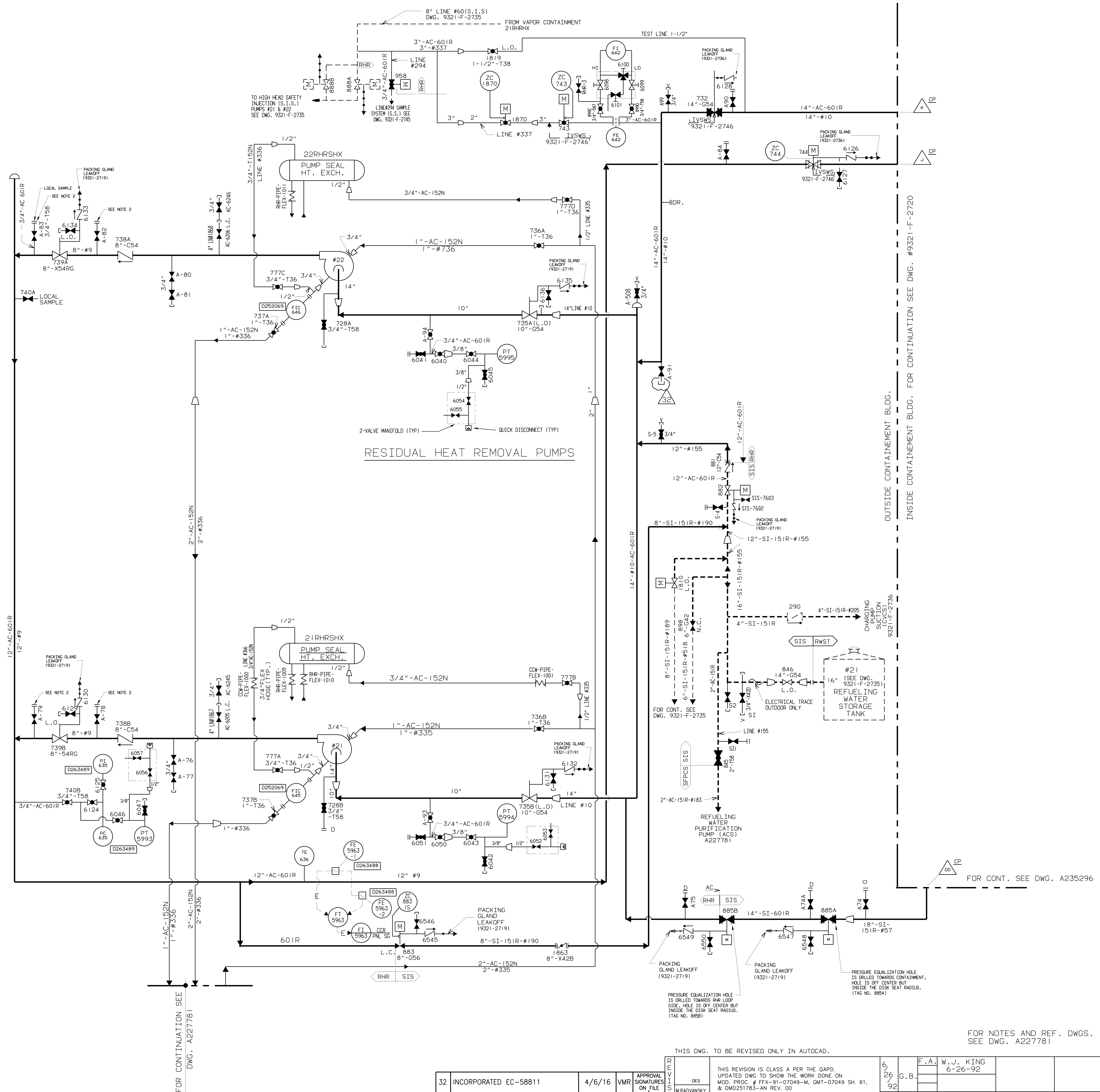
TITLE: FLOW DIAGRAM
AUXILIARY COOLANT SYSTEM -
UFSAR FIGURE No. 9.3-1 (SHT. 2)
MOD./PROC./DR SPEC.

Entergy Nuclear Northeast

STATION: INDIAN POINT

DRWN. BY B.JOHN | SCALE NONE | REC'D

DWG. NO. 9321-F-2720-94 MY



NOTES:

1. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.
2. FLANGES HAVE A 1500# RATING (ONLY WHERE NOTED).

INSERVICE INSPECTION NOTES:

1. CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2. FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

FOR NOTES AND REF. DWGS. SEE DWG. A227781

THIS DWG. TO BE REVISED ONLY IN AUTOCAD.

REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE
32	INCORPORATED EC-58811	4/6/16	VMR	

REVISIONS

THIS REVISION IS CLASS A PER THE QAPD. UPDATED DWG TO SHOW THE WORK DONE ON MOD. PROC. # FFX-91-07049-M, GMT-07049 SH. 61, & DMD251783-AN REV. 00 RELEASED AS CONSTRUCTED. P.N. 07049-91 GH/MR

DES: M.RADVANSKY 04/10/03

DATE 6/26/92 G.B. F.A.J. W.J. KING 6-26-92

TITLE: FLOW DIAGRAM AUXILIARY COOLANT SYSTEM RESIDUAL HEAT REMOVAL PUMPS - UFSAR FIGURE No. 9.3-1 (SHT. 3)

DRAWN BY J.SESE SCALE NONE

Entergy

STATION INDIAN POINT

DWG. NO. A251783-32

9321-F-2745

61	INCORPORATED EC15641	6/19/09	JF	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D APP'D

NOTES:
1. ALL TUBING IS 3/8" O.D. EXCEPT AS DETAILED.
2. ALL VALVES INSTALLED WITH FLOW UNDER SEAT EXCEPT VALVE NUMBERS 960A, 962B, 962C, 968, 970A, 978, 980.
3. 3/4" NOMINAL PIPE O.D. X 3/8" O.D. TUBING INSERT.
4. ADDITIONAL VENTS AND DRAINS MAY BE REQUIRED BASED ON PIPE LAYOUT.
5. ALL CHECK VALVES SHOULD BE "Y" TYPE LIFT CHECK.
6. DELAY COIL --- 125 FT. X 3/8" O.D. TUBING X 0.245 I.D. OR EQUIVALENT.
7. ••• INDICATES CONTROL VALVE HAS ADDITIONAL ASSOCIATED EQUIPMENT AND IS REPRESENTED ON CONTROL VALVE HOOK-UP DETAIL DRAWING 9321-F-7056.
8. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

REFERENCE DRAWING:

CVCS - CHEMICAL VOLUME CONTROL SYSTEM
U.E.& C. DWG. ------ 9321-F-2736
U.E.& C. DWG. ------ 9321-F-2737
RCS - REACTOR COOLANT SYSTEM
U.E.& C. DWG. ------ 9321-F-2738
STEAM GEN. BLOWDOWN SYS.
U.E.& C. DWG. ------ 9321-F-2729
ACS - AUXILIARY COOLANT SYSTEM
U.E.& C. DWG. ------ 9321-F-2720
WDS - WASTE DISPOSAL SYSTEM
U.E.& C. DWG. ------ 9321-F-2719
SIS - SAFETY INJECTION SYSTEM
U.E.& C. DWG. ------ 9321-F-2730
IVSWS - ISOLATION VALVE SEAL WATER SYS.
U.E.& C. DWG. ------ 9321-F-2735
U.E.& C. DWG. ------ 9321-F-2746

REFERENCES:

PROCESS FLOW DIAGRAM W-DWG.540F902

DEFINITION OF SYMBOLS:U.E.&C. SPEC. PART B. 9321-01-248-18

INSTALLATION OF INSTRUMENTATION W-PROC.SPEC. CAP - 294367 REV.1

MATERIAL SPEC. PIPE AND FITTINGS: U.E.&C. SPEC. 9321-01-248-18

9321-F-2016 FLOW DIAGRAM SYMBOLS

NUCLEAR EQUIPMENT DRAINS 9321-F-2738

SS-SAMPLING SYSTEM DWG.A227178

POST ACCIDENT CONTAINMENT AIR SAMPLING SYSTEM DWG.A208479

LEGEND

-INDICATES INTERFACE WITH PANEL MFR.

VS -VENTILATION SYSTEM

INSERVICE INSPECTION NOTES:
1.CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2.FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

NOTE A
THIS BOUNDS THE PORTION OF SAMPLING SYSTEM AS DESCRIBED IN EXHIBIT A, CI-240-1

THIS DWG. TO BE REVISED ONLY IN CUSTOMIZED AUTOPLANT.

REVISION	DES	
	G. BHALLA	5/29/01
	ENG	

THIS REVISION IS NON-CLASS PER QAPD. UPDATED DRAWING PER MOD PROCEDURE #FPX-96-83574-F.DMD9321-2745-AI REV.0 AND DMD9321-2745-AJ REV.0. RELEASE AS CONSTRUCTED. P.N. 83574-96 D.B./J.F. 5/29/01

	F.A.	W.J.KING 2/9/88		
L.H.				
DATE	CHR.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
	REVIEW		APPROVALS		

TITLE: FLOW DIAGRAM
SAMPLING SYSTEM -
UFSAR FIGURE No. 9.4-1 SHT. 1

Con Edison
STATION: INDIAN POINT

DRWN. BY: GIBBS&HILL | SCALE: NONE | REC'D
DWG. NO. 9321-F-2745-61 | MY

A227178

REAGENT RACK

NaOH | H_2SO_4 | CALIBRATION SOLUTION | MANNITOL

5319 5320 6263 5357

1/8" LINE #1600

1/8" LINE #892

1/8" LINE #891

1/8" LINE #890

6262

1/4" LINE #895 (NITROGEN) (2505)

1/4" VA #5536

5531

FOR CONTINUATION SEE DWG. 9321-F-2745

PRV 3416

1/4" VA #5537

3/8" LINE #897 (DEMIN. WTR.) (2505)

1/4" LINE #895 (NITROGEN) (2505)

PI 3407

5533

5317

DEMINERALIZED WATER TANK 25 GAL. CAP.

LG 3400

5318

5540

1/4"VENT

5532

5539

1/4" LINE #897 (2505)

BORON ANALYZER SYSTEM

REAGENT UNIT

1/8" LINE #894 (NITROGEN)

1/8" LINE #893 (NITROGEN)

3/8" LINE #897 (DEMIN. WTR)(2505)

1/8" LINE #890 ($NaOH$)

1/8" LINE #891 (H_2SO_4)

1/8" LINE #892 (MANNITOL)

SOV 5825 SOV 5826

1/8" LINE #896 (SAMPLE)

1/4"X 1/8" RED.

CLASS (2505)

TITRATING UNIT

3/8" LINE #898 (2505)

FOR CONT. OF SAMPLE LINE SEE 9321-F-2745

LIQUID SAMPLING PANEL

3/4" FROM FRONT SAMPLE SINK

CHEMICAL ANALYSIS PANEL

FE-2 (BY SENTRY)

1/4" LINE #896 (2505) SAMPLE

5535

5534

1/4"

ARGON FLUSH

3/8"- LN. #801 (2505)

REACTOR COOL'T. SAMPLE

1/4" LINE #803 (2505R)

OFF-GAS SAMPLE

1/8" LINE #800 (2505R)

#4882

3/8" LINE #1612 (2505)

3/8" LINE #801 3/4" LINE #1622

3/8" LINE #783 (2505R)

3/8"

1/4" LINE #896 (2505) EXCESS SAMPLE

3/4" LINE #924 (2505R)

3/8" LINE #898 (2505)

3/8" LINE #804 (2505R)

3/4" LINE #807 (2505R)

3/8" LINE #802 (2505R)

1/4"

(INTERNAL)

VENT TO HEPA FILTER SYSTEM

3/4" LINE #901 (2505R)

3/4" LINE #1622 (2505R)

1" LINE #375 (151R)

1/2" LN. #900 (2505) (RECIRC.)

6264

1/2" FLUSH CONN.

LT-3437

LT-3438

ANNUNCIATOR SAMPLE DRAIN TANK LEVEL-ABNORMAL

LA 3438 HI & PUMP #2

LC 3438 -1S

5176

1"-C58

5453

1"-T58

3" LINE #169 (151R) TO VOL.CONT.TK. (9321-F-2736)

LO & PUMP #1

LA 3437

LC 3437 -1S

LIQUID SAMPLE PANEL SUMP =5 GAL. CAP.

-2 -3 -1

(ON) (OFF)

LC 3438 -2S

1"

3/4" LINE #783(2505R)

HC 3437 1S

HC 3438 1S

6266 6267

3/4" 3/4"

L.S.P. SUMP PUMP #1

L.S.P. SUMP PUMP #2

6269 6271

6268 6270

3/4"- LINE #783 (2505)

VALVE CONTROL PANEL #1

HC 5290 -1S

ZI 5290 -1

ZI 5290 -2

ZC 5290 -1S

ZC 5290 -2S

SOV 5290

3/8" TEST CONN.

1/2" 3/8"

RELIEF VA. #5538

5525

6272

3/8" LINE #900 (2505)

4874

3/4"-T52

HC 5290 -2S

SOV 3431

F.C.

3/4" LINE #783 (2505R)

3/4" LINE #792 (2505R) F.C.

6265

4881

5513

3/4" LINE #792 (2505R)

3/4" LINE #1623(2505R)

5920

5174

3/4"-C58

5175

2"-WD-151R LINE #136 TO CHEM. DR. TANK (9321-F-2719)

1" LINE #790 (151R)

1" LINE #23 (9321-F-2730)

5427

3/4"-32D

5426

1502R

2505R

5415 (3/4"-C52)

5414 (3/4"-C52)

3/4"-LINE #785 (2505R)

3/4"-LINE #787 (2505R)

ZC 3426 2S

ZD 3426 2S

ZC 3425 2S

ZD 3425 1S

ZC 3426 1S

HC

SOV 3426

SOV 3425

3/8" LINE #557 3/8" O.D.-2505R SEE DWG. A208479

5421

5404

4861

1"-RV52

3/8"-T58 3/8"-C58

F.C.

3/8" LINE #785 (2505R)

1" LINE #789 (2501R)

1" LINE #783 (2501R)

4855

3/4"

4858

1"-C52

3/4" LINE #786 FOR CONT. SEE DWG. 9321-F-2745

4856

1"-C52

4857

1"-T52

(2501R) (2505R)

4860

1"-T52

(CLASS 2501R)

PT 3401

5177

3/8"-T58

FOR CALIBRATION

4870

1"-T52

HIGH RAD. SAMPLE SYSTEM COLLECT. TK. 200 GAL=1/2 PSIG

4872

1"-T52

LA 3401 3S HI

LA 3401 1S LO

LC 3401 1S

LC 3401 2S

LC 3401 3S

LA 3401 2S LO

LI 3401

LT 3401

4871

1"-T52

5178

3/8"-T58

FOR CALIBRATION

4873

1"-T52

2" LINE #789 (2501R)

LC 3401 S

4862

2"-T52

4863

2"-T52

4864

2"-T52

HC 3401 1S

HC 3401 2S

HRSS PUMP #1

#1HRSSP

HRSS PUMP #2

#2HRSSP

PI 3402

4867

1"-C52

4865

1"-T52

4868

1"-C52

4866

1"-T52

1" LINE #789 (2501R)

4869

3/4"-T52

5455

1"-T52

3/4" LINE #789 TO LIQ. SAMPLE PANEL FOR CONT.SEE DWG. 9321-F-2745

3/4" LINE #789 (2505R)

3/4" LINE #788-WD 2505R

5199

3/4"

5201

1/2"-T58

5422

1/2"-T58

3/4" LINE #790

5200

1/2"-T58

CLASS 2505R

CLASS 151R

(2505R)

(2505R)

(2501R)

ZC 3428 -1C

ZC 3428 -2S

ZC 3429 -2S

ZC 3429 -1S

ZC 3427 -1C

ZC 3427 -2S

SOV 3429

SOV 3427

5197

1/2"-T58

5198

1/2"-T58

INSIDE CONTAINMENT

OUTSIDE CONTAINMENT

SPEC. 2505R

SPEC. 151R

SPEC. 151R

SPEC. 2505R

IVSWS

CP

RR

15

M 5132

M 4399

3/4"-TM58

3/4"-TM58

FOR CONT. TO CONTAINMENT SUMP PIT SEE 9321-F-2719

REACTOR COOLANT SAMPLE PANEL

H_2SO_4 "E2" "E1"

6275 6274 6273

"H_2O" "E3"

6276 6277

1/8" LINE #1619

1/8" LINE #1618

1/8" LINE #1617

1/8" LINE #1616

1/8" LINE #1615

NOTES:

1. ——— INDICATES POLYURETHANE TUBING

REFERENCE DRAWINGS:

SENTRY EQUIP. DWG. No. I0-00004A - BORON ANALY.SYS. P&ID

U.E. & C. CORP DWG.
I15-12-09-4 - L.S.P. RADWASTE MODULE
I53-12-009-4 - L.S.P. REACT. COOLT MODULE
I54-12-009-4 - DEMIN. MODULE
9321-C-2016 - FLOW DIAGRAM SYMBOL

INSERVICE INSPECTION NOTES:

15 1.CP=CONTAINMENT PENETRATIONS. ASME CLASS MC APPLIES.
2.FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

THIS DRAWING CONTAINS ITEMS WHICH MUST BE CONTROLLED WITHIN CON EDISON AS: "CLASS A" ITEMS PER CI-240-1

WORK THIS DRAWING WITH DWG. No.9321-F-2745

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

REV.	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE CHK'D	APP.
15	INCORPORATED DRN-06-04740, ER-IP2-05-22495	11/08/06	CLG		

REVISIONS

DATE		F.A.	W.J.KING 1/27/87			
1/27/87	K.E.					
	CHK.	SUPV.	DESIGN ENG.	DISC. ENG.	ENG. MGR.	
	REVIEW		APPROVALS			

TITLE: FLOW DIAGRAM
SAMPLING SYSTEM -
UFSAR FIGURE No. 9.4-1 (SHT. 2)

Con Edison

STATION: INDIAN POINT

DWG. NO. A227178 MY

MOD. PROC. OR SPEC.

DRWN. BY GIBBS&HILL | SCALE NONE | REC'D

MECHANICAL

9321-F-7020

CONTROL ROOM PNL SCF

STEAM & WATER ANALYSIS PANEL

RACKS UNIT #2 SAMPLING ROOM AT EL. 15'-0"

FIELD MOUNTED

RACKS WEST SIDE OF HOTWELLS EL. 15'-0"

MAIN STEAM
9321-F-2017

CONDENSATE PUMP DISCHARGE
DWG-9321-F-2018

H.P. FEEDWATER HEATER OUTLET SAMPLE
DWG. 9321-F-2019

REFERENCE DWG'S.

9321-F-7021	STEAM & WATER SAMPLE PIPING
9321-F-7044	STEAM & WATER ANALYSIS PANEL
9321-F-2021	FLASH EVAPORATOR FLOW DIAGRAM
9321-F-2729	STEAM GENERATOR BLOWDOWN DIAGRAM
9321-F-2597	STEAM GENERATOR BLOWDOWN SAMPLE PIPING
9321-F-2120	SERVICE BOILERS FLOW DIAGRAM
9321-F-7040	P.A. BLDG. INSTRUMENT ARRANGEMENT
9321-F-2724	PRIMARY MAKE-UP WATER FLOW DIAGRAM
A215116	COND. #21,22, & 23 SEXTANT SAMPL'G. PIP'G ARRG'T
B226920	COND.WTR CHLORIDE ANALY QUICK RESP. INST. FLOW DIAG.
2000MC6024	HW SEXTANT PANEL P& ID (JOHNSON MARCH SYS. INC DWG. D-25056I-M01)
2000MC5873	HPFW SAMPLE PANEL P&ID (SENTRY EQUIP. CORP.)

NOTE:
1. COOLING WATER IS SUPPLIED FROM CLOSED COOLING WATER SYSTEM (9321-F-2033) EXCEPT WHERE NOTED OTHERWISE.
2. ALL SAMPLE TUBING SHALL BE STN. STL. TYP. TP304 INN ACCORDANCE WITH SPECIFICATION 9321-01-248-18 CLASS M-1
3. PROVIDE GATE & CHECK VALVES AT ALL TAKE-OFFS FROM CITY WATER LINES

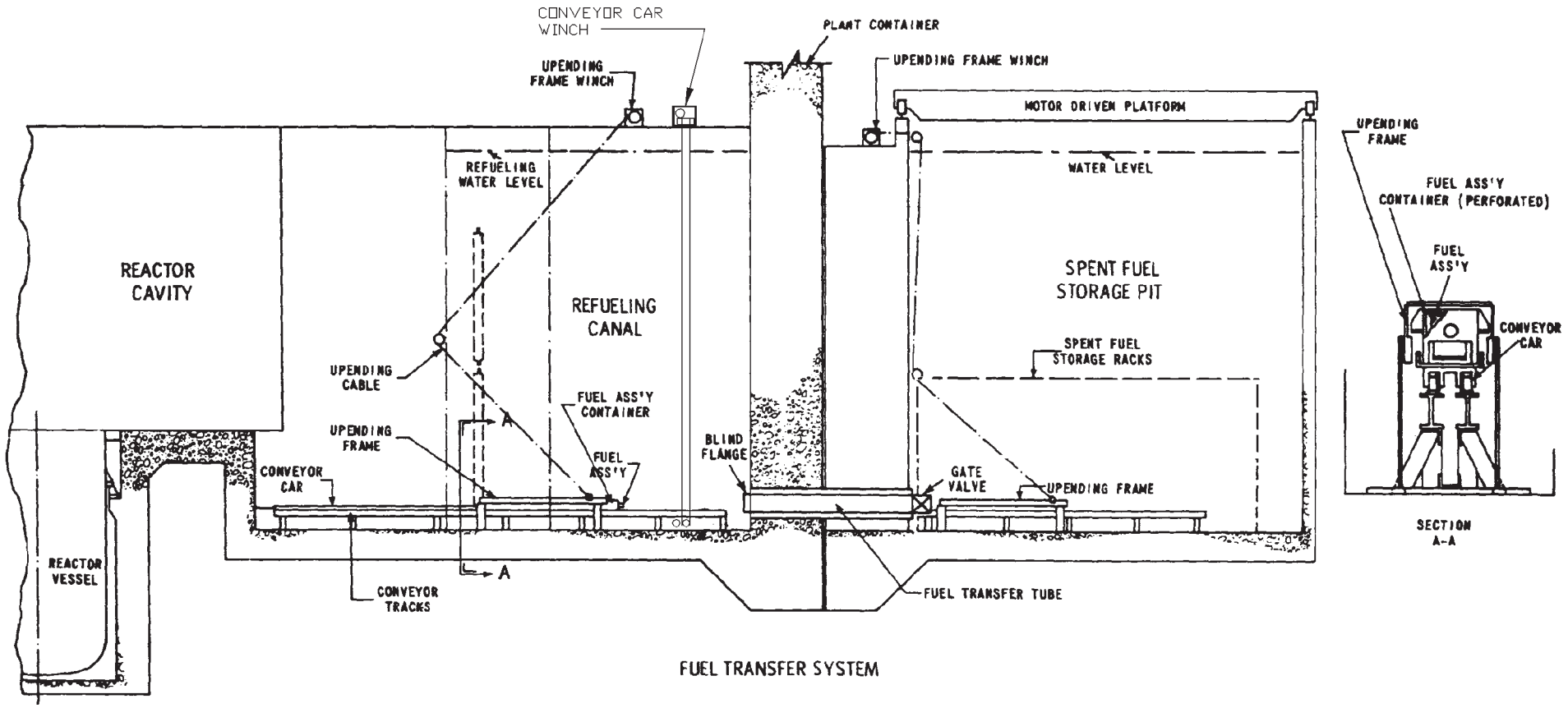
SYMBOLS

- SC – SAMPLE COOLER (S.C.)
- CE – CONDUCTIVITY ELEMENT
- [1] BULKHEAD,SEE DWG.9321-F-7044

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

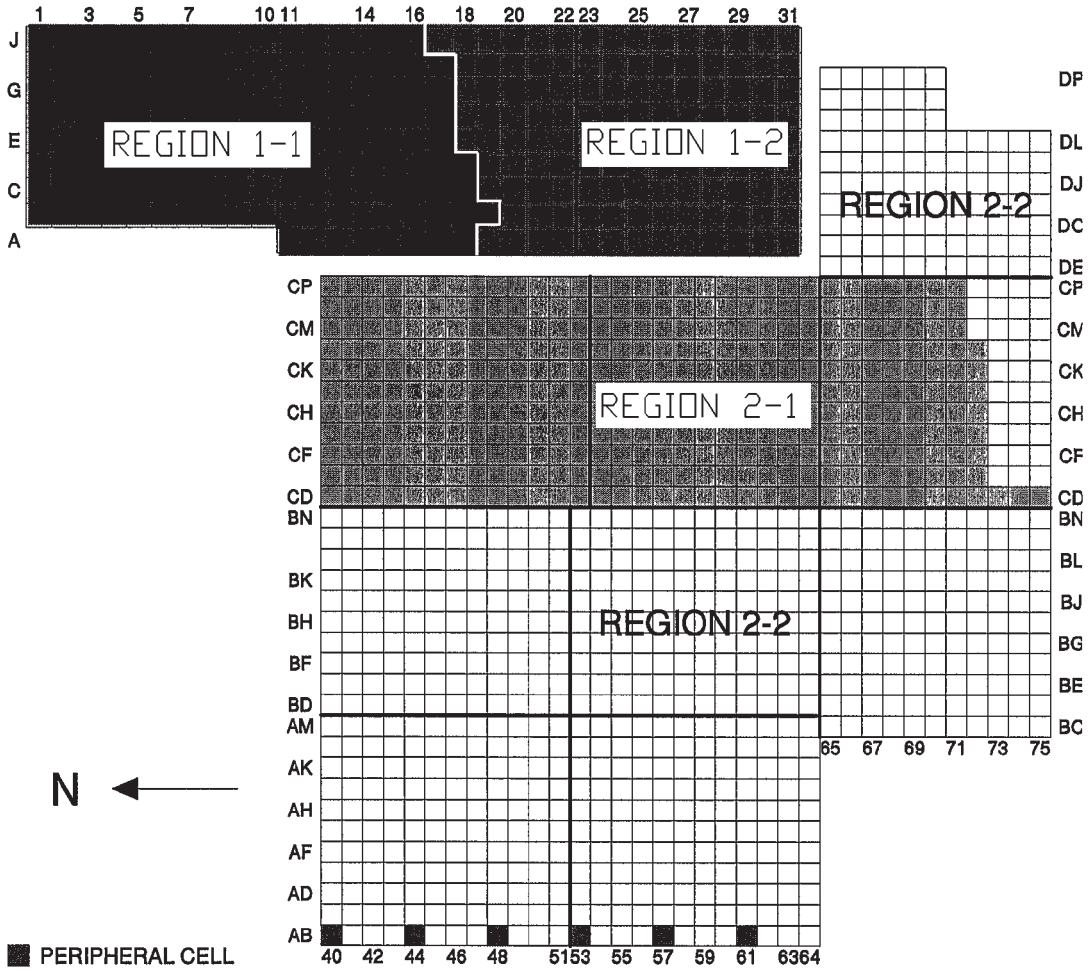
41	INCORPORATED EC-64123	1/3/17	AI	APPROVAL SIGNATURES ON FILE	TITLE: STEAM & WATER ANALYSIS SYSTEM SAMPLING DIAGRAM - INSTRUMENTATION - UFSAR FIGURE No. 9.4-2	STATION: INDIAN POINT
REV	DESCRIPTION	DATE	BY	CHK'D APPR.		
REVISIONS					DWN. BY	SCALE NONE REC'D
					DWG. NO. 9321-F-7020-41	MY

Entergy Nuclear Northeast

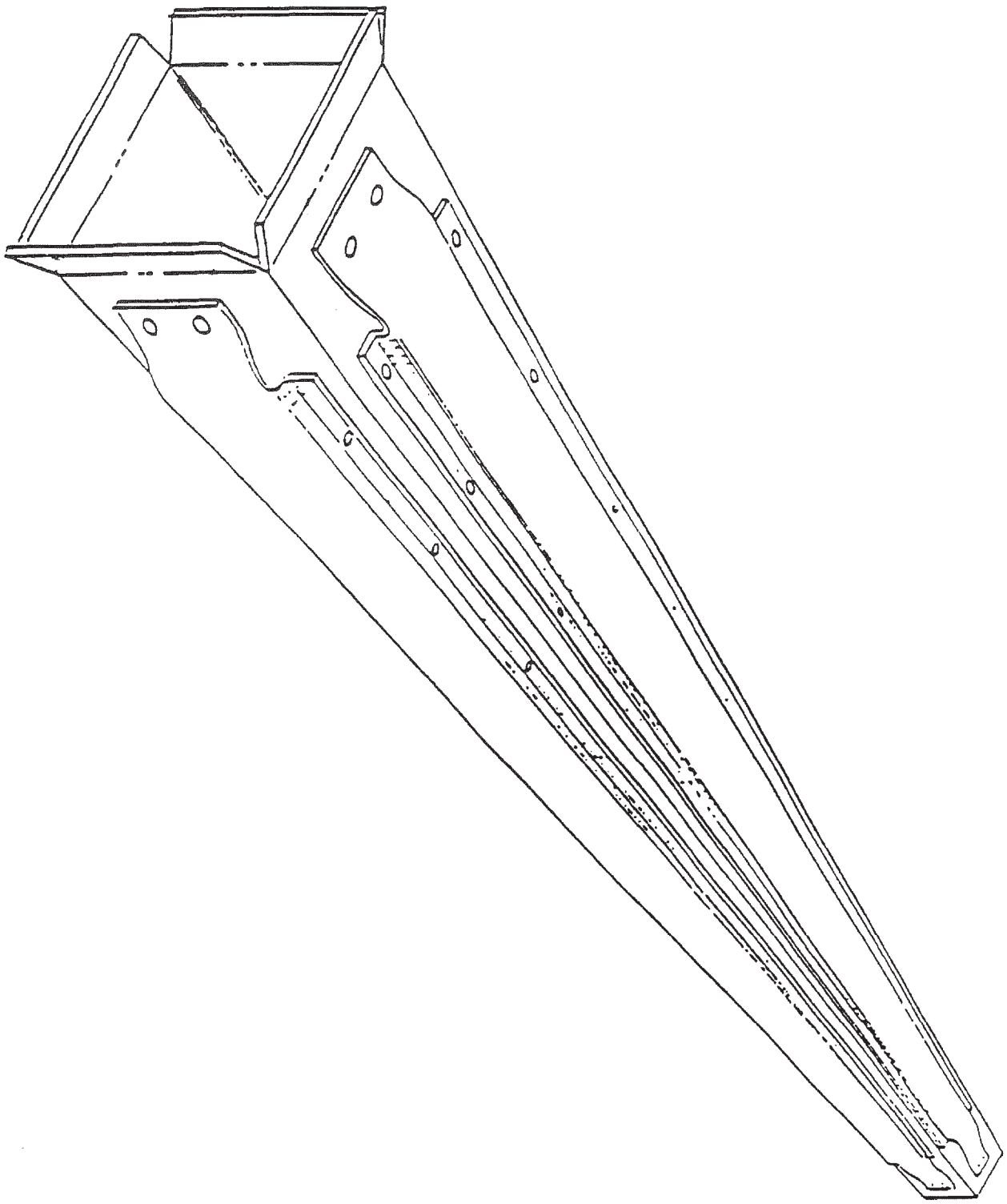


FUEL TRANSFER SYSTEM

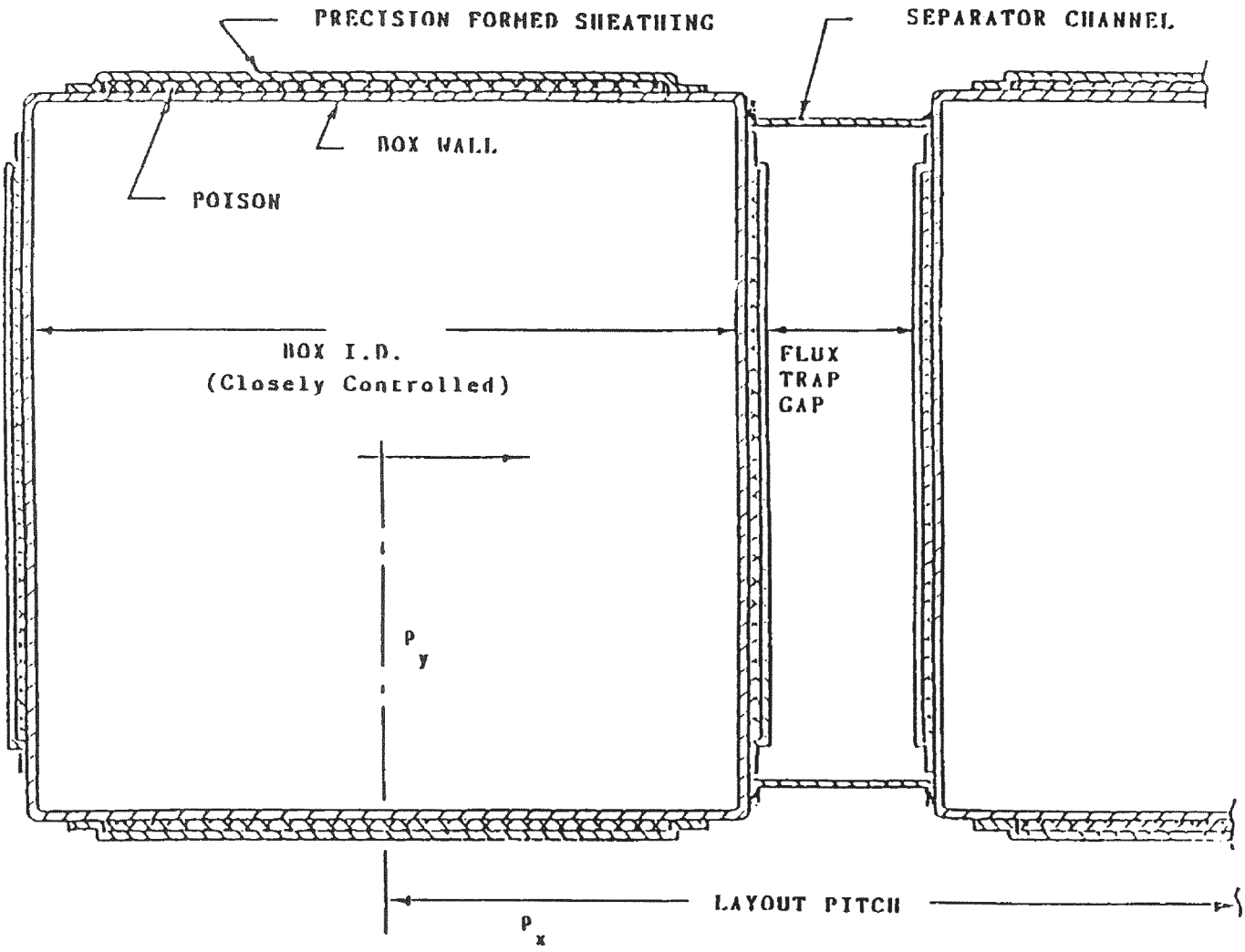
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 9.5-1 FUEL TRANSFER SYSTEM	
MIC. No. 1999MC3886	REV. No. 17B



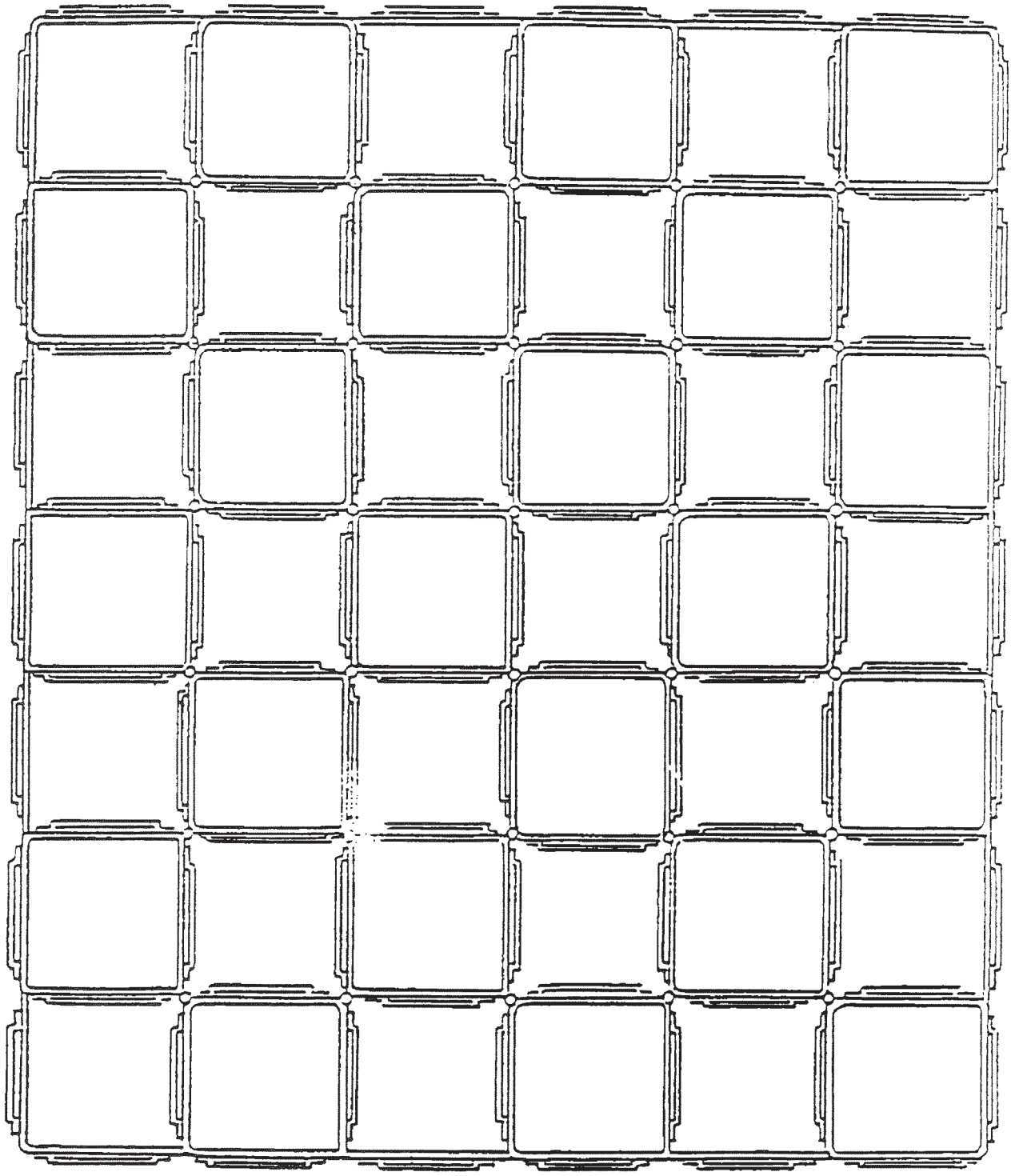
INDIAN POINT UNIT No. 2	
UFSAR FIGURE 9.5-2 SPENT FUEL STORAGE RACK LAYOUT	
MIC. No. 1999MC3887	REV. No. 17B



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 9.5–3 SPENT FUEL STORAGE CELL REGION I	
MIC. No. 1999MC3888	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 9.5–4 REGION I CELL CROSS SECTION	
MIC. No. 1999MC3889	REV. No. 17A



INDIAN POINT UNIT No. 2	
UFSAR FIGURE 9.5–5 REGION II CROSS SECTION	
MIC. No. 1999MC3890	REV. No. 17A

9321-F-2722

MATCH LINE. DWG. A209762

INSIDE OF CONTROL BLDG.

14" MANHOLE

24"-#408

3"-#1705

24"-#409

3"-#1704

20" MANHOLE

10"-#410

E.T. IN PIT

SWN-6

SWN-7

TO TURBINE OIL COOLERS B.F. PUMP TURBINE OIL COOLERS, AND SEAL OIL COOLERS (SEE 9321-F-2033)

P.A.B. YARD

10"-#414 FROM N.C.L.S.W.PUMPS

10"-#413 FROM CONV.S.W.PUMPS

SWN-66 4" SWN-67

FLEXIBLE CONN. (TYP.)

TI 1281

SWN-75

SWN-63-2 3/4"X 1"

SWN-1072

3/4"-DRN.

21EDJC JACKET WATER COOLER (9321-F-2028)

1" RUPTURE DISK # SWN-1257 (MATL. MONEL)

SWN-1260

SWN-1073

21EDLC LUBE OIL COOLER (A207698)

SWN-1063

SWN-852

PI 5676

SWN-77-8

SWN-77-3

SWN-62-1

SWN-62

SWN-66-3

TI 1308

SWN-66-1 4" SWN-67-1

TI 1282

SWN-75-1

3/4" VENT SWN-77-2

SWN-63 3/4"X 1"

SWN-1074

22EDJC JACKET WATER COOLER (9321-F-2028)

1" RUPTURE DISK # SWN-1258 (MATL. MONEL)

SWN-1261

SWN-1075

22EDLC LUBE OIL COOLER (A207698)

SWN-1064

SWN-853

PI 5677

SWN-77-9

SWN-77-4

SWN-62-4

SWN-66-4

TI 1307

SWN-66-2 4" SWN-67-2

TI 1283

SWN-75-2

SWN-63-1 3/4"X 1"

SWN-1076

3/4"-DRN.

23EDJC JACKET WATER COOLER (9321-F-2028)

SWN-77-5

SWN-62-2

SWN-62-5

SWN-1262

TI 1306

SWN-1077

3/4"-DRN.

23EDLC LUBE OIL COOLER (A207698)

SWN-1065

SWN-854

PI 5678

SWN-77-10

SWN-1034

SWN-1019

SWN-1017

SWN-1018

SWN-1015

SWN-1014

SWN-1011

SWN-1010

SWN-1009

SWN-1007

SWN-1006

SWN-1005

DPC 5919

SWN-1004

SWN-1025

FT 5919

SWN-1012

SWN-1008

SWN-1003

SWN-1033

SWN-1001

FE 5919A

FE 5919B

1/2" VENT SWN-1058

SWN-1057

DIESEL GEN. BUILDING

4'-6" BELOW GRADE

NOTES

• CLASS-NF,CLASS-SS, CLASS-CS & CLASS-MOSS REFER TO PIPING CLASS REFERENCED IN U.E.& C. SPEC. 9321-01-248-35-R6A AS SWN-NF,SWN-SS, SWN-CS & SWN-MOSS.

•• INSTRUMENT RETIRED IN PLACE.

THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

REF.DWG. 9321-C-2016-----FLOW DIAGRAM SYMBOLS

EVERYTHING ON THIS DRAWING,EXCEPT AS NOTED BELOW, IS PART OF NUCLEAR SERVICE WATER SYSTEM LISTED IN EXHIBIT "A",CI-240-1 EXCEPTIONS:
1.CLOSED COOLING WATER SYSTEM (BROKEN LINES).
2.ALL FEEDS TO CONVENTION PLANTS DOWN STREAM OF SWN-647 & FCV-1111&1112.
3.THE CLOSED COOLING WATER SYSTEM (SHOWN WITH BROKEN LINES) IS PART OF INSTRUMENT AIR SYSTEM LISTED IN EXHIBIT "A", CI-240-1.WORK THIS DRAWING WITH DRAWING A209762.

PC 1118 S — PA 1118 HI

PC 1117 S — PA 1117A LO — PI 5673

SWN-59-3

IA-1869

SWN-59-2

SWN-59

PT 1191 — J.B.NO.2 — PI 1191 H

FCV 1111

12" FLGD. CONN. (HOT TAP)

E.T. IN PIT

3/4"-#8"-16"-#1975

SWN-59-1

SWN-CS

SWN-SS

16"

TO VARIOUS CONVENTIONAL PLANT SERVICES (SEE 9321-F-2033)

16"-#1975

IA-1868

SWN-59-5

PT 1190 — J.B.NO.2 — PI 1190 H — FCV 1112

SWN-59-7

SWN-59-6

PC 1112A S — PA 1112A — PI 5674

PC 1112B S — PA 1112B HI

E.T. SERVICE WATER LINES IN PIT

8" SWN-5 — SWN-4 8" E.T. IN PIT

FOR CONT. SEE A208368

8" STRAINER CONTINUOUS BLOWDOWN TO WASTE (RETIRED IN PLACE)

CLASS SWN-SS — CLASS SWN-CS

6" STRAINER CONTINUOUS BLOWDOWN TO SERVICE WATER PUMP BAY

✱ SPEC. SWN-MOSS

SWN-1083

TO CW DISCHARGE

SWN-1064

6"-#472

TO SW DISCHARGE

✱ SPEC. SWN "CS" (TYP.)

8"-#472

24"-#409

24"-#408

✱ SPEC. SWN "MOSS"

3"-408-2 — SWN-591 — 3"-408-1 — SWN-589

3"-409-1 — SWN-595 — 3"-409-2 — SWN-597 — 3"-409-3 — SWN-599

AUTO WASH CONTROL LOGIC

SWN-590 LT — SWN-2-5 — SWN-617 — SWN-618 — SWN-2-4 — SWN-619 — SWN-2-3 — SWN-620 — SWN-2-2 — SWN-621 — SWN-2-1 — SWN-622 — SWN-2 — SWN-624

SWN-634 — SWN-634-X1 — SWN-634-X2 — SWN-632 — SWN-632-X1 — SWN-632-X2 — SWN-630 — SWN-630-X1 — SWN-630-X2 — SWN-628 — SWN-628-X1 — SWN-628-X2 — SWN-626 — SWN-626-X1 — SWN-626-X2 — SWN-624-X1 — SWN-624-X2

DRAIN SWN-1233 — DRAIN SWN-1232 — DRAIN SWN-1231 — DRAIN SWN-1230 — DRAIN SWN-1229 — DRAIN SWN-1228

DPI 5005S — DPI 5004S — DPI 5003S — DPI 5002S — DPI 5001S — DPI 5000S

PI 5689 — PI 5687 — PI 5685 — PI 5683 — PI 5681 — PI 5679

PI 5690 — PI 5688 — PI 5686 — PI 5684 — PI 5682 — PI 5680

3" C.O.

SWN-633 — SWN-633-X1 — SWN-633-X2 — SWN-629 — SWN-629-X1 — SWN-629-X2 — SWN-627 — SWN-627-X1 — SWN-627-X2 — SWN-625 — SWN-625-X1 — SWN-625-X2 — SWN-623 — SWN-623-X1 — SWN-623-X2

CCP-SJV PNL.ALM.

26SWP — SWN-1239 — VACUUM BKR. (TYP.) — 25SWP — SWN-1238 — 24SWP — SWN-1237 — 23SWP — SWN-1236 — 22SWP — SWN-1235 — 21SWP — SWN-1234

AUTOMATIC STRAINER (TYP.)

SWN-1 — SWN-1-5 — SWN-1-4 — SWN-1-3 — SWN-1-2 — SWN-1-1 — SWN-3

PI 1275 — PI 1274 — PI 1192 — PI 1193 — PI 1191

SWN-1250 — SWN-1249 — SWN-1248 — SWN-1247 — SWN-1246 — SWN-1245 — SWN-1244 — SWN-1243 — SWN-1242 — SWN-1241 — SWN-1240

SWN-58-5 — SWN-58-4 — SWN-58 — SWN-58-1

SS FLG — SWN-9-5 — SWN-9-4 — SWN-9-3 — SWN-9-2 — SWN-9-1 — SWN-9 3" VACUUM BREAKER (TYP.)

QUICK DISCONNECT (TYP)

SPEC. SWN-CS — SPEC. SWN-SS

SWN-3-5 — SWN-3-4 — SWN-3-3 — SWN-3-2 — SWN-3-1 — SWN-3

SWN-3"-727 — SWN-3"-726

SWN-501 N.C. — SWN-502 N.C. — SWN-503 N.C. — SWN-504 N.C. — SWN-505 N.C. — SWN-506 N.C.

3" C.S. — 2" S.S.

TYPICAL FOR SWN-502,SWN-503 SWN-504,SWN-505 & SWN-506

2"-2034-SWN-SS

DRAIN — NUCLEAR — SERVICE WATER PUMPS — CONVENTIONAL — TO ZURN STRAINER ROOM SUMP PIT

NOTE
FOR STRAINERS #21 THRU #26 BLOWDOWN VALVE MATERIAL SEE EC-12566 IN IAS.

DIESEL GENERATORS
400 G.P.M TO EACH OF 3 COOLERS

INTAKE STRUCTURE SEE 9321-F-2033 FOR NUCLEAR AND CONVENTIONAL SERVICE WATER SYSTEM

OUTLINE OF MANHOLE #12355

10" — 8" — 3"-#1703 — 3"-#1706 OPNG.

SWN-1022 — SWN-1023 — SWN-1024

NON-CLASS — CLASS "A"

24"-#405

3"-#1704 — 3"-#1705

6"

PI 5767

SWN-1026 3/4"

2"-#1545

FO-7167 — SWN-1206 — SWN-1143 — 1½"-#1814 — 3X1½" — 3"-#1704

FO-7166 — SWN-1205 — SWN-1142 — 1½"-#1812 — 3X1½"

SPEC. SWN-SS (316 SS) — SPEC. SWN-CS — 3"

FOR CONT. SEE DWG.#C25 1940

252680

FCV 1176 A — POS — 6" — A.C./F.O.

FCV 1176

4" — 1"

DISCHARGE CHANNEL

CONTINUED FROM DRAWING 9321-2036

PRV 961 — IA-879

TCV 1113

3"-#1703

SWN-1201 — F.O. — SWN-1202 — 3"-#1539

SWN-47 — 3"-#1541

SWN-28 — 2-1/2" — SWN-28-1 — 2-1/2"

NON CLASS — CLASS "A"

3/4" X 1" — SWN-86 — 3/4"-#1543 — 2 1/2"

2IIACCHX

SWN-70 — 2-1/2"-#1536

SWN-27 — 2-1/2"-#1535

3/4" X 1" — SWN-86-1 — 3/4"-#1542 — 2 1/2"

22IACCHX

SWN-70-1 — 2-1/2"-#1538

SWN-27-1 — 2-1/2"-#1537

3"-#1705

3"-#1704

COOLING WATER HEAT EXCHANGERS

SPEC. SWN-CS — SPEC. SWN-SS (316 SS)

CC-52-1

FE 1132

INSTRUMENT AIR COMPRESSORS

AFTER COOLER — 2IIACA — 22IACA — AFTER COOLER

FI 1219 — TI 1180 — TE 5668 — TC 1106 S — FI 1220 — TI 1182 — TE 5669 — TC 1107 S

TI 1181 — TI 1183 — FI 1217

S.F. — CC-45 — CC-45-1 — CC-44 — CC-44-1 — CC-60-2 — CC-60 — CC-60-3 — FI 1218

1-1/4"-#1561 — 1-1/4"-#1562 — 1-1/4"-#1557 — 1-1/4"-#1558 — 1-1/4"-#1559 — 1-1/4"-#1560 — 1-1/4"-#1555 — 1-1/4"-#1556 — 1-1/4"-#1565

3/4"-#1557 — 3/4"-#1551 — 3/4"-#1565 — 3/4"-#1554 — 3/4"-#1566 — 2"-#1552

SOV 1177 — SOV 1178 — CC-56 — CC-56-1 — CC-43 — CC-43-1 — TC 1113 — IA-880

TI 7057 — TW 7057 — TI 1231 — CC-41 — CC-42 — CC-52

TI 7059 — TW 7059 — TI 1230 — CC-41-1 — CC-42-1

TI 7056 — TW 7056 — TI 7058 — TW 7058

2-1/2"-#1540 — 2-1/2"-#1535 — 2-1/2"-#1545 — 1-1/4"-#1546 — 1-1/4"-#1553 — 1-1/4"-#1552 — 2"-#1556

CONTROLLER FOR CITY WATER FILL

1" CITY WATER SEE B192506

LCV 130 — 1"-#1742 — MW-151 — CC-509 — PRV 5959

PI 5960 — IA-1332 — IA-1333

3" OVER FLOW

EXPANSION TANK — IACCET — CC-53 — CC-53-1 — LC 1130 — LG 1155 — SIGHT GLASS

FLOAT CHAMBER — CC-525 — CC-510 — CC-51

3/4"-#1563 — 1/2"-#1554 — IACCCT

CCR SJ PNL. ALM.

1/2"-#1547 — CC-50 — CC-50-2 — CC-50-1 — CHEMICAL TANK — SAMPLE — CC-50-4 — DRAIN

CC-680 — CC-679 — CC-678 — CC-677 — PRESS. TEST

PC 1177 S — PI 1272 — PUMP 22IACCLWP — CC-524 — CC-49-4 — CC-40-1 — CC-39-1 — CC-49-5 — PC 1173 S — CC-676 — CC-675 — CC-523 — CC-49 — CC-49-3 — CC-49-6

ST-6-1 — ST-6 — 2"-#1550 — 2"-#1549 — CC-47-1 — CC-48-2 — CC-47 — CC-48 — 2"-#1548 — 2"-#1556 — CC-508 — 3/4"-#1554 — 3 G.P.M. — 2"-#1555

STARTS CMP #21 WHEN IT IS IN STANDBY — CLASS 153(TYP.) CLASS 3-3(TYP.)

PI 1271 — PC 1174 S — CC-40 — CC-39 — CC-49-1 — CC-49-2

PI 1192 — PI 1193 — STARTS CMP #22 WHEN IT IS IN STANDBY — CCR SJ PNL. ALM.

CONTN'D FROM DWG. 9321-2036

INSIDE OF CONTROL BLDG.

COOLING WATER PUMP
37 G.P.M. (EACH)

PRESS. TEST

2-VALVE MANIFOLD(TYP)

QUICK DISCONNECT (TYP)

NOTES
- — — CLOSED COOLING WATER SYSTEM
——— RIVER WATER SERVICE
——— CONVENTIONAL PLANT SYSTEM, SEE 9321-F-2033 FOR DETAILS
~~~ ELECTRICAL TRACED

INSERVICE INSPECTION NOTES:
1. CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2. FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

CLASS "1" PIPING
WHOLE SYSTEM CLASS "1" EXCEPT AS NOTED BELOW:
A. IF NO DANGER OF FLOODING DISCHARGE SYSTEM FROM COOLERS IS NOT CLASS "1"
B. 16" SERVICE WATER LEAD TO VARIOUS CONVENTIONAL PLANT SERVICES DOWN-STREAM OF CONTROL VALVES FCV-1111 & FCV-1112 IS NOT CLASS "1"
C. 10" SERVICE WATER LEAD TO OIL COOLERS DOWN-STREAM OF VALVES SWN-6 AND SWN-7 IS NOT CLASS "1"

REV	DESCRIPTION	DATE	BY	CHK'D	APP.
130	INCORPORATE EC-53507	12/08/16	AR	APPROVAL SIGNATURES ON FILE	

REVISIONS

THIS DWG. TO BE REVISED ONLY IN AUTOCAD

WORK THIS DWG.WITH DWG.A209762

	CKR.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
DATE 12/16/87	W.S.	F.A.	W.J.KING 12-16-87		
	REVIEW		APPROVALS		

TITLE;FLOW DIAGRAM SERVICE WATER SYSTEM NUCLEAR STEAM SUPPLY PLANT SHEET 1 OF 2 - UFSAR FIGURE No. 9.6-1 (SHT. 1)

Entergy Nuclear Northeast

STATION INDIAN POINT

DWG. NO. 9321-F-2722-130 MY

DRWN. BY GIBBS&HILL — SCALE NONE — DEC'D
~~~

209762

EVERYTHING ON THIS DRAWING IS PART OF THE SERVICE WATER SYSTEM (SWS) LISTED IN EXHIBIT A, CI-240-1 EXCEPT AS INDICATED:

PRMS PROCESS RADIATON MONITORING SYSTEM

NOTE : FOR DETAIL "A"

** ONLY FAN COOLER #25 HAS VENTS @ UNIT, OTHERS HAVE VENTS NEAR CONTAINMENT PENETRATIONS. FOR VALVE TAG NO.S SEE MAIN FLOW SCHEMATIC ON THIS DRAWING.

DETAIL "A"

TYPICAL ARRG'T.AT FAN COOLERS #21,#23,#24 & #25

DETAIL "B"

TYPICAL ARRG'T.AT FAN COOLER #22

CONTAINMENT BUILDING VENTILATION COOLING COILS

RECIRC.FAN NO.24 — RECIRC.FAN NO.23 — RECIRC.FAN NO.21 — RECIRC.FAN NO.22 — RECIRC.FAN NO.25

FOR ARRG'T OF PIPING CONN'S SEE DET.A

FOR ARRG'T OF PIPING CONN'S SEE DET.B

INSIDE CONTAINMENT | OUTSIDE CONTAINMENT

IN SERVICE INSPECTION NOTES:

1. CP=CONTAINMENT PENETRATIONS. ASME CLASS MC APPLIES.
2. FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

NOTE:

* = CLASS-NF,CLASS-SS & CLASS-CS REFER TO PIPING CLASS REFERENCED IN SPEC 9321-01-248-35.R4A AS SWN-NF,SWN-SS & SWN-CS.CLASS D-7 REFERS TO PIPING REFERRED IN SPEC.9321-01-248-18.

1. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.
2. APPLIED CARBON FIBER WRAP ON LINE #11 (2.5" & 3") SWN-SS UP TO THE FLOOR PENETRATION AT 51' PIPE PEN.

MATCH LINE SEE DWG 9321-F-2722

TO BE REVISED ONLY IN AUTOCAD

REV	DESCRIPTION	DATE	BY	CK'D	APP.
77	INCORPORATED EC-74151	10/31/17	AR	APPROVAL SIGNATURES ON FILE	

REVISIONS

DATE	CKR.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
1/4/88	R.M.		F.A. W.J.KING/G.C. 1-14-88		

REVIEW | APPROVALS

TITLE;FLOW DIAGRAM SERVICE WTR SYS NUCLEAR STM SUPPLY PLANT SH 2 of 2
UFSAR FIGURE No. 9.6-1 (SHT. 2)

MOD., PROC., OR SPEC.

DRWN. BYDOMINIC MARZULLO | SCALE NONE | REC'D

Entergy Nuclear Northeast

STATION INDIAN POINT

DWG. NO. 209762-77 MY

B 192505-21

INDIAN POINT UNIT NO 1

TITLE: FLOW DIAG. CITY WATER SYSTEM #1

REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE CHK'D	APP.
21	INCORPORATED EC-23341	8/17/10	JS		

REVISIONS

M.RADVANSKY 05/02/03 17

THIS REV.IS NON CLASS PER THE QAPD. UPDATED DWG. TO SHOW THE WORK DONE ON MOD. PROC. NO. FMX-94-10478-M, DMD192505-AE,REV.03 DMD192505-AF,REV.04 DMD192505-AG,REV.00 DMD192505-AH,REV.00 DMD192505-AI,REV.00 DMD192505-AJ,REV.00 RELEASE AS CONSTRUCTED P.N.10478-94 GH/MR

BLD. FLG.
UW-6410-12"-DH-1
UW418
M140 LC
PI
UW271
UW269
8" BLIND FLG.
UW416
UW285
DRN
UW277
ALTITUDE CONTROL VALVE
UW275
UW273
UW-6407-12"-DH-1
O.B.
16"
UW-6406-10"-DH-1
UW-6415-½"-DH-1
UW-6409-16"-DH-1
10"
1,500,000 GAL CITY WATER STORAGE TANK
UW284
¾"
UW279
UW280
16"
UW231
UW282
UW278
UW-6405-12"-DH-1
UW504
16"ø SHELL NOZZLE SEE DWG. 8G125 FOR DETAILS
UW286
UW287
DRN
UW-6402-10"-DH-1
UW-6416-½"-DH-1
UW-6408-16"-DH-1
UW419
M146 LC-1
UW417
UW283
10"
DRN
UW276
UW274
UW272
ALTITUDE CONTROL VALVE
M146 LI
UW288
UW290
M147 LAS
UW289
M147 LAS-1
UW270
UW-6411-12"-DH-1
MATCH LINE DWG. 192506
FIRE PROTECTION SYS. (HYDRANT) DWG A 227552 DET. J.
DH-1
DH-2
FP-6077-6"-DH-2
FP-6075-6-DH-2
UW-6412-16"-DH-2
UW-6413-4"-DH-2
1"
UW-6408-16"-DH-2
21
TO IP3

UW-752 CW-BKFP 7633 UW-751 CYWST13 UW-313
UW-706 UW-713 UW-712 M CITY WATER METER FE 7633 310129 UW-261
UW-750 CW-BKFP 7632 UW-749 CYWST12 UW-312
UW-705 UW-711 UW-710 M CITY WATER METER FE 7632 310129 UW-260
UW-747 CW-BKFP 7631 UW-748 CYWST11 UW-811
UW-704 UW-708 UW-707 M CITY WATER METER FE 7631 310129 UW-259

8"CAP
UW-6401-12"-DH-1
UW-308
UW412
UW411
DRN
UW-6401-12"-DH-1
PI 7634
UW291
UW255
12"

PRESSURE REGULATOR VALVE
UW303
UW304
¼"
¼"
BLIND FLANGE
UW254
16"
UW256
12"
UW258
UW302
½"
UW301
UW-702
UW305
UW306
UW-6401-12"-DH-1

RETIRED IN PLACE PER DCP-02-2-025
M149 PAS
VENT
¼"
UW309
¼"
UW307
¾"
LC.
¼"
¼"
UW313
UW310
DRN
UW311
¼"
M150 PI
UW314
M194 PI
UW-6400-16"-DH-1

PRESSURE REGULATOR VALVE
UW297
UW298
UW-6402-12"-DH-1
¼"
¼"
UW253
UW257
UW296
½"
UW295
UW-703
UW299
UW300
UW251
DH-2 DH-1
FROM CITY WATER SUPPLY HEADER
UW-6400-16"-DH-2

IT IS A VIOLATION OF NEW YORK EDUCATION LAW FOR ANY PERSON TO ALTER ANY ITEM ASSOCIATED WITH THE BACKFLOW PREVENTERS AND THEIR VALVES IN ANY WAY UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER

REFERENCE DRAWINGS

NUMBER	TITLE
192477	PIPING & INSTR. NOTES & SYMBOLS
192506	FLOW DIA-CITY WATER SYS.-SHT #2
193183	-SHT #3
~~193186~~	~~FLOW DIA-FIRE PROTECTION SYS-SHT #2~~
193197	PIPING LINE LIST-CITY WTR. SYS.-SHT #1
9321-F4006	YARD FIRE PROT PIPING-DIAG
A227552	FIRE PROT SYS-DET DIAG SH #2

OBSOLETE

B 192505-21

Entergy Nuclear Northeast

PREPARED BY: TREADWELL CORP. N.Y.
STATION LOCATION: INDIAN POINT UNIT NO 1
PIPING FLOW DIAGRAM
CITY WATER SYSTEM SHEET No. 1
- UFSAR FIGURE No. 9.6-5 (SHT. 1)

SCALE NONE | DRAWN BY W. WATER | RECORDED 1-6-75
J.O. 3948 | CHECKED BY H.M. | ENG. VK
DIAG. | ELECT. | MECH. | STRUCT. | DIST.

APPROVALS

GENERAL ENGINEERING	CHIEF DESIGN ENGINEER	4/11/74
MECHANICAL ENGINEERING	MECH PLANT ENGINEER	5/13/74
CIVIL ENGINEERING	PLANT STRUCT. ENGINEER	
	T&G. STRUCT. ENGINEER	
ELECTRICAL ENGINEERING	STATION ELECT. ENGINEER	
	T. & D. ENGINEER	
GAS & STEAM OPERATIONS	STRUCT. ENGINEER	
PRODUCTION	CONVENTIONAL POWER	
	NUCLEAR POWER	M / MB

INCHES 0 1 2 3 4 5

TC-# 230C594

42	INCORPORATED EC-30914	01/12/12	DM	APPROVAL SIGNATURES ON FILE	
REV	DESCRIPTION	DATE	BY	CHK'D	APP.
REVISIONS					

TITLE: FLOW DIAG. CITY WATER SYSTEM SHT#2 — INDIAN POINT UNIT NO 1 — B192506-

REVISIONS

FOR CONT. SEE A208368

CW-6" — MW-630 — MW-631 — UW-6408-12"-DH-1

MATCH LINE DWG 193183

1 1/2" — UW-638 — SAFETY SHOWER SALINITY SAMPLING ROOM EL.15'-0"

WATER COOLERS (EL.72')

UW-6457-¾"-DH-1 — UW-399 — UW-6442-1½"-DH-1 — UW-6458-1½"-DH-1 — UW400 — 1"

EXPANSION TANK — UW402 — UW401 — UW-5459-¾"-DH-1

UW-452 — 1/2" — UW-453 — MW-1024 — UW-454 — MW-1025 — CCR HUMIDIFIER — 42

UNIT #1 CCR DRSAT CABINET

UW-6442-1"-DH-1 — UW-644 — UW-643 — PI 8008 — UW-6449-½"-DH-1 — UW-814 — PI 8008 — UW-815 — DRAIN

CITY WATER BOOSTER PUMP (EL. 68')

CITY WATER BOOSTER PUMP TK — UW403 — 1½"

UW-6450-1"-DH-1 — UW383 — WTR HTR CLOSET 88' 1" — UW-6451-½"-DH-1 — UW404 — LAVATORY EL. 105', EL. 122' EL. 135' SEE DWG. # 138582

WATER COOLER EL. 88', EL. 105' EL. 122'

WATER FACTORY EYE WASH — UW-369 — UW-6439-½" — UW 368

UNIT 2 IACC DWG 9321-F-2722 — UW-1742-1" — UW 510 — UW359 — UW-6437

WATER FACTORY SAFETY SHOWER & EYE WASH — UW367 — UW370

WATER FACTORY DRENCH SHOWER HOUSE — UW365 — UW-6438-¾"

UW-6437-1½"-DH-1 — UW-364

UW359

UW382 — UW-6442-2½"-DH-1 — UW360 UPDATED DWG — UW-6441-2"-DH-1 — ¾" — UW362 — DRN. — UW363

1½"

FRESH WATER RECIRCULATION SYSTEM DWG 193677

WP-6009-2"-DH-1 — MAKE UP WATER TREATMENT SYS.-TO RESIN STORAGE TANK. DWG. 192497

UW361 — UW393 — UW394 — UW-6443-¾"-DH-1 — UW395 — UW-6444-1"-DH-1 — UW-6445-DH-1 — UW-639 — UW398 — UW-6448-½"-DH-1 — UW397 — ¾" — UW-6447-¾"-DH-1 — TEMPERING TANK

UW-6454-¾"-DH-1 — UW-6453-¾"-DH-1

WATER HEATER — UW-640 — UW-6446-DH-1 — SAMPLE SINKS

3/4" TO UNIT 2

(EL.53') (EL.15') WATER COOLERS

EYE WASH (EL.15')

UW-766 — UW-1949-3/4"-DH-1 — EMERGENCY SHOWER & EYEWASH LOCATED ON EL.33'-0" DWG 138582

UW372 — UW-6435-6"-DH-1 — BLIND FLANGE — WATER SERVICE 1" — BLIND FLANGE — UW377 — UW-6436-6"-DH-1 — UW450 — 2" — UW449 — UW409 — 1" — UW451 — 1" — UW410 — ½" — WATER SERV — UW-6434-½"-DH-1 — UW-6432-3"-DH-1 — UW-6431-4"-DH-1 — UW-6448-1"-DH-1

EYE WASH

UW-6420-16"-DH-2 — 1" VENT — UW379 — DH-1 DH-2 — UW-6429-12"-DH-1 — UW378 — UW-809 — UW-6430-14"-DH-1 — UW-6432-3"-DH-1 — 2" — UW408 — 2" — UW407

MAIN CONDENSATE LOOP SEAL FILL DWG. 192483

HOT WATER HEATER

TO UNIT NO. 2 9321-2018 AUX. FEED WATER SUPPLY

DIESEL FIRE PUMP DWG NOS 227551 & 9321-4006

UNIT NO. 2 MOB DWG. 217475 — UW-802 — 16" BLIND FLG — UW-821 — 16" FLG'D SPOOL PIECE — UW-797 — 4" — 6" — FP-702 — 16"

FP17 — FP16

NUCLEAR SERVICE BUILDING PLUMBING DWG NOS 141249 & 141251

UW-6421-16"-DH-2

CYW — 6" — FP-880 — SIMULATOR BLDG — UW-820 — 2" — UW-818 — MSB BLDG — UW-828 — LP-C — UW-817 — 4" — UW-819 — GSB BLDG — 3" — 6" — UW-816 — EEC BLDG

UW-2733-3"-DH-1 — NSB & SPHERE DWG NO. 141088 — UW-71

UW-6420-16"-DH-2 — FP-6109-6"-DH-2 — FP-336 — FIRE PROTECTION SYSTEM LOW PRESSURE HYDRANT DWG No. 9321-4006

CSB & FHB DWG NO 141088 — IP-2 COMMAND POST — UW-2758-4" — UW-501 — UW-764 — UW-765 — 2" — J4 — 1" — 1/2" — UW-830 — UW-829 — UW-21 — FP-15 — DH-2 — DZ-4 — DH-1 — UW-319 — UW-318

UW-6408-12"-DH-1 — UW323 — 16" — UW-2758-4"-DZ-4 — DH-1 DH-2 — UW-321 — UW-6408-16"-DH-2 — UW-322 — UW-320 — UW317 — MATCH LINE DWG. 192505

FOR CONT. SEE B235299

UW-6408-12"-DH-1 — UW-1597-6"-DH-1 — UW612 — 3/4" — BLIND FLANGE — MATCH LINE DWG NO. 234191 — UW-613 — 1½" — UW-612 — MW-502 — UW-LINE/1914-4" — 4" — 4" — 3/4" — UW-614 — HSB FEED WATER SYS DWG 9321-2120

RETIRED IN PLACE

UW-6423-12"-DH-2 — UW421

UW324 — UW522 — UW523 — UW524 — DRAIN TO TRENCH — CW-6"-C-3 LINE NO. 1668 — WATER TREATMENT PLANT PREFILTER DWG 236427

MATCH LINE DWG. 193183

UW-6408-12"-DH-1

CITY WATER BOOSTER PUMP FOR TRUCK MOUNTED PREFILTRATION UNIT — SEE DWG. 192494

UW-526 — UW325 — UW-527 — UW-528 — UW-529 — UW 601 — PI — 3" — OUTSIDE CONNECTION (AT DISCH. SIDE OF SERVICE BLDG.)

SKETCH #2

ABOVE GROUND PORTION OF 6" CITY WATER LINE TO CWTP ELECTRIC HEAT TRACED. ELECTRIC POWER SOURCE FOR HEAT TRACING IS SUPPLIED BY NYPA.

FIRE PROTECTION SYSTEM DWG 9321-F-4006

FIRE PROTECTION

UW-6426-6"-DH-1 — FOR CONT. SEE SKETCH #2

FIRE PROTECTION SYSTEM - DWG. 9321-F-4006

UW-384 — UW-788 — 4" — 2 1/2" — DH-2 — DH-1 — FP41 — FP-6030-8"-DH-2 DWG 9321-F-4006

FP-6043-12"DH-2 — UW-6423-12"-DH-2 — FP44 — 6"X4" — UW-776 — 6" — UW-785 — 3/4 — PI 7806 — CW-BKFP 7634 — FE 7638 — UW-781 — #2091, DH-1 — UW-780 — UW-777 — UW-779 — UW-782 — UW-783 — 1" — DRAIN — 6"-#2091-DH-1 — 4" DRAIN TO DISCHARGE TUNNEL — CW-BKFP 7635 — FE 7639 — TO UNIT #3 WATER TREATMENT MODULES

FIRE PROTECTION SYSTEM (HYDRANT) DWG. 9321-F-4006

FP-1227 (CT-49 IP3) — FP-6067-6"-DH-2 — 4"-UW LINE #1226 — 8"-UW LINE #1925 — FP359 — 4" CITY WATER — LINE TO UNIT NO. 3

8" AUX. FEEDWATER SUPPLY 9321-F-20343 SH.1

NOTES:

1. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

NUMBER	TITLE
9321-F-4006	YARD FIRE PROT PIPING - DIAG
A227551	FIRE PROT SYS - DET - DIAG SH. #1

REFERENCE DRAWINGS

NUMBER	TITLE
192477	PIPING & INSTR. NOTES & SYMBOLS
192505	FLOW DIA. CITY WATER SYS. SHT #1
193183	SHT #3
~~193185~~	~~FLOW DIAG FIRE PROTECTION SYS. SHT #1~~
193186	SHT #2
141088	COMPRESSED AIR & CITY WATER DIAG.
192483	MAIN CONDENSATE SYS DIAG SHT. #1
192494	WATER TREAT. SYSTEM DIAG SHT. #2
~~193185~~	~~FIRE PROTECTION SYS. DIAG. SHT #1~~
193201	AUXILIARY BOILER FEED SYSTEM DIAG.
193677	FRESH WTR. RECIRC COOLING SYS - SHT #1
141069	FRESH WTR COOLING SYS PUMPAREA DIAG.
193198	PIPING LINE LIST-CITY WTR SYS.-SHT #2

INCHES 0 1 2 3 4 5

B192506-42

Entergy Nuclear Northeast

PREPARED BY/DATE	TREADWELL CORP. N.Y.
STATION LOCATION	INDIAN POINT UNIT NO. 1
PIPING FLOW DIAGRAM CITY WATER	
SYSTEM SHEET No. 2 -	
UFSAR FIGURE No. 9.6-5 SHT. 2	
SCALE NONE	DRAWN BY W. WATER — RECORDED 1-6-75
A.O. 3948	CHECKED BY H.M. — END.
DIAG. ELECT. MECH. STRUCT. DIST.	

APPROVALS

GENERAL ENGINEERING	CHIEF DESIGN ENGINEER
MECHANICAL ENGINEERING	MECH. PLANT ENGINEER
	PLANT STRUCT. ENGINEER
CIVIL ENGINEERING	T & D. STRUCT. ENGINEER
ELECTRICAL ENGINEERING	STATION ELECT. ENGINEER
	T & D. ENGINEER
R&S & STEAM OPERATIONS	STRUCT. ENGINEER
PRODUCTION	CONVENTIONAL POWER
	NUCLEAR POWER

MY

TC #2300795

REV	DESCRIPTION	DATE	BY	CHK'D	APPR.
REVISIONS					
32	INCORPORATED EC-61288	01/29/16	VMR		

APPROVAL SIGNATURES ON FILE

OUTSIDE SCREENWELL HOUSE | INSIDE SCREENWELL HOUSE

UW-354 1 1/4"

SAFETY SHOWER HYDROGEN STORAGE AREA

EYEWASH HYDROGEN STORAGE AREA

UW-827 1/2"

1/2"

¾" UW-794

MW-1036

1" UW-355

MW-1028 ¾" HOSE CONN. UW-793 ASSEMBLY

UW-791 1½"

UW-792 ¾"

¾" MW-1030 HOSE CONN. UW-795 ASSEMBLY

2"

UW-790

UW-2154-1 1/2"-N2

UW-351 1"

SAFETY SHOWER HYPOCHLORITE TANK AREA

EYE WASH

UW-350

UW-722

MW-1029 HOSE CONN.

FOR CONT. SEE DWG 192480

2" ISOLATION FLANGES (BY OTHERS)

EYE WASH

UW-674

SAFETY SHOWER

1" UW-673

UW-723

TO 15' SCREEN WASH PUMP AREA; PUMP OPEN ENDED.

UW-2153-1 1/2"-N2

1¼"

¾"

¾" UW-608

UW-610

UW-607 1½"

UW-606

H-7 (CPVC PIPE)

DH-1 (BRASS PIPE)

H-7 (CPVC PIPE)

DH-1 (BRASS PIPE)

1¼" UW-611 MW-1026 1½" 1¼"

EDUCTOR CL-1331

2"

2" H-7 (CPVC PIPE)

UW-6481-1½"-DH-1 (BRASS PIPE)

UW-2153-1½"-N-2 (S.ST. PIPE)

DH-1 (SARAN LINED)

2"

TO DISCHARGE CANAL

SUMP PIT

1¼" UW-609

MW-1027

HOSE CONN.

20,000 GAL HOUSE WATER TANK

LAVATORY EL.135'

UW-6485-3"-DH-1

UW-387

6"

UW-6486-3"-DH-1

FP-6089-6"-DH-1

FP-6087-4"-DH-1

FP-6094-6"-DH-1

4" DRAIN

FP-6093-2"-DH-1

FOR CONTINUATION SEE DWG. 9321-4006

UW-388

FIRE PROTECTION SYSTEM (TO SCREENWELL HOUSE) DWG 9321-4006

FP-6048-3"-DH-1 (RETIRED IN PLACE)

CUT & CAPPED RETIRED IN PLACE

UW-6477-3"-DH-1

SERVICE BUILDING PLUMBING 9321-F-4006

2½" 2" 1½" 1½" 1" UW-807

UW-808 3/4"

UW-810

SAFETY SHOWER CHEM. LAB EL. 40'-0"

UW-357 DRN 1½"

UW-356

32

UW-6408-12"-DH-1

UW-6478-1"-DH-1

MATCH LINE DWG. 192506

UW-358

UW-347 1" PLUG

UW-344 ½"

UW-345

UW-6476-½"-DH-1

UW-346

MW-1023

UW-803 1"

UW-343

UW-6474-1"-DH-1

UW-804 3/4"

MW-1032

RELIEF VALVE TEST BENCH

FP-39

FP-6069-6"

FIRE PROTECTION SYS. DWG 9321-4006

4" CITY WATER SUPPLY TO SBO/APPENDIX 'R' DIESEL GENERATOR – FOR CONT. SEE DWG. 400882

BACKFLOW PREVENTOR UW-846

UW-855 4"-DH-1

UW-854

4" CITY WATER RETURN FROM SBO/APPENDIX 'R' DIESEL GENERATOR – FOR CONT. SEE DWG. 400882

3" VENTED DRAIN CONN. (FROM INTERNAL RELIEF VA.)

4"

3"-DH-1

TO 24" FIBERGLASS DRAIN HDR.

UW-5391-3/4"-DH-1

DRAIN PLUG-4½"

VENT UW-624

MW-1021 UW-336 UW-337 MW-1022

UW-83

UW-6471-1"

12"

2"

UW-677

UW-390

UW-654

UW-655

UW-656

4"-1976-151

UW-657

FOR CONT SEE DWG 192480

FIRE PROTECTION SYS. DWG 9321-4006

UW-6408-12"-DH-1

FP-6060-8"

FP-6059-8"

FP-6

FP-7

UW-342

1½"

UW-500

DRAIN PLUG-4½"

UW-6470-12"

UW-623

UW-335

UW-333

¾" UW-332

3/4" S.S. TUB.

VALVE IS ENCAPSULATED IN PLACE

LC UW-329

MW-765

RADIATION MONIT. R-57 DWG.A235299

UW-330

UW-326

UW-6408-12"-DH-1

MATCH LINE DWG. 192506

EYE WASH

½" UW-826 UW-334

UW-622 ½"

MW-1031

½"

CROSBY VALVE TESTING BENCH

MAINT. FOREMAN'S OFFICE SINK

WATER COOLERS 15' 33'

UW-340 UW-621

UW-6473-3/4"

UW-508

2½"

UW-338

UW-339 1½"

FILTER & CAFETERIA

PLUMBING-SERVICE BLDG.- DWG138576

UW-6472-4"

WASTE NEUTRALIZATION TANK SYSTEM

UW-6466-1"-DH-1

TEMPERING TANK

UW-6469-1"-DH-1

½" UW-381

UW-322

UW-6468-1"-DH-1

20,000 GAL. HOUSE WATER TANK SYSTEM

FP-6085-4"-DH-1

MATCH LINE

UW-328

UW-6466-1"-DH-1

UW-327

UW-6465-4"-DH-1

FP-217

FP-33

FP-48

FP-6032-24"-DH-1

FP-6039-24"-DH-1

FP-6038-6"-DH-1

FIRE PROTECTION SYSTEM DWG 9321-F-4006

REFERENCE DRAWINGS	
NUMBER	TITLE
192477	PIPING & INSTR.NOTES & SYMBOLS
192505	FLOW DIA-CITY WATER SYS.-SHT#1
192506	-SHT#2
192480	RIVER WTR SERVICE SYS DIAG.SHT#1
192482	MAIN CONDENSER CIRC. WATER DIAG.
192483	MAIN CONDENSATE SYS. DIAG. SHT#1
192484	SHT#2
192486	CONDENSATE RETURN SYS. DIAG. SHT#1
192489	CONDENSER AIR REMOVAL DIAG.
193199	PIPING LINE LIST CITY WATER SYS.SHT#3
9321-F-4006	YARD FIRE PROT PIPING-DIAG.
A227551	FIRE PROT. SYS.-DET.-DIAG. SH.1
A227552	SH.2
A227553	SH.3
A227554	SH.4
A251568	SCREEN WELL HOUSE #1 EL.560'

DWG. NO. 193183-32

Entergy Nuclear Northeast

DWG. TYPE: MECHANICAL

DWG. SIZE: A

LOCATION: INDIAN POINT

TITLE: UNIT No. 1 PIPING FLOW DIAG.
CITY WATER SYSTEM SHEET No. 3
UFSAR Fl. No. 9.6-5 (SHT. 3)

– APPROVALS –

ENGINEERING MANAGER:

PROJECT ENGINEER:

DESIGNER:

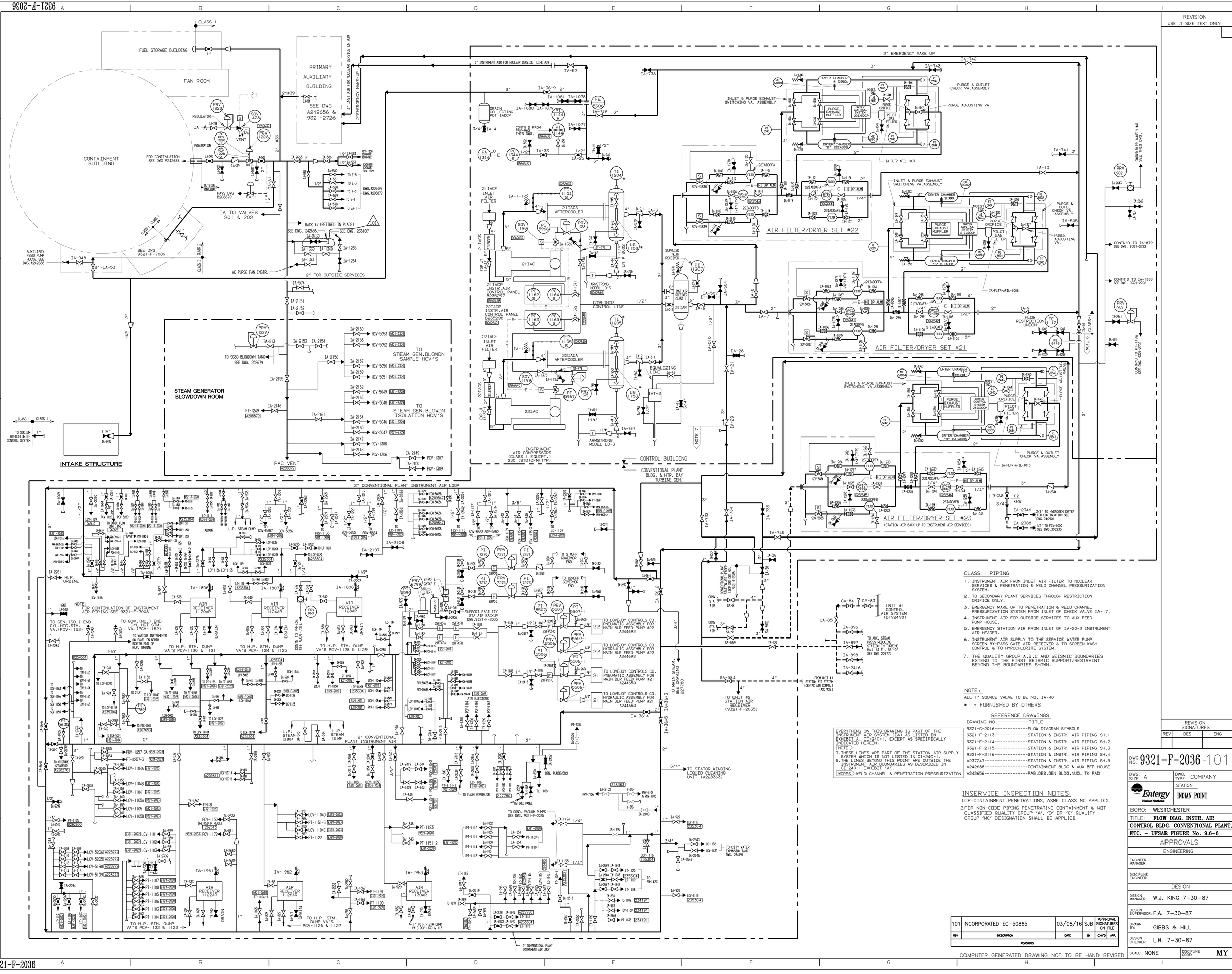
DRAWN BY: M. HEREDIA

SCALE:

DISCIPLINE CODE: MB

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

193183-32



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 PENETRATION & WELD CHANNEL PRESSURIZATION SYSTEM FROM INLET OF CHECK VALVE IA-17.
4. INSTRUMENT AIR FOR OUTSIDE SERVICES TO AUX FEED PUMP HOUSE.
5. EMERGENCY STATION AIR FROM INLET OF IA-20-2 INSTRUMENT AIR HEADER.
6. INSTRUMENT AIR SUPPLY TO THE SERVICE WATER PUMP SCREEN BY-PASS GATE AIR RECEIVER & TO SCREEN WASH CONTROL & TO HYPOCHLORITE SYSTEM.
7. THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

NOTE:
ALL 1" SOURCE VALVE TO BE NO. IA-40
* ~ FURNISHED BY OTHERS

REFERENCE DRAWINGS

DRAWING NO.	TITLE
9321-C-2016	FLOW DIAGRAM SYMBOLS
9321-F-2113	STATION & INSTR. AIR PIPING SH.1
9321-F-2114	STATION & INSTR. AIR PIPING SH.2
9321-F-2115	STATION & INSTR. AIR PIPING SH.3
9321-F-2116	STATION & INSTR. AIR PIPING SH.4
A237247	STATION & INSTR. AIR PIPING SH.5
A242688	CONTAINMENT BLDG & AUX BFP HOUSE
A242656	PAB.DES.GEN BLDG.NUCL TK PAD

EVERYTHING ON THIS DRAWING IS PART OF THE INSTRUMENT AIR SYSTEM (IA) AS LISTED IN EXHIBIT A, CI-240-1, EXCEPT AS SPECIFICALLY INDICATED HEREIN:
NOTE >
7. THESE LINES ARE PART OF THE STATION AIR SUPPLY SYSTEM WHICH IS NOT LISTED IN CI-240-1.
8. THE LINES BEYOND THIS POINT ARE OUTSIDE THE INSTRUMENT AIR BOUNDARIES AS DESCRIBED IN CI-240-1 EXHIBIT "A".
WCPPS > WELD CHANNEL & PENETRATION PRESSURIZATION

INSERVICE INSPECTION NOTES:
1.CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.
2.FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP "A", "B" OR "C" QUALITY GROUP "MC" DESIGNATION SHALL BE APPLIED.

REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE CH'D	APP.
101	INCORPORATED EC-50865	03/08/16	SJB		

REVISIONS

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

REVISION SIGNATURES

REV	DES	ENG

DWG. NO. 9321-F-2036-101
DWG. SIZE A
DWG. TYPE COMPANY
STATION INDIAN POINT
Entergy Nuclear Northeast
BORO: WESTCHESTER
TITLE: FLOW DIAG. INSTR. AIR CONTROL BLDG. CONVENTIONAL PLANT, ETC. - UFSAR FIGURE No. 9.6-6

APPROVALS

ENGINEERING	
ENGINEER MANAGER:	
DISCIPLINE ENGINEER:	
DESIGN	
DESIGN MANAGER:	W.J. KING 7-30-87
DESIGN SUPERVISOR:	F.A. 7-30-87
DRAWN BY:	GIBBS & HILL
DESIGN CHECKER:	L.H. 7-30-87
SCALE: NONE	DISCIPLINE CODE: MY

9321-F-2036

9321-F-2035

46	INCORPORATED EC3300	4/30/09	JF	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHK'D / APPR.

1/4" PNEUMATIC SEAL

DETAIL "A"

TO RAD.MONITOR #5976 SEE DWG.B241548

TO SANDBLASTER DEGREASER & DECONTAM.ROOM

M & O BLDG.

WASTE HOLD UP TANK PIT

FUEL STORAGE BUILDING

1/2" FOR CONT. SEE DETAIL "A"

3/4" SA-21-41

FAN ROOM

CONTAINMENT BUILDING

FIRST WELD FROM PENETRATION

CP CLASS 1

46

68' EL. PAB PIPE TUNNEL

PRIMARY AUXILIARY BUILDING

CONTROL BUILDING

SEE 9321-F-2036

4" STATION AIR TIE TO UNIT #1 DWG.A257429

2" STATION AIR SUPPLY FROM UNIT #1 DWG.A257429

3" EMERGENCY SUPPLY TO INSTRUMENT AIR COMPRESSOR SYS. & EMERGENCY INSTRUMENT AIR SYSTEM. SEE DWG. 9321-F-2036

CONVENTIONAL PLANT STATION AIR HEADER

4" DRIP POCKET

FOR CONT SEE 9321-F-2036 (BACK-UP AIR SUPPLY)

IA-1226

IA-1224

AUX. FEED PUMP BLDG.

VENT

TEMP.PRESS. TAP CONN.

INLET AIR FILTER

AFTER COOLER

INTERCOOLER

DRY PUMP

650 SCFM STATION AIR COMPRESSOR (2 STAGE)

EXPANSION JOINT (SA-22)

STATION AIR RECEIVER

TO PALL FILTER INST.AIR BACK UP FOR MSIP CONTROLS DWG.9321-F-2036

CONVENTIONAL PLANT-STATION AIR HEADER

3" DRIP POCKET

INTAKE STRUCTURE

CONVENTIONAL PLANT
T.G. BLDG. & HTR. BAY

CLASS I PIPING

DOUBLE ISOLATION VALVE THROUGH CONTAINMENT INCLUDING ISOLATION VALVE SEAL WATER SUPPLY.

THE QUALITY GROUP A,B,C AND SEISMIC BOUNDARIES EXTEND TO THE FIRST SEISMIC SUPPORT/RESTRAINT BEYOND THE BOUNDARIES SHOWN.

INSERVICE INSPECTION NOTES:

1.CP=CONTAINMENT PENETRATIONS, ASME CLASS MC APPLIES.

2.FOR NON-CODE PIPING PENETRATING CONTAINMENT & NOT CLASSIFIED QUALITY GROUP 'A', 'B' OR 'C' QUALITY GROUP 'MC' DESIGNATION SHALL BE APPLIED.

REFERENCE DRAWINGS

U.E.&C. DWG. NO.	DESCRIPTION
9321-F-2113	TURB. BLDG. & HTR. BAY-STA.& INSTR. AIR PIP'G SHT. #1
9321-F-2114	TURB. BLDG. & HTR. BAY-STA.& INSTR. AIR PIP'G SHT. #2
9321-F-2115	TURB. BLDG. & HTR. BAY-STA.& INSTR. AIR PIP'G SHT. #3
9321-C-2016	FLOW DIAGRAM SYMBOLS
9321-F-2687	CONTAINMENT BLDG SERVICE AIR CITY WATER PIPING

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

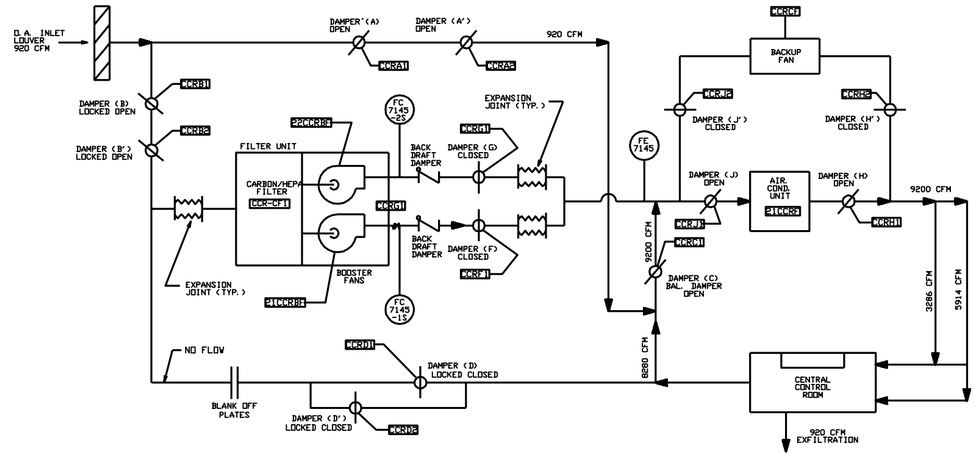
REVISION							
L.A. 12/20/99	THIS REVISION IS NON CLASS PER CI-240-1 UPDATED DWG. PER CRS #199904407, OR FILE NO. O-2602 RELEASED AS BUILT P/N 69982-CD GB/SW 12/20/99	7/30/87	E.C.	F.A.	W.J.KING 7-30-87		
DES		DATE	CHK.	SUPV.	DESIGN ENG	DISC. ENG.	ENG. MGR.
ENG			REVIEW		APPROVALS		

TITLE; FLOW DIAGRAM		Entergy Nuclear Northeast	STATION INDIAN POINT
STATION AIR -			
UFSAR FIGURE No. 9.6-7			
DRWN. BY GIBBS & HILL	SCALE NONE	DES'D	DWG. NO. 9321-F-2035 MY

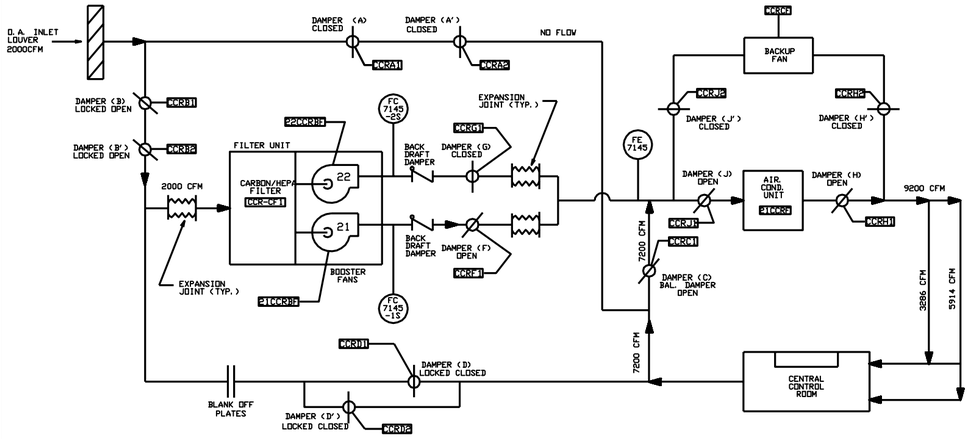
252665-17

REV	DESCRIPTION	DATE	BY	APPROVAL SIGNATURES ON FILE DES	ENG
17	INCORPORATED EC-5000031412 & EC-5000030075 (DMD252685-AK)	04/09/10	RM		

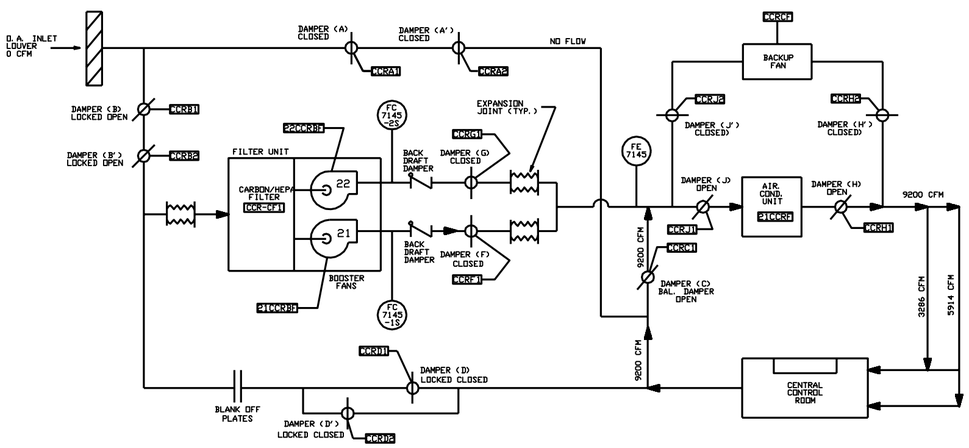
REVISION
USE .1 SIZE TEXT ONLY



(1) NORMAL OPERATION
OUTSIDE AIR MAKEUP

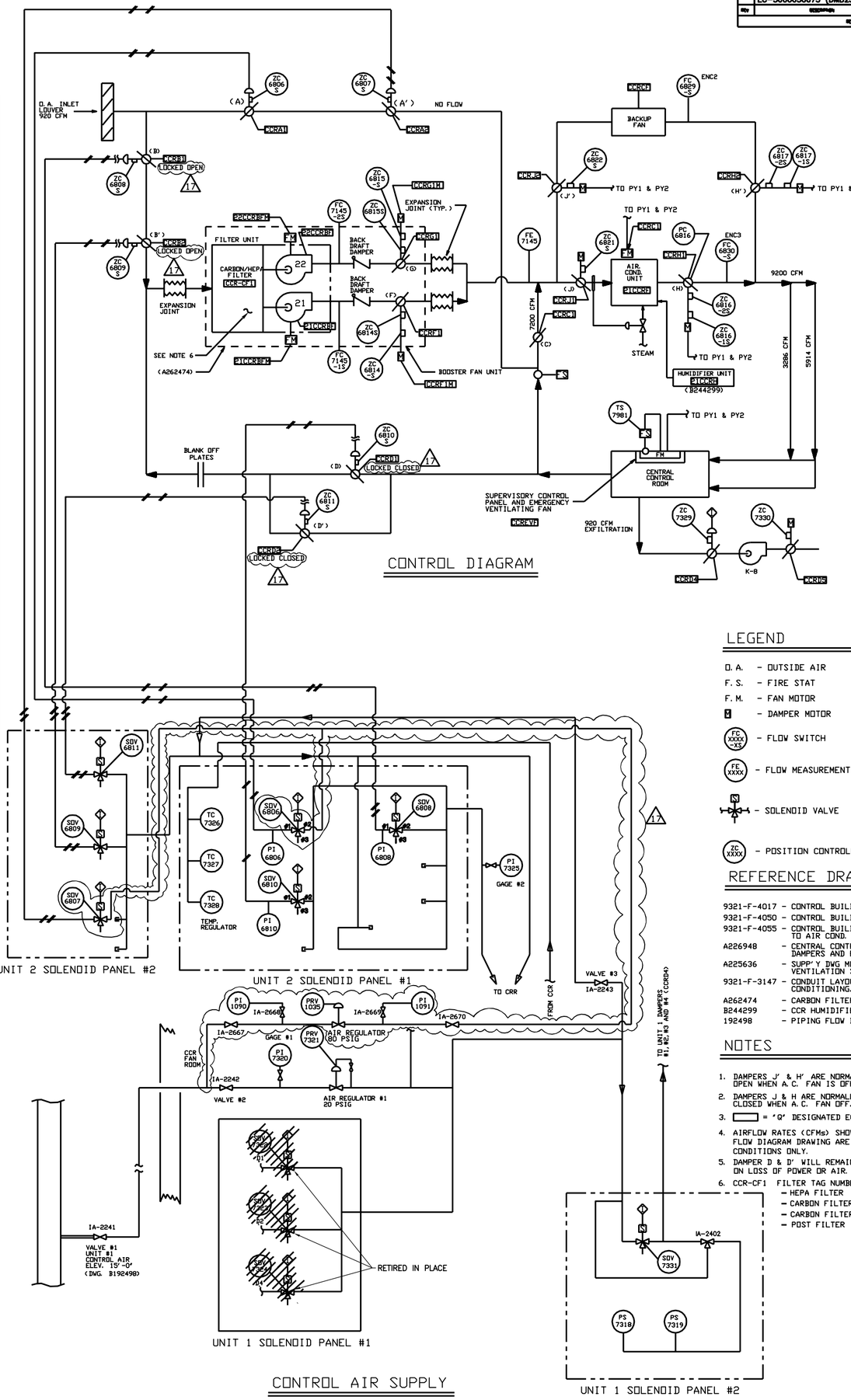


(2) INCIDENT - OUTSIDE
AIR FILTERED PRESSURIZATION
S.I. OR HIGH RADIATION



(3) INCIDENT 100 % RECIRCULATION MODE
TOXIC GAS OR SMOKE

AIR FLOW DIAGRAMS



CONTROL DIAGRAM

CONTROL AIR SUPPLY

LEGEND

- D.A. - OUTSIDE AIR
- F.S. - FIRE STAT
- F.M. - FAN MOTOR
- V - DAMPER MOTOR
- FC XXXX -XS - FLOW SWITCH
- FE XXXX - FLOW MEASUREMENT DEVICE
- SOLENOID VALVE
- ZC XXXX - POSITION CONTROLLER

REFERENCE DRAWINGS

9321-F-4017 - CONTROL BUILDING -HVAC- PLANS.
9321-F-4050 - CONTROL BUILDING -HVAC- SECTIONS.
9321-F-4055 - CONTROL BUILDING - COOLING WATER TO AIR COND. UNIT.
A226948 - CENTRAL CONTROL RM. HVAC SYSTEM DAMPERS AND REDUNDANCY.
A225636 - SUPP'Y DWG MODIFICATION OF CCR VENTILATION SYSTEM.
9321-F-3147 - CONDUIT LAYOUT - CONTROL ROOM AIR CONDITIONING.
A262474 - CARBON FILTER UNIT (SHEET 1 OF 2)
B244299 - CCR HUMIDIFIER FLOW DIAGRAM
192498 - PIPING FLOW DIAGRAM-CONTROL AIR SYSTEM

NOTES

1. DAMPERS 'J' & 'H' ARE NORMALLY CLOSED. OPEN WHEN A.C. FAN IS OFF. (BACKUP FAN ON)
2. DAMPERS J & H ARE NORMALLY OPEN. CLOSED WHEN A.C. FAN OFF. (BACKUP FAN ON)
3. ☐ = 'Q' DESIGNATED EQUIPMENT NO.
4. AIRFLOW RATES (CFMs) SHOWN ON THIS FLOW DIAGRAM DRAWING ARE FOR DESIGN CONDITIONS ONLY.
5. DAMPER D & D' WILL REMAIN CLOSED ON LOSS OF POWER OR AIR.
6. CCR-CF1 FILTER TAG NUMBERS
   - HEPA FILTER (CCRHF)
   - CARBON FILTER STACK A (CCRCFA)
   - CARBON FILTER STACK B (CCRCFB)
   - POST FILTER (CCRPF)

REVISION SIGNATURES		
REV	DES	ENG
00		

DWG. NO. 252665 -17
DWG. SIZE A
DWG. TYPE: COMPANY
STATION: INDIAN POINT
Entergy Nuclear Northeast
BORO: WESTCHESTER
TITLE: CONTROL BUILDING (CCR)
CONTROL AND AIR FLOW DIAGRAMS
-UFSAR FIGURE NO. 9.9-1

APPROVALS

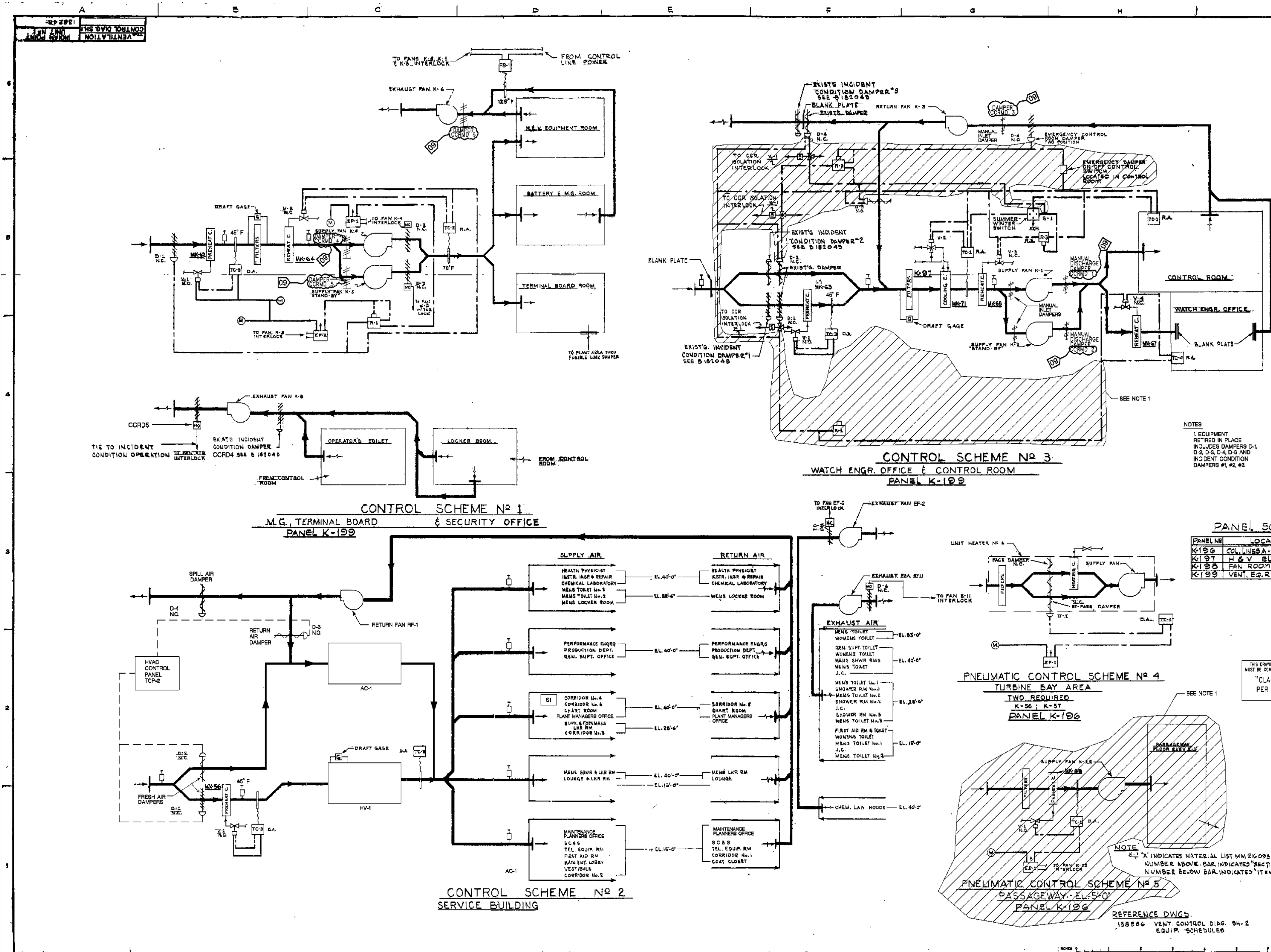
ENGINEERING
ENGINEER MANAGER:
DISCIPLINE ENGINEER:

DESIGN
DESIGN MANAGER: M. J. CAPUTO 12/30/93
DESIGN SUPERVISOR: A. D.
DRAWN BY:
DESIGN CHECKER: E. D.

SCALE: NONE
DISCIPLINE CODE: MY

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

252665-17



CONTROL SCHEME № 1
M.G., TERMINAL BOARD & SECURITY OFFICE
PANEL K-199
CONTROL SCHEME № 2
SERVICE BUILDING
CONTROL SCHEME № 3
WATCH ENGR. OFFICE & CONTROL ROOM
PANEL K-199
PNEUMATIC CONTROL SCHEME № 4
TURBINE BAY AREA
TWO REQUIRED
K-56 ; K-57
PANEL K-196
PNEUMATIC CONTROL SCHEME № 5
PASSAGEWAY - EL. 5'-0"
PANEL K-196
NOTES
1. EQUIPMENT RETIRED IN PLACE INCLUDES DAMPERS D-1, D-2, D-3, D-4, D-6 AND INCIDENT CONDITION DAMPERS #1, #2, #3.
SEE NOTE 1
THIS DRAWING CONTAINS ITEMS WHICH MUST BE CONTROLLED WITHIN ENTERGY AS: "CLASS A" ITEMS PER THE Q.A.P.D.
NOTE
X-1 "X" INDICATES MATERIAL LIST MM 816093 NUMBER ABOVE BAR INDICATES "SECTION" NUMBER BELOW BAR INDICATES "ITEM"
REFERENCE DWGS.
138586 VENT. CONTROL DIAG. SH-2 EQUIP. SCHEDULES
SUPPLY AIR
RETURN AIR
EXHAUST AIR
CONTROL ROOM
WATCH ENGR. OFFICE

PANEL SCHEDULE

PANEL №	LOCATION
K-196	COL. LINES A-7 EL. 15'-0"
K-197	H & V EL. 55'-0"
K-198	FAN ROOM EL. 67'-6"
K-199	VENT. EQ. RM. EL. 72'-0"

REVISIONS

3 — THIS REVISION CONTAINS CLASS A ITEMS PER CI-240-1 MOD PROC CPG-82-07961-00 F4, F5 ADDED SOLENOID VALVES D6 CHANGED DAMPER OPERATION HI ADDED NOTE RELEASE FOR CONSTRUCTION P.N. 07961 WG/JM 4/16/82

4 — THIS REVISION CONTAINS CLASS "A" ITEMS PER CI-240-1 UPDATED DWG. TO SHOW WORK OF REV. 3 & FIELD ENG. SKETCHES FE1821685, FE1830082 FE1850083, FE1850093 FE1830097 & FIELD MARKED PRINTS 138643-94 138248-3 MOD PRO CPG-82-07961 RELEASE AS CONSTRUCTED P.N. 07961 LH/WG 7-27-84

5 — S.M. 2/8/96 L.V. 2/8/96 — THIS REVISION IS CLASS "A" AS PER PER CI-240-1 UPDATED DWG. AS PER CAMP 95-12-11-A-008 REVISED K-8 FAN DISCHARGE DAMPER TAG No. TO CCRD5 RELEASED AS CONSTRUCTED P.N. 69982-QA AMM. 2/8/96

6 — S.M. 12/17/99 L.V. 12/17/99 — THIS REVISION IS CLASS "A" AS PER PER CI-240-1 UPDATED DWG. AS PER CRS # 199906233 RELEASED AS CONSTRUCTED P.N. 69911-CI SL/SM 12/17/99

7 — L. LIBERATORI 01/19/01 — THIS REVISION IS CLASS "A" AS PER PER CI-240-1 UPDATED DWG. TO INCLUDE UFSAR FIG. NO. IN TITLE RELEASED FOR RECORD P.N. 69911-NP DLA/STRATUS 01/19/01

08 — L.V. 07/31/01 — THIS REVISION IS NON CLASS PER THE QAPD. UPDATED DRAWING PER CR #200105536 ISSUED FOR RECORD P.N. 69901-AF JK/PB 07/31/01

09 — L. SMITH 01/28/03 — THIS REVISION IS NON-CLASS PER THE QAPD. DRAWING UPDATED PER CR #200202330 ISSUED FOR RECORD. P.N. 69901-AF S.O./J.S. 01/28/03

138248-9

CONSOLIDATED EDISON CO. OF NEW YORK, INC.

PREPARED BY: VITRO ENGINEERING CO. NEW YORK, N.Y. — 9194-K-1
STATION LOCATION: INDIAN POINT UNIT No. 1
VENTILATION
CONTROL DIAGRAMS SHEET 1
- UFSAR FIGURE NO. 9.9-1

SCALE: NONE — DRAWN BY: P. JAMES — 6-27-58
54300-M

APPROVALS