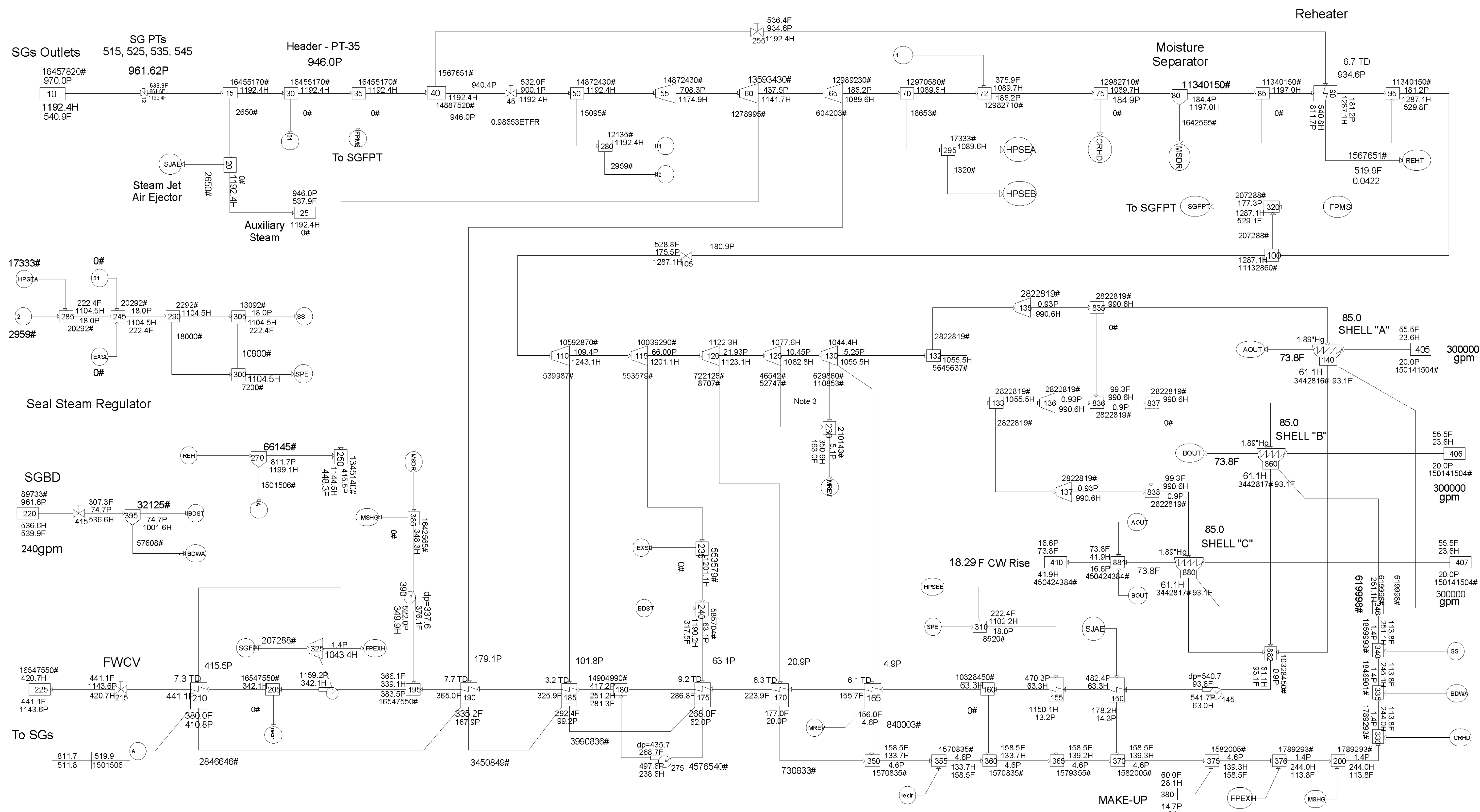


**Millstone Power Station Unit 3
Drawings Incorporated by Reference**



LEGEND
 # FLOW, LB/HR
 P PRESSURE, PSIA
 F TEMPERATURE, °F
 H ENTHALPHY, BTU/LB

- Notes
1. MUR cases are at 0.825% SG tube plugging.
 2. Unit equipment performance as per Jan 2017 test.
 3. All flows from Turbine Sections 125 and 130 are carried in the #6 extraction lines.
 4. REFERENCE CALCULATION 120914-MR-001 ADDENDUM 6.

78/GT (67 STEAM TABLES) OF 22 NOV 13

Non Nuclear Safety

Generator: 1	
Gross Power:	1303000 kW
Mech. Losses:	5254 kW
Elec. Losses:	14690 kW
Speed:	1800 rpm
Rating:	1500000 kVA
pf:	0.95
H2 pressure:	89.7 psia
Generator MVA	1372 MVA
Generator MVAR	428 MVAR

DOMINION NUCLEAR CONNECTICUT, INC
MILLSTONE POWER STATION - UNIT 3 MUR POWER UPRATE PROJECT
PEPSE HEAT BALANCE

100% MUR Power, 587.1F Tavg, CWIT 55.5F

GROSS OUTPUT 1303.4 MW REACTOR POWER 3709.0 MWt NSSS POWER 3725.0 MWt

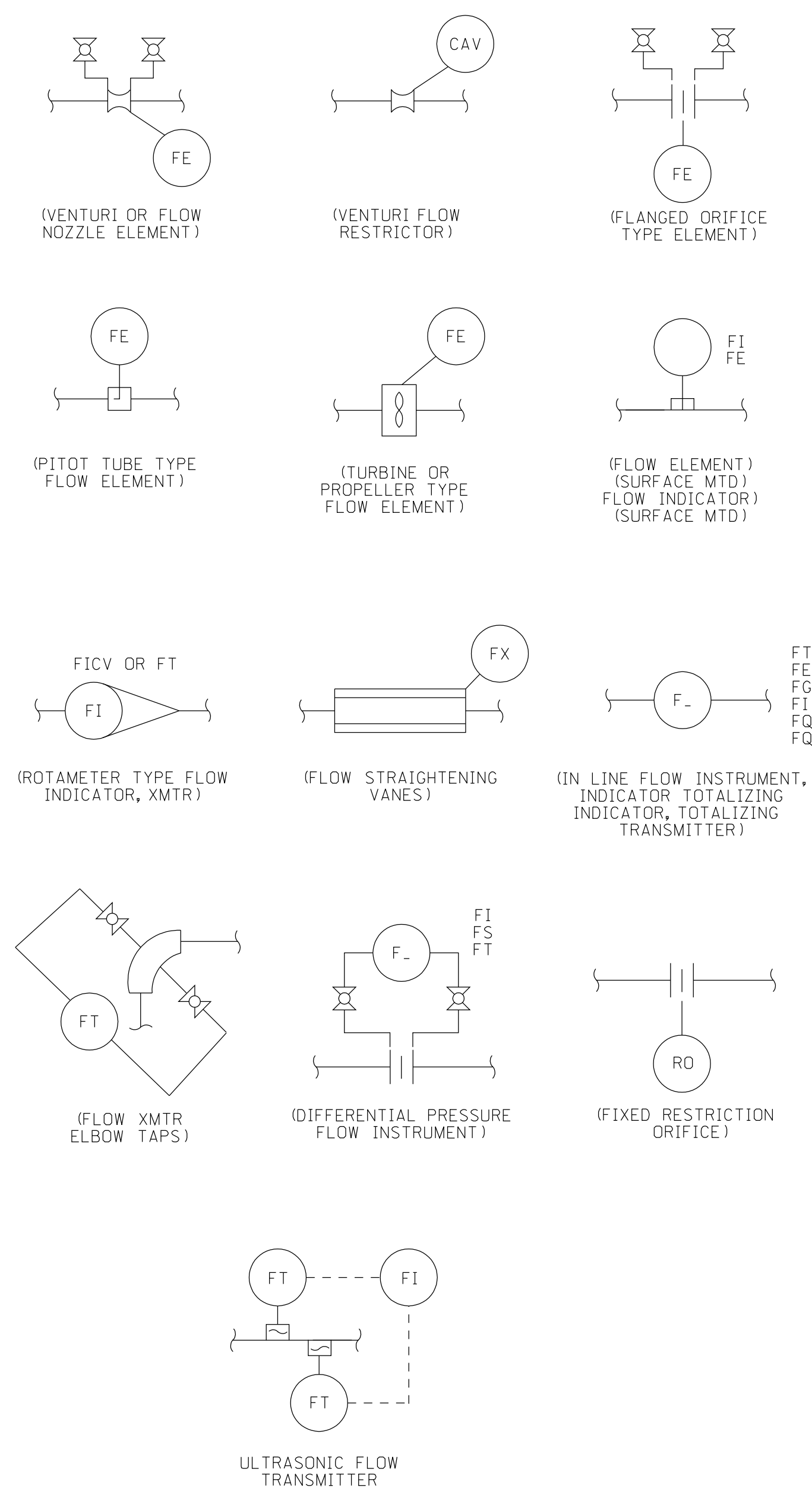
MODEL: MS3-MR001ADD6-04.MDL	RESULTS: MS3-MR001ADD6-04B.RES	RUN: 07/17/17 09:17:12
-----------------------------	--------------------------------	------------------------

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE MILLSTONE POWER STATION - UNIT NO. 3 HEAT BALANCE DIAGRAM MUR 100% POWER			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: C230509.HYB	
REVISED PER ETE-MP-2020-1092 & DUR 22-800107		DRAWING NO: 25212-23050	REV C
DSGN WJP	SCALE: NONE	UNLESS OTHERWISE NOTED SH 9	

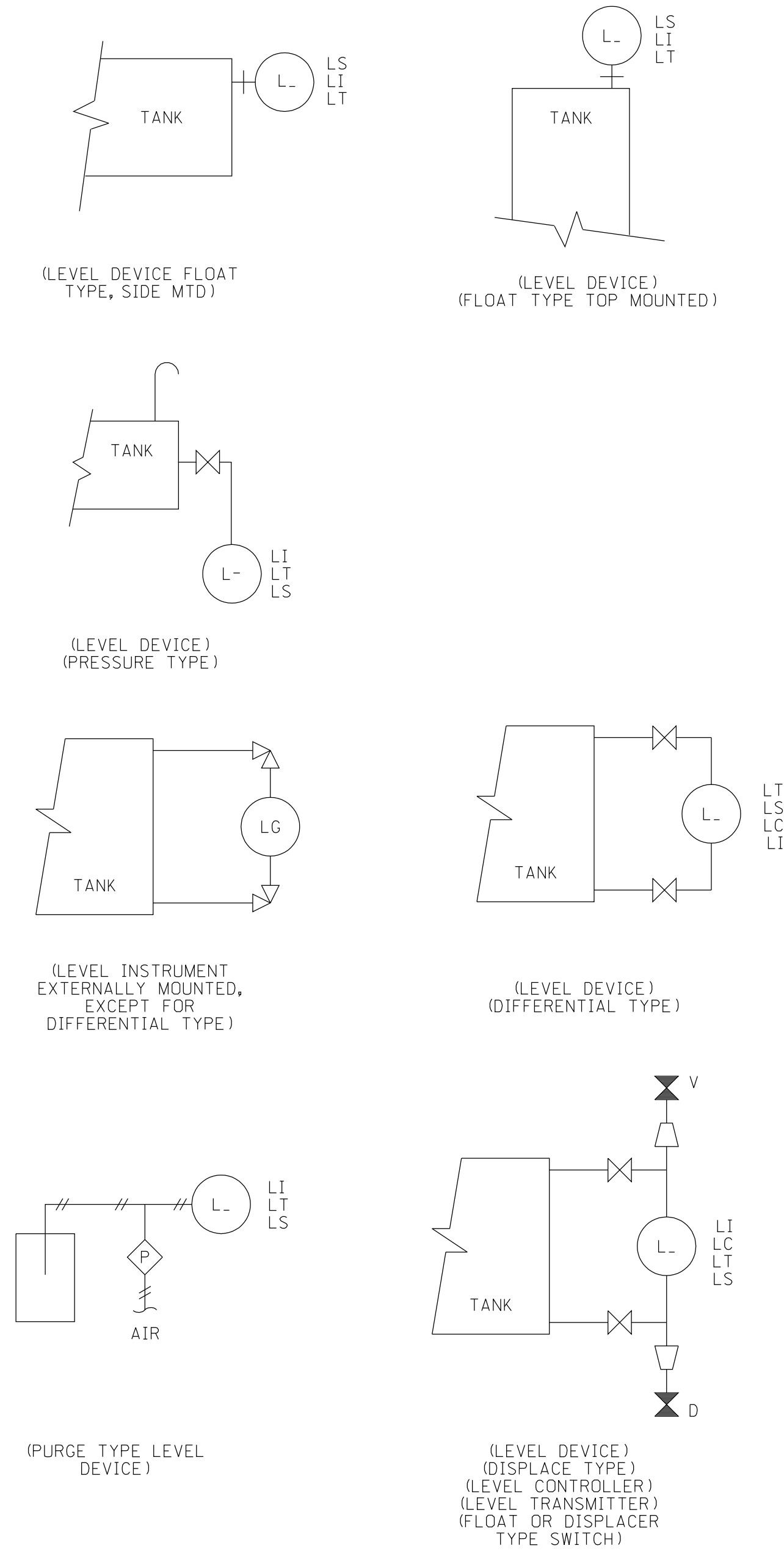
MILLSTONE UNIT 3 10/16/15 19-MAY-2022 08:45 C230509.HYB

INSTRUMENTATION

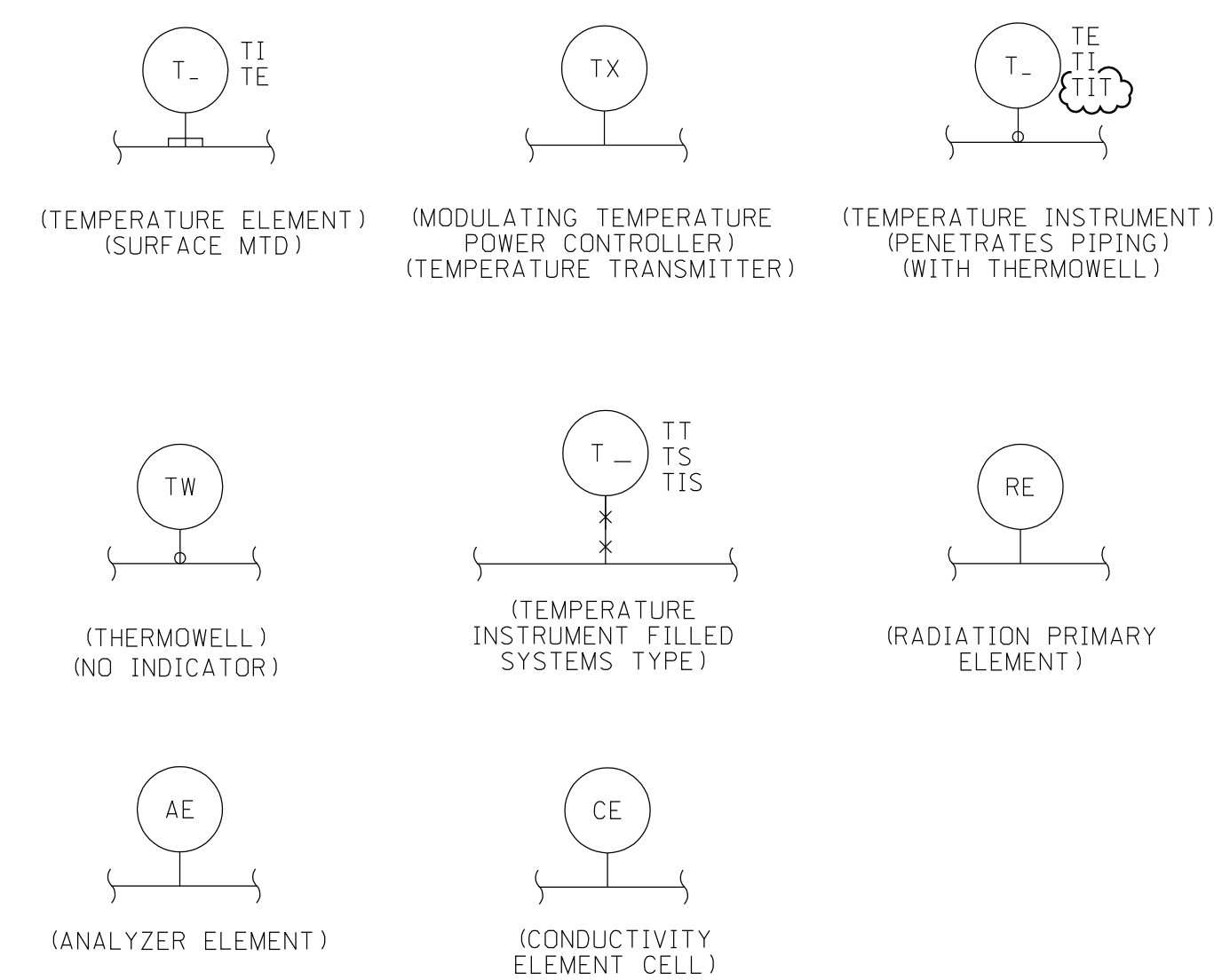
FLOW



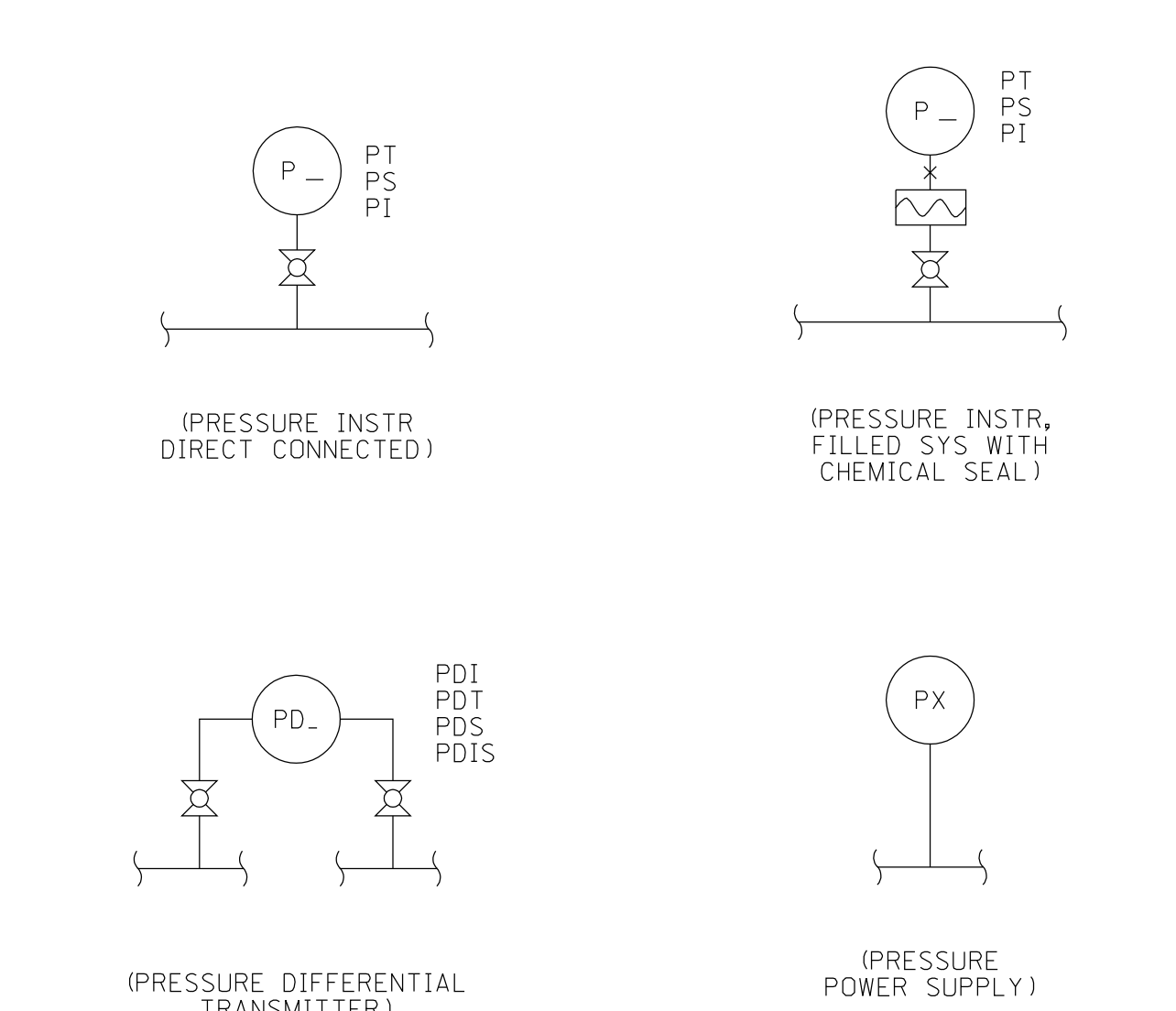
LEVEL



TEMPERATURE



PRESSURE



INSTRUMENT IDENTIFICATION LETTERS

MEASURED VARIABLE (FIRST LETTER)	CONTROLLING (SECOND AND THIRD LETTER)					MEASURING (SECOND AND THIRD LETTER)											
	INDICATING	NON INDICATING	CONTROL VALVE	VALVE (OPERATED)	ORIFICE	RECORDING	INDICATING	OBSERVATION GLASS	PRIMARY ELEMENT	TEST POINT OR TRANSMITTER	TEST POINT OR TRANSMITTER	TRANSMITTER	INTEGRATOR TRANSMITTER	INDICATING SWITCH	NON INDICATING SWITCH	RELAY OR SUBSEQUENT	
ANALYSIS/AIR	A	AIC	AC		AV, ADV		AR	AI	AE			AT		AIS	AS		
CONDUCTIVITY	C						CR	CI	CE			CT		CIS			
DENSITY	D						DI										
DIFF. PRESSURE			PDC									PDT		PDIS	PDS		
VOLTAGE (EMF)	E															EY	
FLOW	F	FIC	FC	FCV			FR	FI	FG	FE		FT	FO	FQI	FIS	FS	
HAND	H	HIC	HC	HCV												HS	
CURRENT	I																
POWER	J																
TIME	K																
LEVEL	L	LIC	LCV				LR	LI	LG			LT		LIS	LS		
MOTOR/MOISTURE	M				MV, MOV			MI		ME							
NUCLEAR	N																
PRESSURE	P	PIC	PC	PCV			PR	PI		PX		PT		PIS	PS		
QUANTITY	Q																
RADIATION/RELIEF	R						RR			RE	REM						
RESTRICTION	R																
SAFETY, SOLENOID, SPEED	S				SV, SDV			SI		SE							
MULTIVARIABLE	U																
TEMPERATURE	T	TIC	TC	TCV			TR	TI		TE	TX	TW	TIT	TIS	TS		
VIBRATION/VISCOSITY	V																
WEIGHT	W																
UNCLASSIFIED	X																
VIBRATION	Y																
POSITION	Z							ZI				ZT		ZS	ZA		

- NOTES:
- VENT AND TEST CONNECTIONS WHICH HAVE BEEN INSTALLED IN ACCORDANCE WITH DETAIL P-BB2 PER SPECIFICATION SP-ME-573 MAY HAVE A GOOSENECK CONNECTION INSTALLED IN LIEU OF A CAP. THIS CONNECTION ALLOWS FOR VENTING OR TESTING INTO A CONTAINER FOR THE PURPOSE OF COLLECTING THE SYSTEM FLUID. THE ADDITION OF A GOOSENECK VENT HAS BEEN ADDRESSED IN POCR MD-95-002.
 - THE CONFIGURATION OF THE VENT, DRAIN AND TEST CONNECTIONS IS FOR DIAGRAMATIC PURPOSES ONLY. THE STYLE OF THE VALVE IS DEPENDENT ON THE CLASS OF PIPING FOR THE SYSTEM. THE SYSTEM P&ID SHALL BE THE GOVERNING DOCUMENT.
 - WHERE A CAP IS SHOWN ON THE SYSTEM DIAGRAM FOR VENTS, DRAINS AND TEST CONNECTIONS A CAP SHALL BE INSTALLED IN THE FIELD. IF A CAP IS NOT SHOWN ON THE SYSTEM DIAGRAM NO CAP SHALL BE INSTALLED IN THE FIELD.
 - CHICAGO FITTINGS MAY BE INSTALLED DURING MAINTENANCE FUNCTIONS. THEY WILL BE REMOVED UPON COMPLETION OF WORK, AND THE P&ID DEPICTED END CONNECTION SHALL BE REINSTALLED.
 - THE VALVE SYMBOL FOR ALL CONTROL, MOTOR OPERATED, AIR OPERATED VALVES WILL DEPICT THE ACTUAL BODY STYLE FOR THAT PARTICULAR VALVE, I.e., GATE, GLOBE, ETC.
 - SINGLE GLOBE VALVES ON VENTS OR DRAINS ARE SPECIAL CASES AND ARE NOT TO BE CAPPED AS PRESSURE RETAINING. IF PRESSURE IS 1200 PSI OR GREATER, INSTALLED CAPS (CL 90) ARE TO BE DRILLED-OUT WITH A 1/4" DIA. HOLE. A SOCKET WELDED BY THREADED COUPLING MAY BE INSTALLED IN PLACE OF A THREADED CAP FOR THE CLOSURE OF A SINGLE GLOBE VALVE VENT OR DRAIN WHERE THE SECOND GLOBE VALVE WAS REMOVED FOR SEISMIC LOADING REASONS. PLUGS SHALL NOT BE INSTALLED IN THE COUPLINGS. HOWEVER, FOR LEAK MONITORING CONNECTIONS WHERE THIS CONDITION EXISTS, A PLUG SHALL BE INSTALLED, DRILLED OUT WITH A 1/4" HOLE. THE COUPLING SHALL COMPLY TO THE APPLICABLE PIPE CLASS OF THE VENT OR DRAIN ASSEMBLY.
 - WORDS, CODES OR SYMBOLS SHOWN INSIDE PARENTHESES ARE FOR INFORMATION ONLY. DO NOT INCLUDE ON FLOW DIAGRAMS.
 - EQUIPMENT PERFORMING A SAFETY-RELATED FUNCTION ARE ASSIGNED AN OVERCODE DESIGNATOR CONTAINING TWO SPACES. THE FIRST SPACE IDENTIFIES THE SPECIFIC MECHANICAL TRAIN ASSOCIATED WITH THAT INSTRUMENT; (I.e., FLOW PATH). THE SECOND SPACE IDENTIFIES THE ELECTRICAL POWER SOURCE OF THE EQUIPMENT.
 FLOW PATH (FIRST SPACE) : A, B, C, D OR Z
 POWER SOURCE (SECOND SPACE) : CHANNEL R, W, B, OR Y OR TRAIN O, P, OR G
 EXAMPLES:
 3 RHS * MDV 12A (AO) : CABLE COLOR CODE MECHANICAL FLOW PATH
 3 RHS * RV 12B (B-) : NO ELECTRICAL CONNECTION MECHANICAL FLOW PATH
 - ALL VALVES ARE SHOWN IN NORMAL OPERATING CONFIGURATION.
 - THE ABBREVIATION "MCB" ALSO STANDS FOR MAIN CONTROL BOARD.
 - THE ABBREVIATION "BBB" STANDS FOR "BEYOND DESIGN BASIS" AND IS ASSOCIATED WITH FLEX CONNECTIONS.

REFERENCES:
 SP-M3-ME-024-CONVENTIONS FOR SYSTEM IDENTIFICATION, SYSTEM INTERFACES, AND EQUIPMENT IDENTIFICATION.

- LINE DESIGNATIONS
- CONNECTION TO PROCESS, OR MECHANICAL LINK, OR INSTRUMENT SUPPLY
 - PNEUMATIC SIGNAL, MAY BE ANY GAS, IF OTHER THAN AIR, THE GAS MUST BE DEFINED
 - CAPILLARY TUBING (FILLED SYSTEM)
 - ELECTRICAL SIGNAL
 - HEAT TRACING (ELECTRICAL)
 - FREON
 - (JACKETED PIPE)
 - RETIRED IN PLACE
- MISCELLANEOUS ABBREVIATIONS
- ANALYZERS (AE)
 O₂ - OXYGEN
 pH - MEASUREMENT OF ALKALINITY OR ACIDITY
 Na⁺ - SODIUM
 H₂ - HYDROGEN
 PO₄ - PHOSPHATE
 SiO₂ - SILICA
 CL - CHLORINE
 CO - CARBON MONOXIDE
 CO₂ - CARBON DIOXIDE
 - PANELS AND BOARDS
 MB - MAIN CONTROL BOARD (- SECTION NUMBER 1-8) (SEE NOTE 10)
 AB - AUXILIARY BOILER PANEL
 AC - AUXILIARY CONDENSATE PANEL
 ASP - AUXILIARY SHUTDOWN PANEL
 BR - BORON RECOVERY PANEL
 CC - CONDENSER TUBE CLEANING PANEL
 EHC - ELECTROHYDRAULIC CONTROL PANEL
 EGP - EMERGENCY GENERATOR PANEL
 FP - FIRE PROTECTION PANEL
 HP - HEATING PANEL
 H - HYDROGEN CONTROL PANEL
 MP - MONITOR PANEL
 RM - RADIATION MONITORING PANEL
 LW - RADIOACTIVE LIQUID WASTE PANEL
 GW - RADIOACTIVE GASEOUS WASTE PANEL
 SW - RADIOACTIVE SOLID WASTE PANEL
 SC - STATOR COOLING PANEL
 VP - VENTILATION & AIR CONDITIONING PANEL
 W - WATER TREATING PANEL
 FP - FUEL POOL PANEL
 DF - DEMINERALIZER/FILTER PANEL
- EQUIPMENT IDENTIFICATION
- EQUIPMENT NUMBERS USED ON LOOP DIAGRAMS FOR SYSTEMS:
- 3 CWS - PT20 A (AO)
- UNIT NO.
 - SYSTEM CODE
 - DASH (-) FOR NONSAFETY-RELATED EQUIPMENT OR AN ASTERISK (*) FOR IDENTIFICATION OF SAFETY-RELATED EQUIPMENT
 - INSTRUMENT IDENTIFICATION
 - SUFFIX-DISTINGUISHES IDENTICAL INSTRUMENTS WITH THE SAME FUNCTION IN REDUNDANT LOOPS
 - OVERCODE DESIGNATOR (SEE NOTE 8)
- FAIL POSITIONS
- FC - FAIL CLOSED
 FO - FAIL OPEN
 FL - FAIL LOCKED, DOES NOT CHANGE POSITION
 FI - FAIL INDETERMINATE

THIS P&ID HAS BEEN REDRAWN FROM P&ID 25212-26900 SHEET 1, REV 9 (EM-100A-9)

FSAR FIGURE

OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

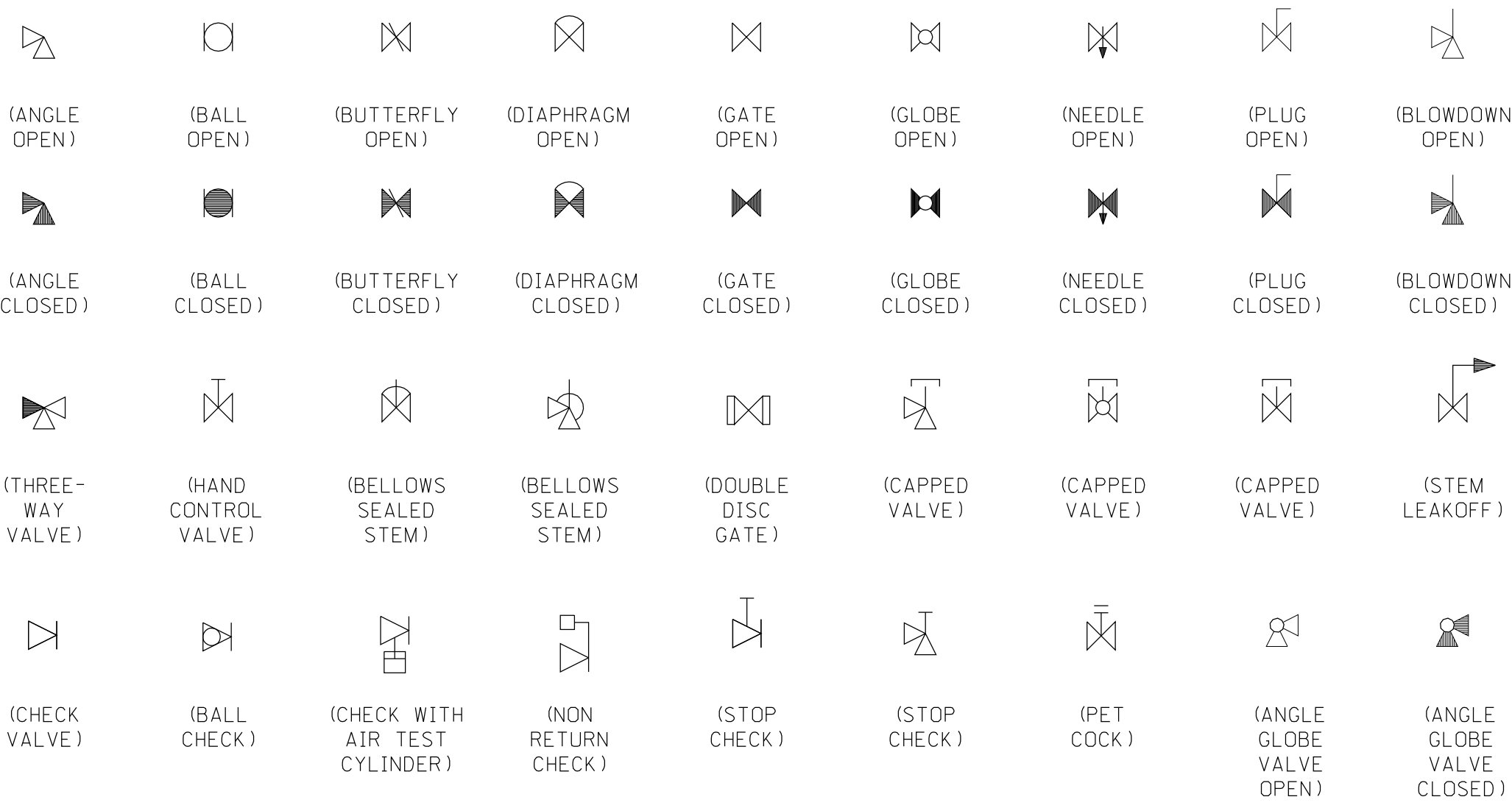
TITLE
 PIPING & INSTRUMENTATION DIAGRAM
 LEGEND

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 1511ms321.mpp001\12629001.DGN

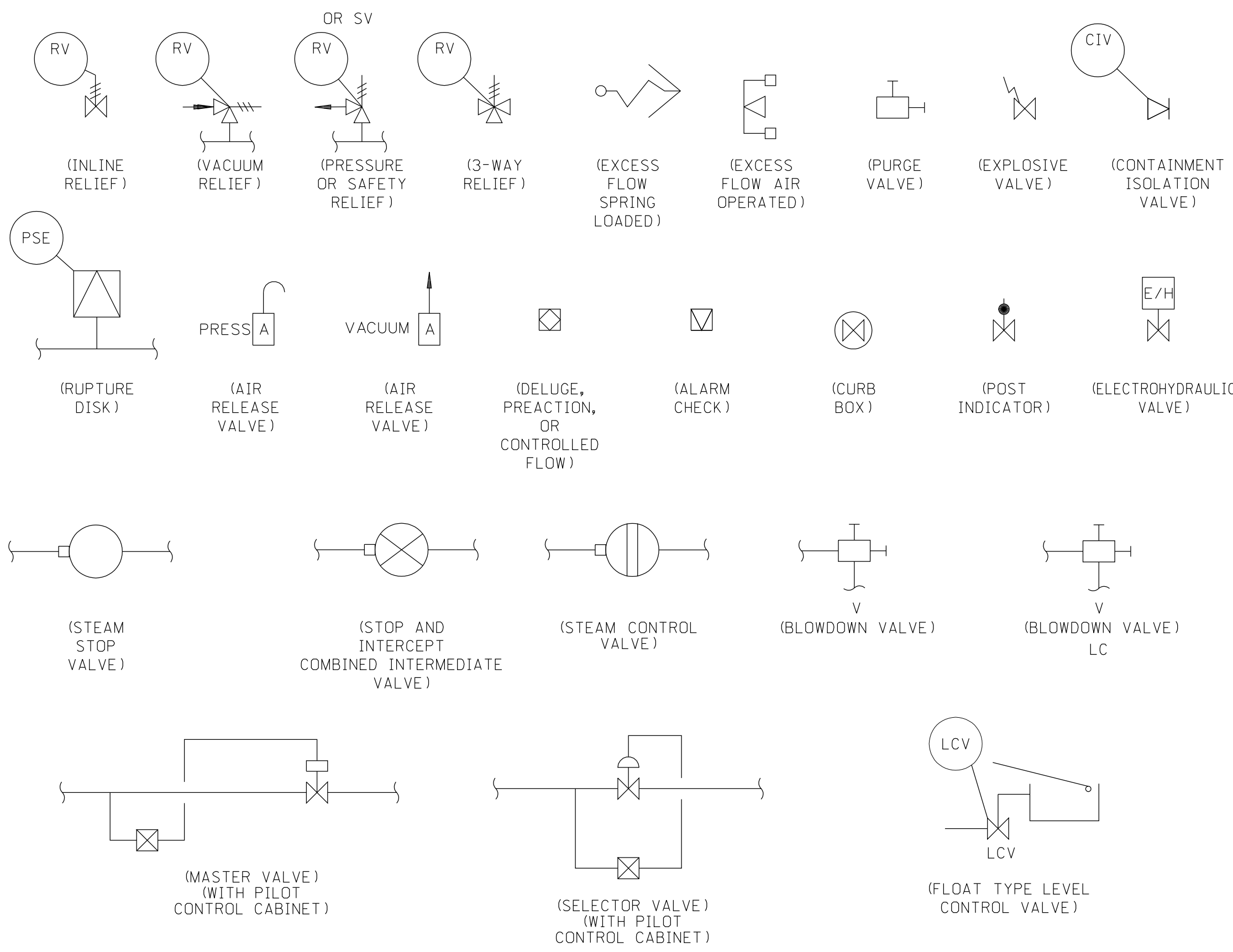
REVISED PER DC MP3-12-01167 & DUR 14-800543 DRAWING NO: 25212-26900 REV 14

DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 1

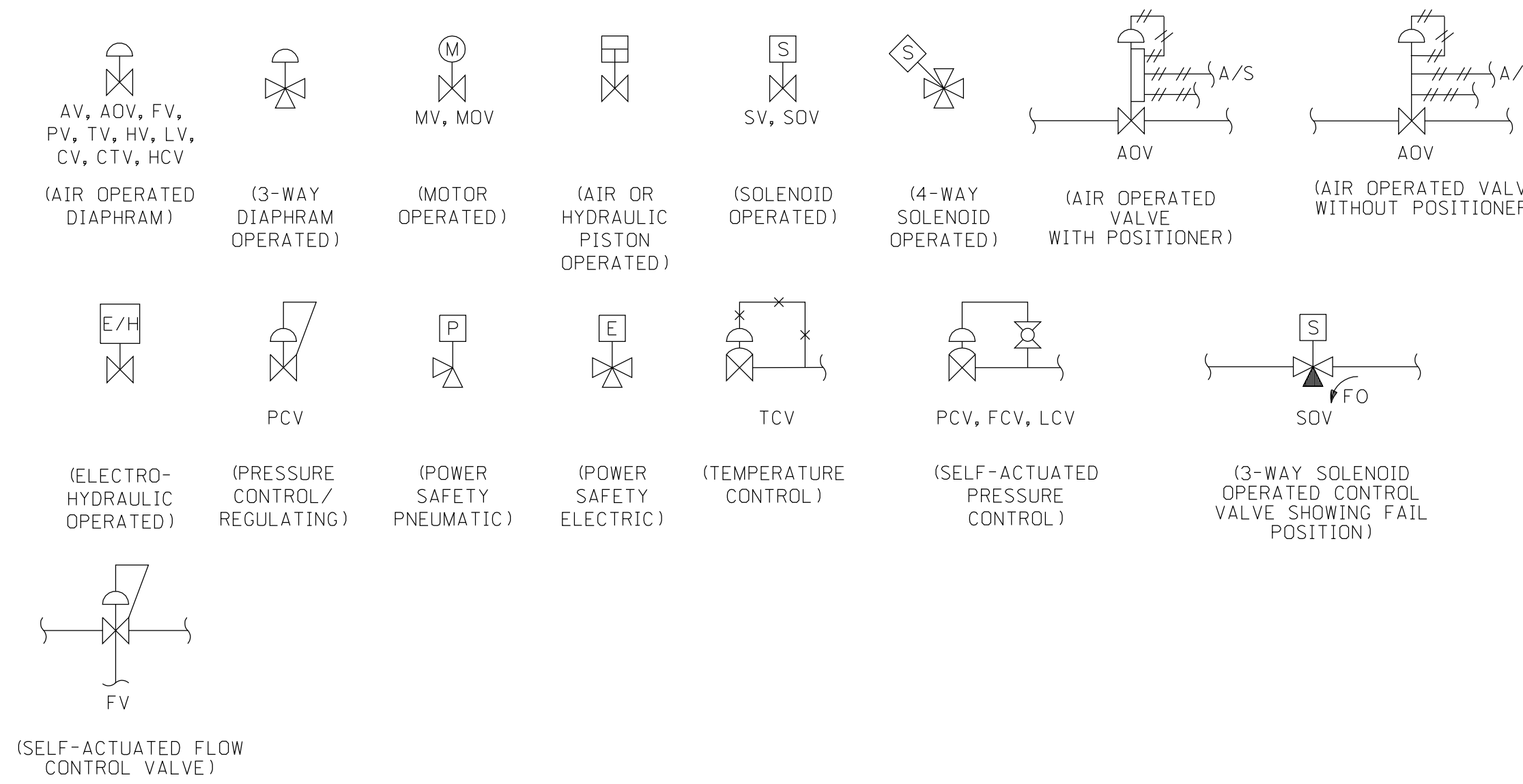
VALVES



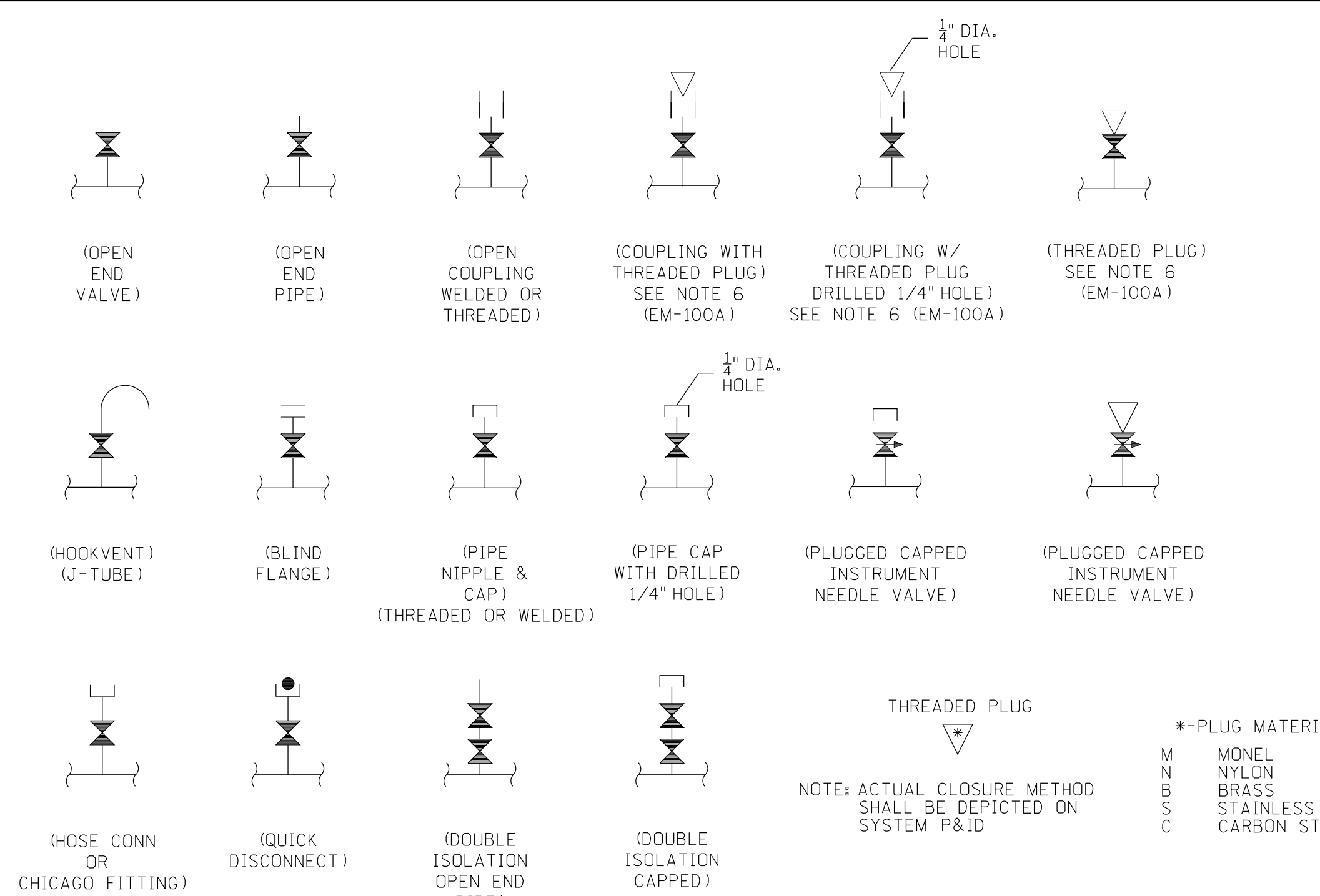
SPECIALTY VALVES



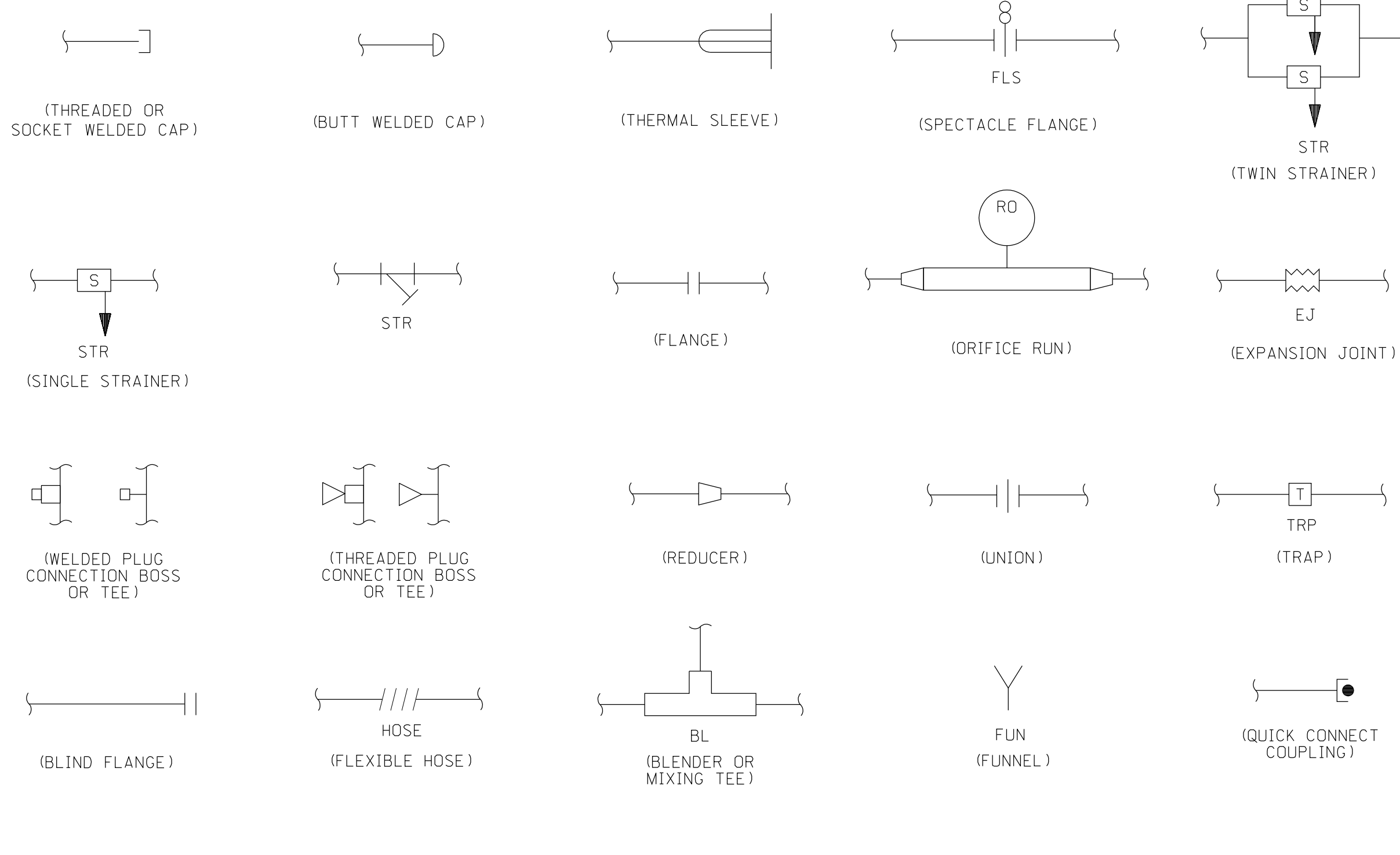
OPERATED VALVES



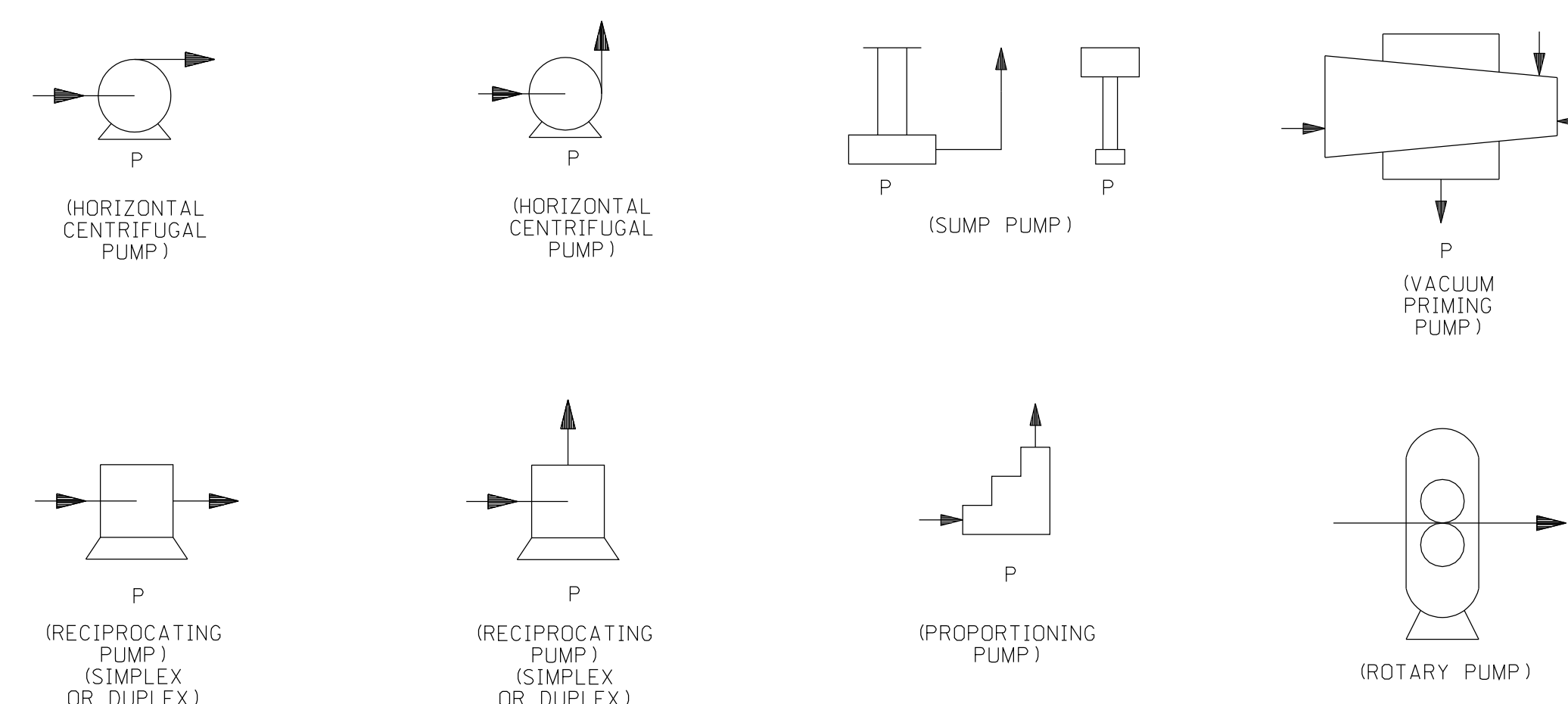
VALVE END CONNECTIONS



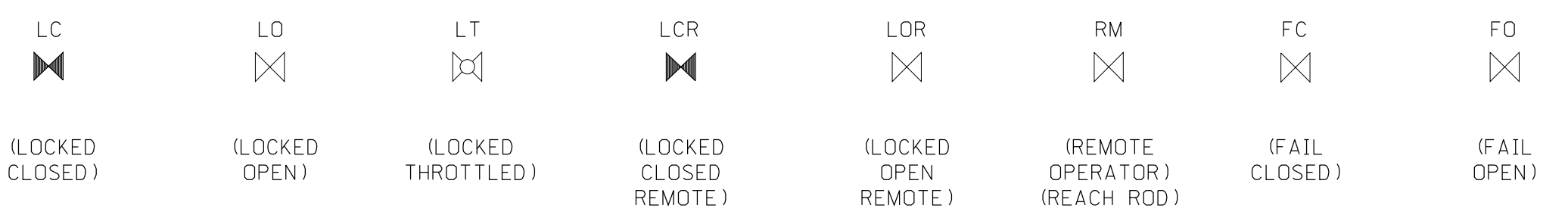
FITTINGS



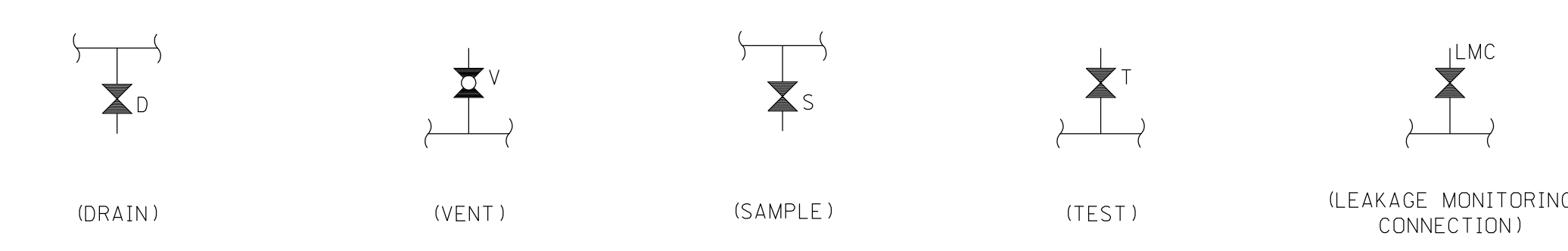
PUMPS



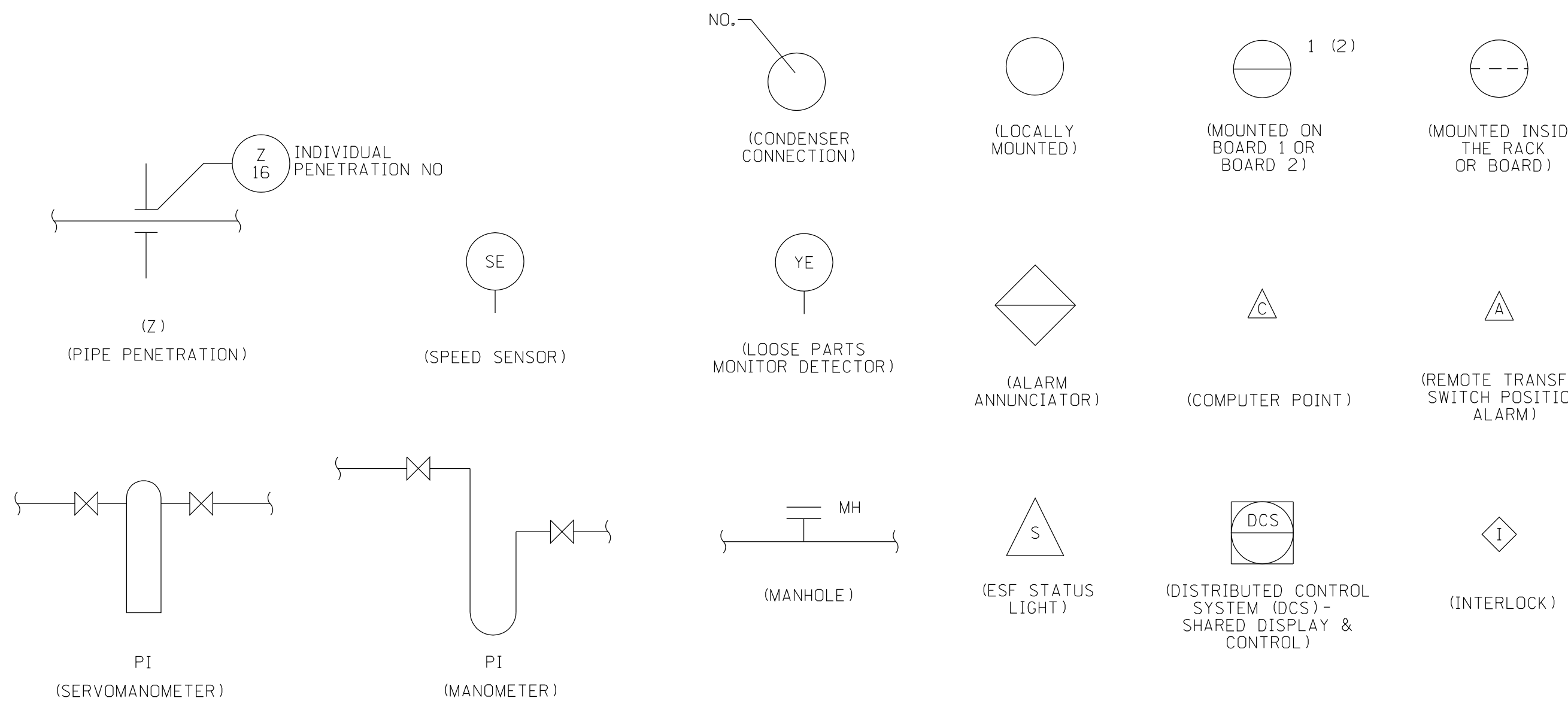
DESIGNATION OF VALVE POSITIONS



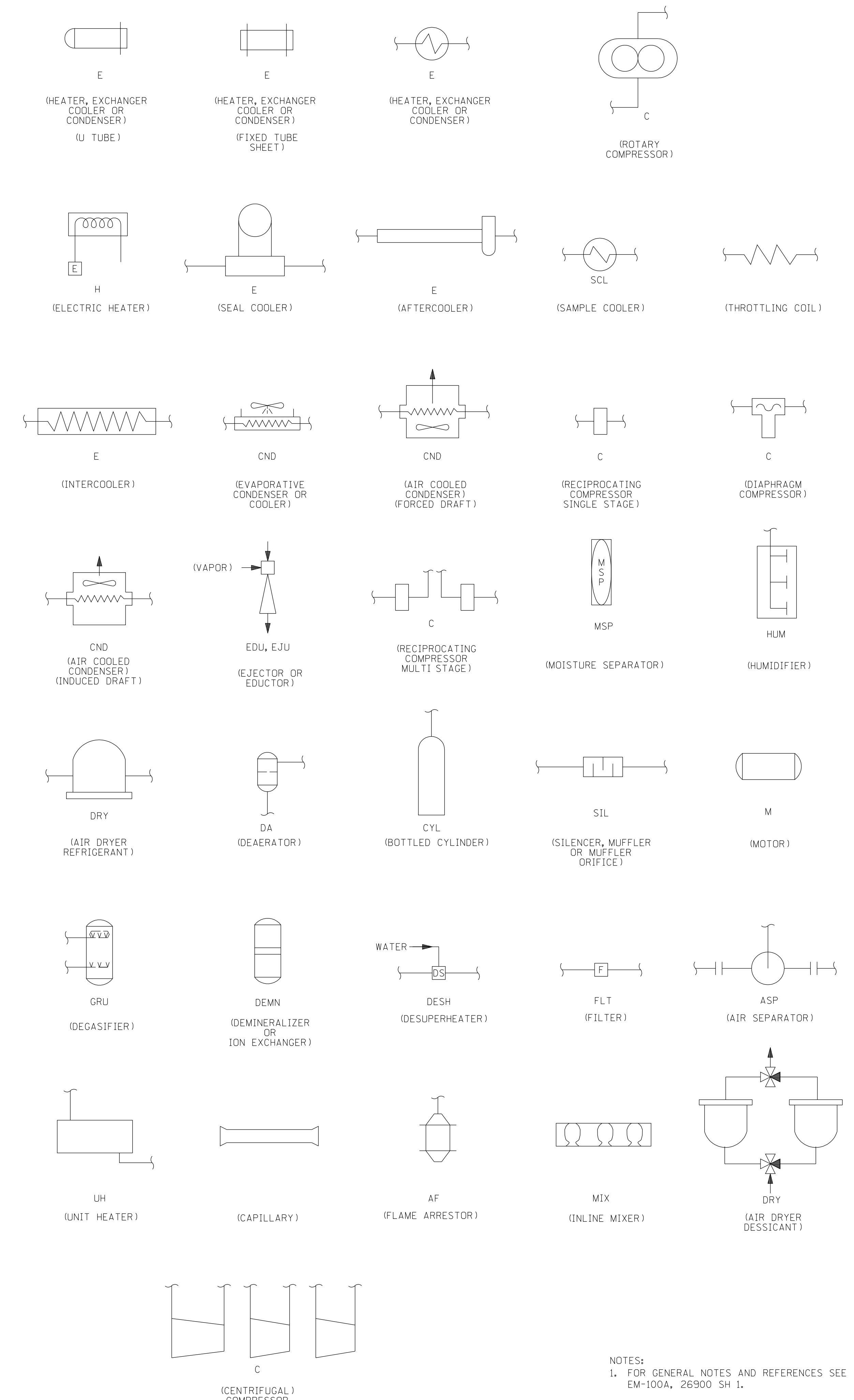
VALVE FUNCTIONS



MISCELLANEOUS



EQUIPMENT



NOTES:
1. FOR GENERAL NOTES AND REFERENCES SEE EM-100A, 26900 SH 1.

THIS P&ID HAS BEEN REDRAWN FROM P&ID 25212-26900 SHEET 2, REV 16 (EM-100B-16)

FSAR FIGURE OPERATIONS CRITICAL

NON Q.A.

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

Table with columns: REV, DATE, DESCRIPTION, BY, CHK, CORR, APP. Includes a table for REVISIONS DURING CONSTRUCTION.

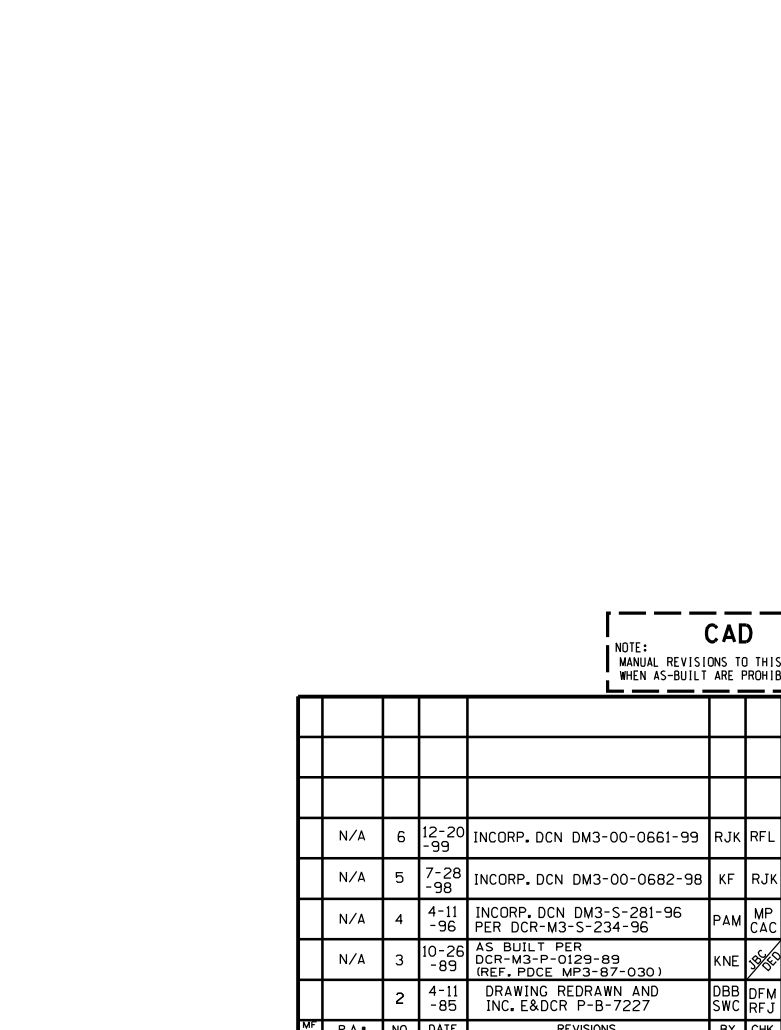
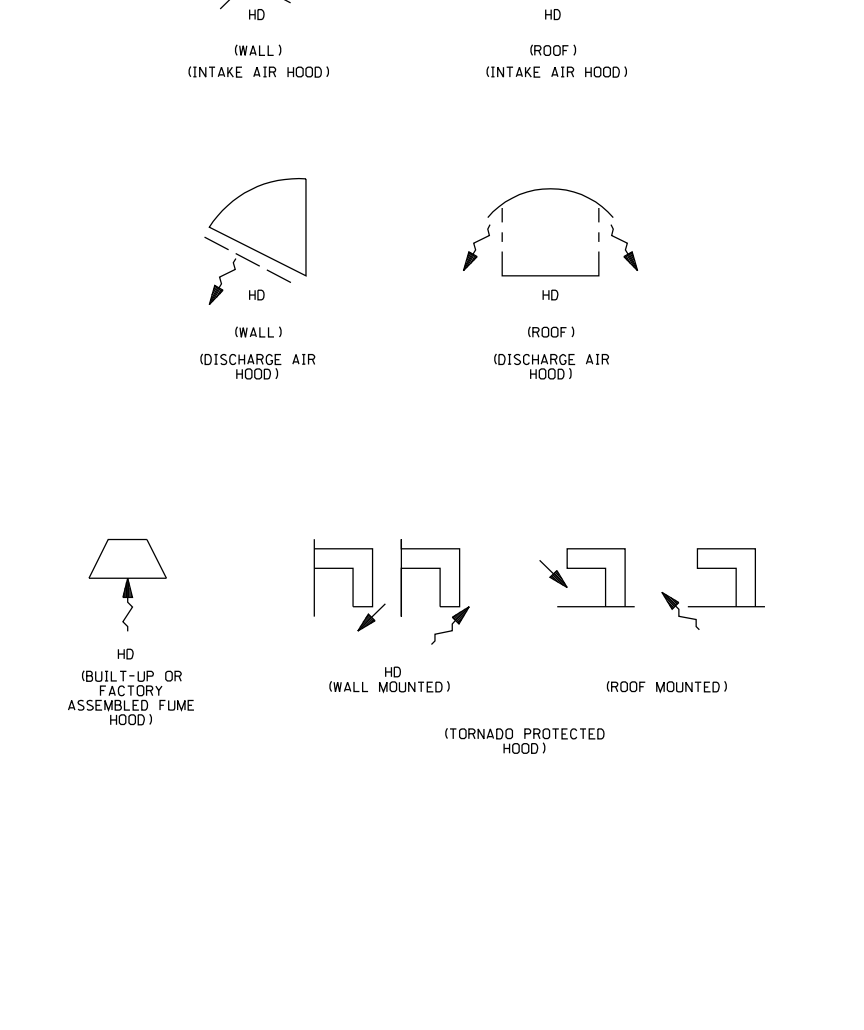
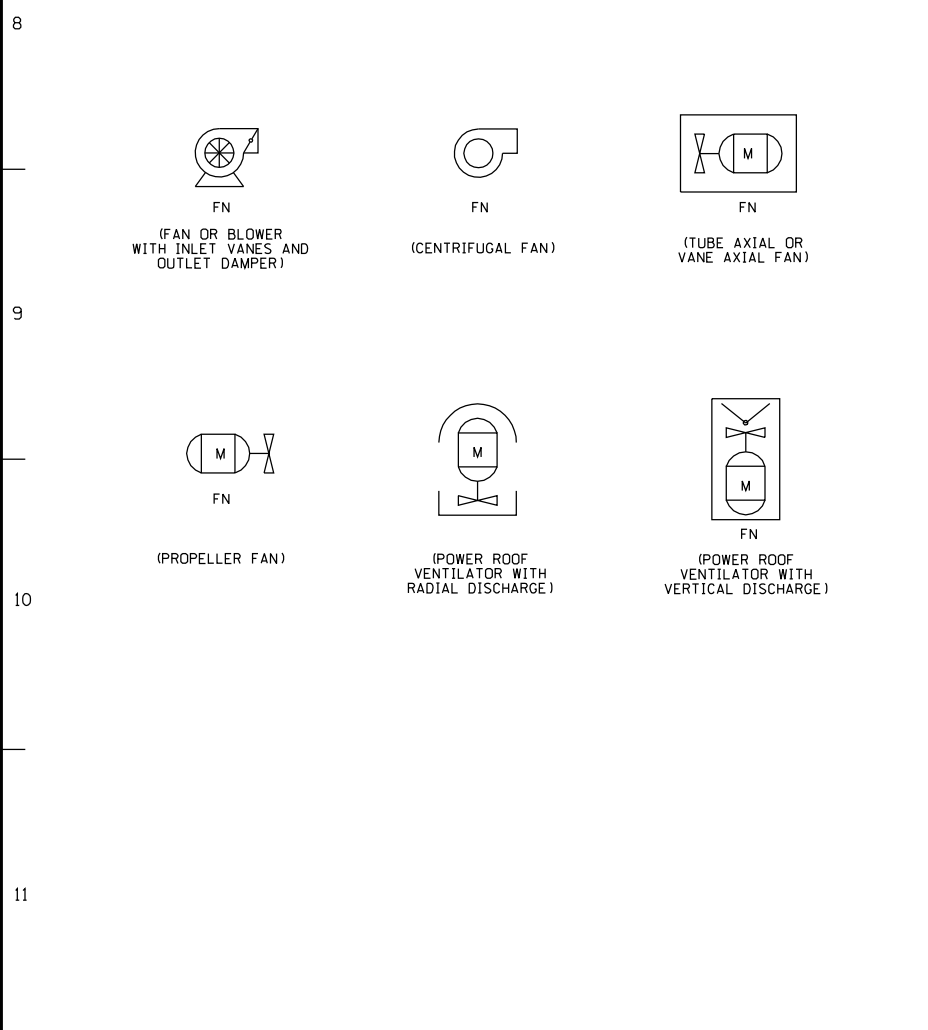
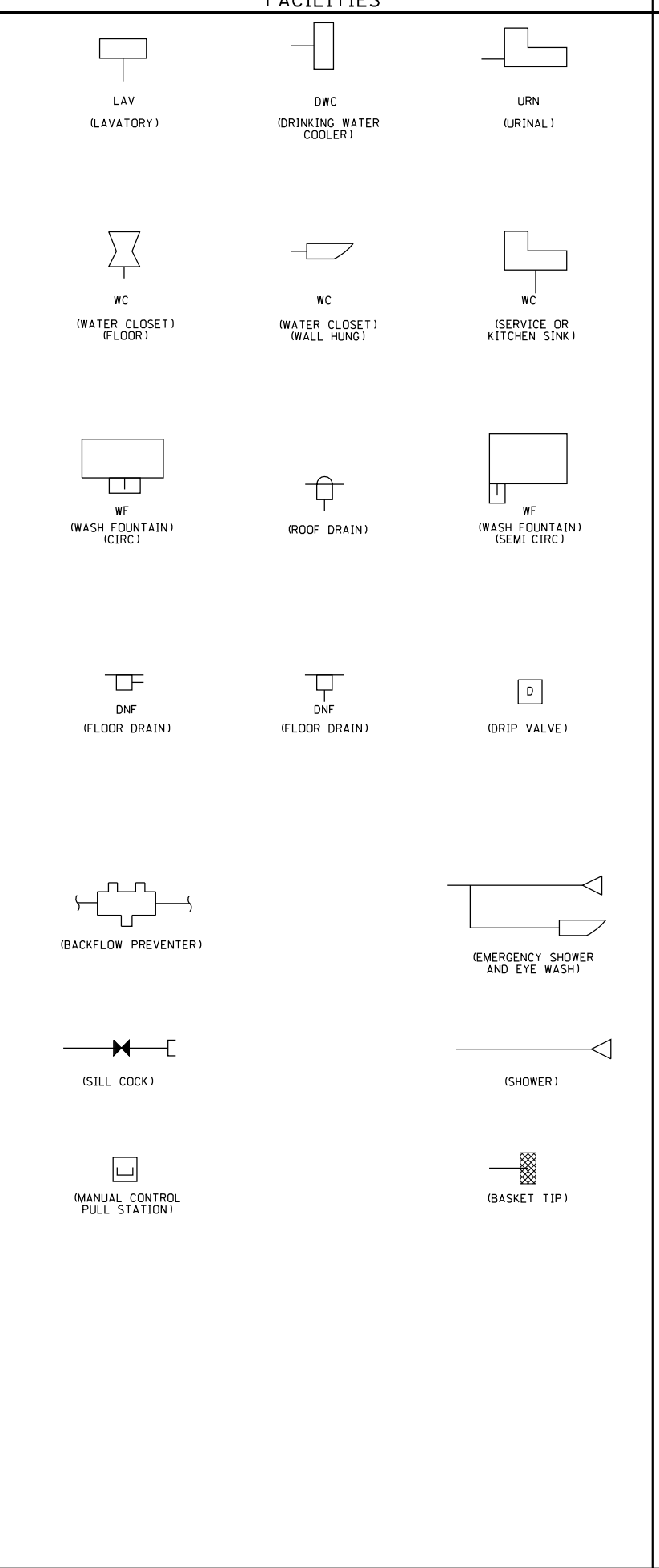
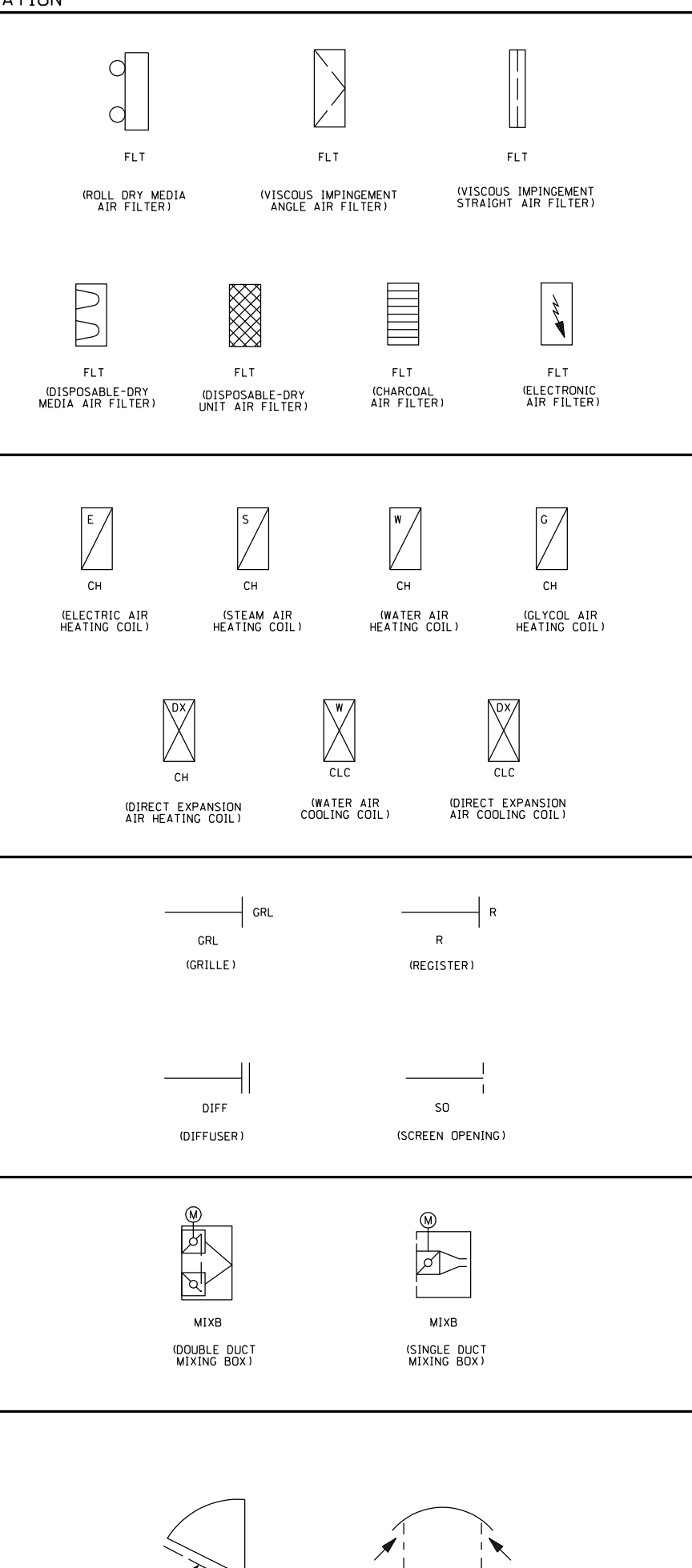
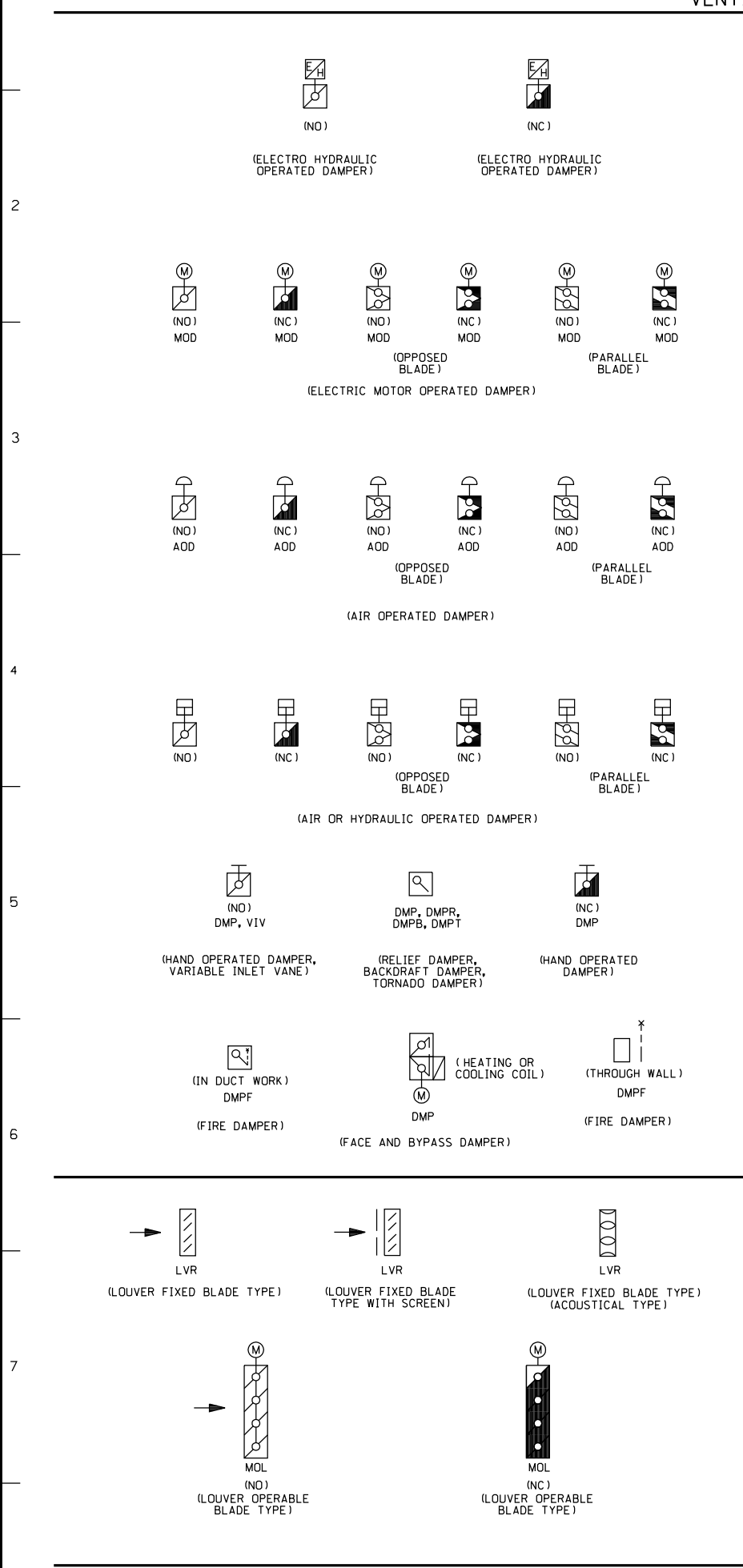
Table with columns: NO, DATE, REVISIONS. Lists revision history.

Project information including Dominion Nuclear Connecticut, Inc. Millstone Power Station, TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM LEGEND, and Stone & Webster Engineering Corporation.

VENTILATION

FACILITIES

FIRE PROTECTION



NOTES:
1. FOR GENERAL NOTES AND REFERENCES SEE EM-100A, 26900 SH 1.

THIS P&ID HAS BEEN REDRAWN FROM P&ID 25212-26900 SHEET 3, REV 5 (EM-100C-5)

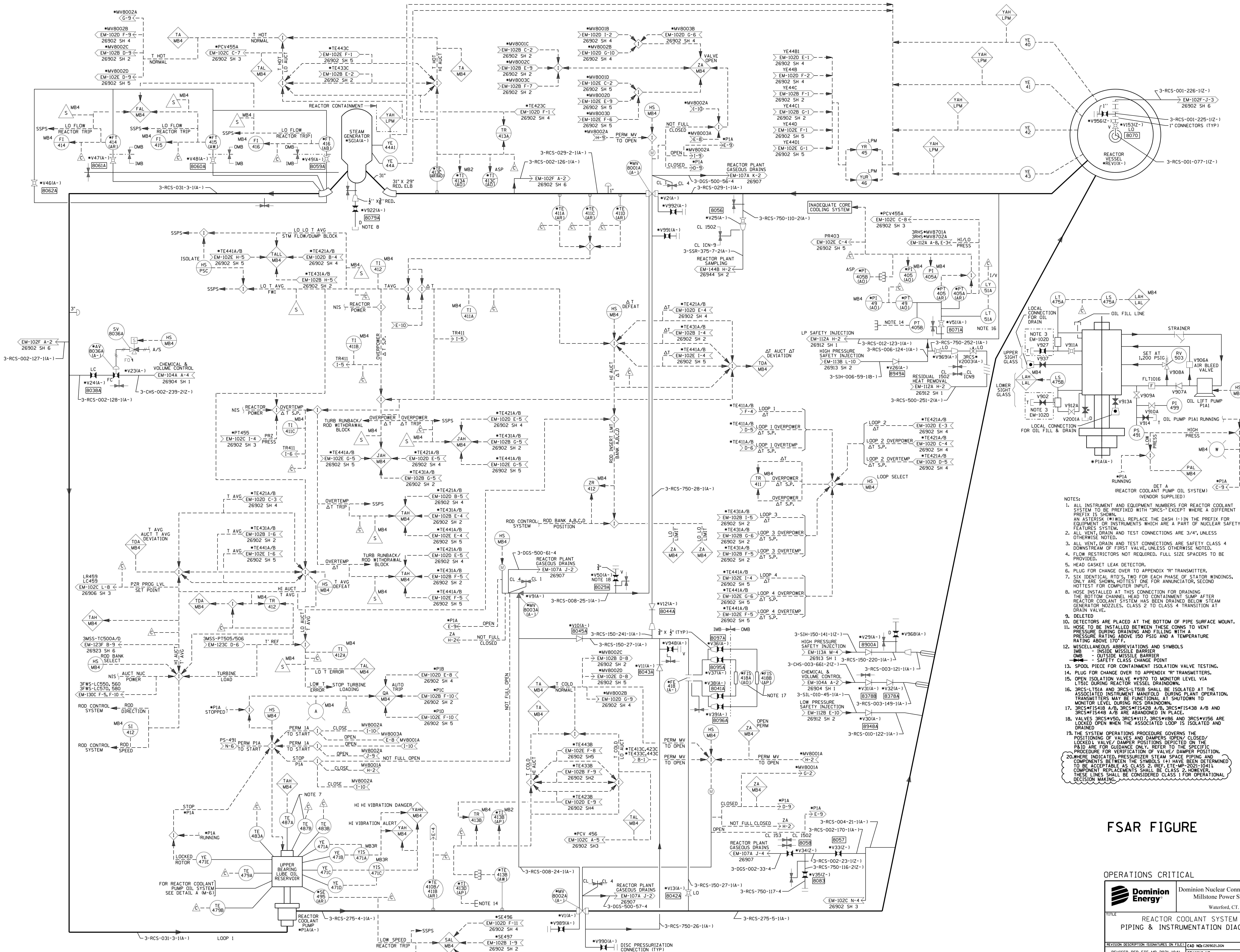
FSAR FIGURE OPERATIONS CRITICAL NON Q.A.

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
		REVISIONS DURING CONSTRUCTION				P.A. No.

Dominion
 Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 LEGEND
 BY: FDH/RTL
 DATE: 1/26/82
 SCALE: NONE
 MICROFILM DATE: 71-156
 Dwg. No. 25212-26900 SH 3 OF 3
 STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

NO.	P.A.*	NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
N/A	6	12-20-99		INCORP. DCN DM3-00-0661-99	RJK	RFL	DLW	MP
N/A	5	7-28-98		INCORP. DCN DM3-00-0682-98	KF	RJK	RFL	RFL
N/A	4	4-11-96		INCORP. DCN DM3-S-281-96 PER DCR-M3-S-234-96	PAM	MP	LM	LM
N/A	3	10-26-85		AS BUILT PER DCR-M3-P-0129-89 (REF. PROC MP3-87-030)	KNE	JSH	JSH	
	2	4-11-85		DRAWING REDRAWN AND INC. E&DCR P-B-7227	DBB	DFM	WLR	JEK



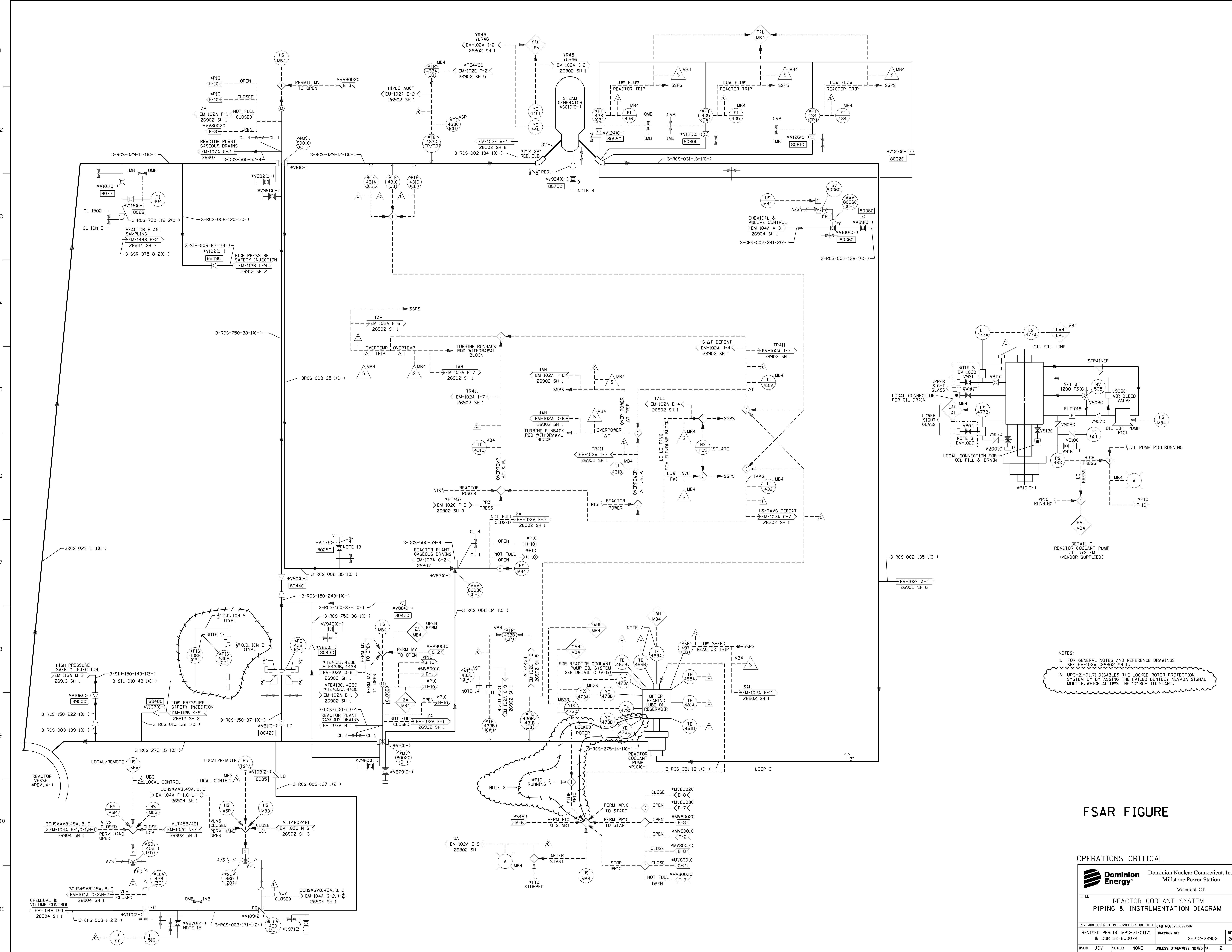
- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR COOLANT SYSTEM TO BE PREFIXED WITH "3-RCS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 - ALL VENT, DRAIN AND TEST CONNECTIONS ARE 3/4", UNLESS OTHERWISE NOTED.
 - ALL VENT, DRAIN AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWNSTREAM OF FIRST VALVE, UNLESS OTHERWISE NOTED.
 - FLOW RESTRICTORS NOT REQUIRED, FULL SIZE SPACERS TO BE PROVIDED.
 - HEAD GASKET LEAK DETECTOR.
 - PLUG FOR CHANGE OVER TO APPENDIX "R" TRANSMITTER.
 - SIX IDENTICAL RTD'S, TWO FOR EACH PHASE OF STATOR WINDINGS, ONLY ARE SHOWN, HOTTEST ONE FOR ANNUNCIATOR, SECOND HOTTEST FOR COMPUTER INPUT.
 - HOSE INSTALLED AT THIS CONNECTION FOR DRAINING THE BOTTOM CHANNEL HEAD TO CONTAINMENT SLUMP AFTER REACTOR COOLANT SYSTEM HAS BEEN DRAINED BELOW STEAM GENERATOR NOZZLES, CLASS 2 TO CLASS 4 TRANSITION AT DRAIN VALVE.
 - DELETED
 - DETECTORS ARE PLACED AT THE BOTTOM OF PIPE SURFACE MOUNT.
 - HOSE TO BE INSTALLED BETWEEN THESE CONNS TO VENT PRESSURE DURING DRAINING AND FILLING WITH A PRESSURE RATING ABOVE 150 PSIG AND A TEMPERATURE RATING ABOVE 170°F.
 - MISCELLANEOUS ABBREVIATIONS AND SYMBOLS
 OMB = OUTSIDE MISSILE BARRIER
 IMB = INSIDE MISSILE BARRIER
 S = SAFETY CLASS CHANGE POINT
 - SPOOL PIECE FOR CONTAINMENT ISOLATION VALVE TESTING.
 - PLUG FOR CHANGE OVER TO APPENDIX "R" TRANSMITTERS.
 - OPEN ISOLATION VALVE AND DAMPER OPEN/CLOSED/ LOCKED/L VALVE DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY, REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 - 3-RCS-F1518 A/B, 3-RCS-F1528 A/B, 3-RCS-F1538 A/B AND 3-RCS-F1548 A/B ARE ABANDONED IN PLACE.
 - VALVES 3-RCS-V107, 3-RCS-V108 AND 3-RCS-V109 ARE LOCKED OPEN WHEN THE ASSOCIATED LOOP IS ISOLATED AND DRAINED.
 - THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/ LOCKED/L VALVE DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY, REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 - WHERE INDICATED, PRESSURIZER STEAM SPACE PIPING AND COMPONENTS BETWEEN THE SYMBOLS (A) HAVE BEEN DETERMINED TO BE ACCEPTABLE AS CLASS 2, (REF. ETE-MP-2021-1041) COMPONENT REPLACEMENTS SHALL BE CLASS 2, HOWEVER, THESE LINES SHALL BE CONSIDERED CLASS 1 FOR OPERATIONAL DECISION MAKING.

FSAR FIGURE

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE: REACTOR COOLANT SYSTEM PIPING & INSTRUMENTATION DIAGRAM
 CAD NO: 1269021.DGN
 REVISION PER ETE-MP-2021-1041
 & DUR 22-800049
 DRAWING NO: 25212-26902
 REV 35
 DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 1

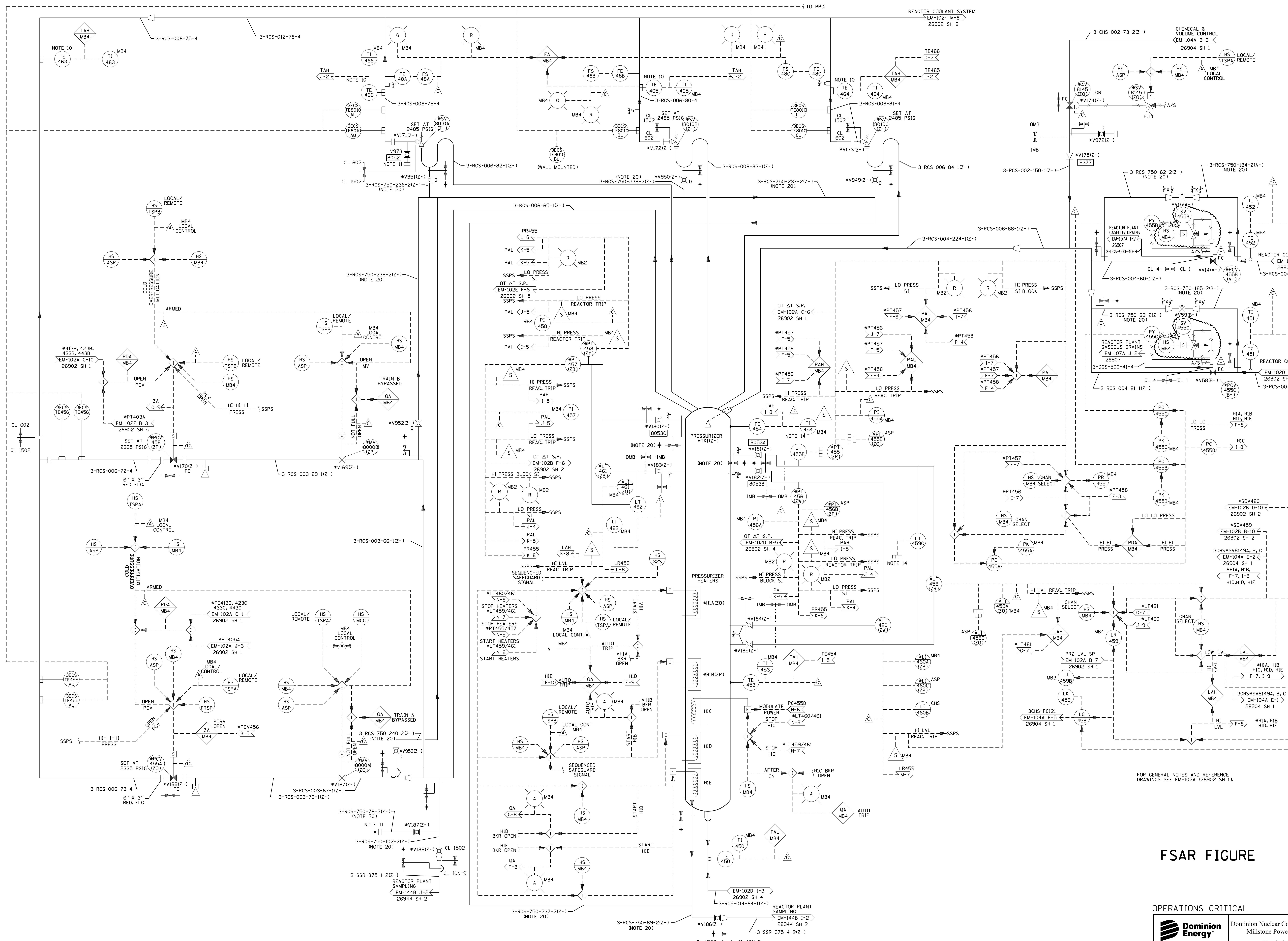


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-102A (26902 SH 1)
 2. MP3-21-01171 DISABLES THE LOCKED ROTOR PROTECTION SYSTEM BY BYPASSING THE FAILED BENTLEY NEVADA SIGNAL MODULE, WHICH ALLOWS THE "CRCP" TO START

FSAR FIGURE

OPERATIONS CRITICAL

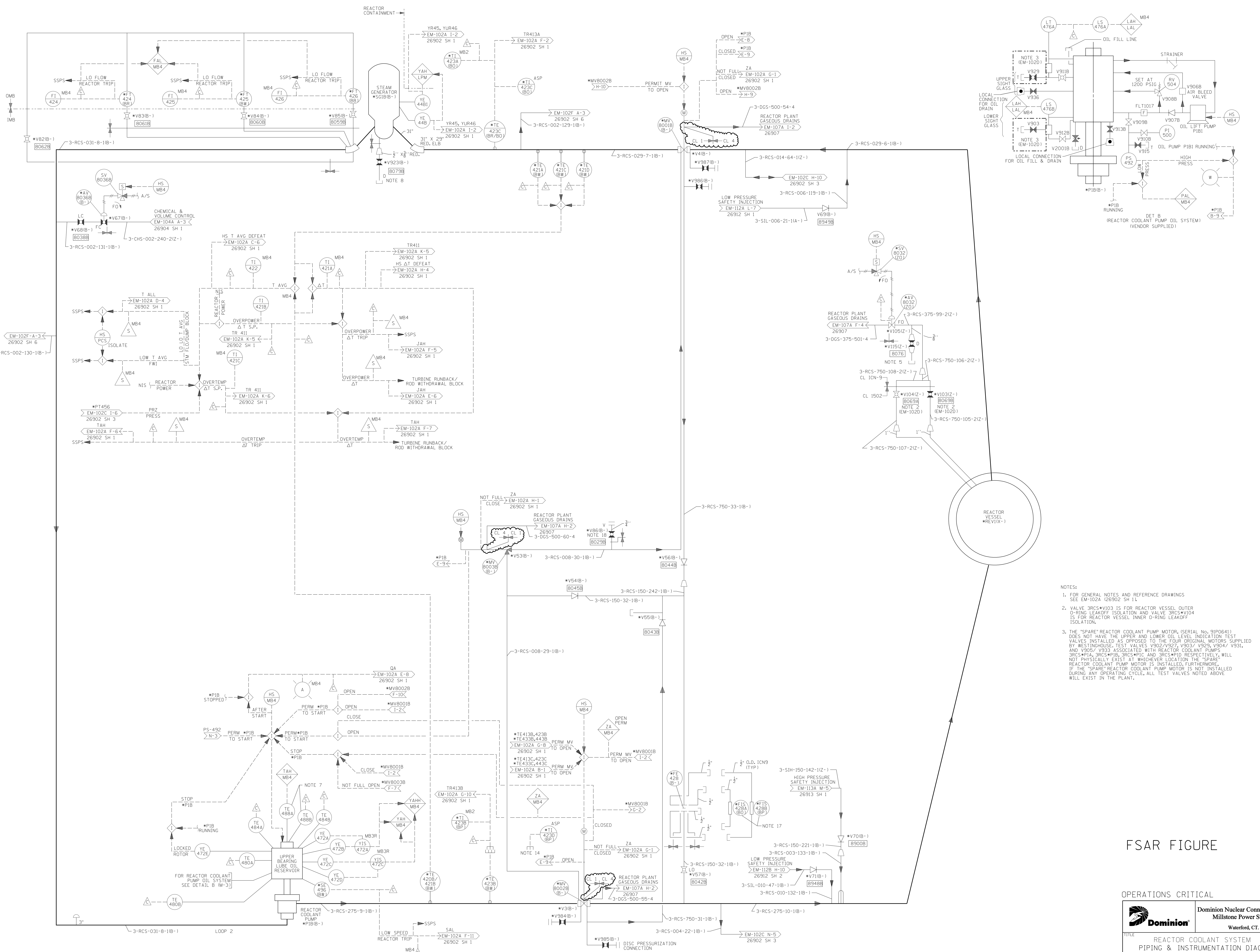
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
REACTOR COOLANT SYSTEM PIPING & INSTRUMENTATION DIAGRAM			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISION PER DC MP3-21-01171 & DUR 22-800074	CAD NO: 126902.D04 DRAWING NO: 25212-26902	REV 28	W. SHERMAN FOR LINE W. S. KALANTIS
DSGM JCV	SCALE: NONE	UNLESS OTHERWISE NOTED SH 2	S&W DWG. NO. I2179-EM-102B



FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM REACTOR COOLANT SYSTEM			
REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: 126902.D04	REVISED PER MP3-20-01075 & DUR 22-000112	DRAWING NO: 25212-26902	REV 30
DSGN JSJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 3	

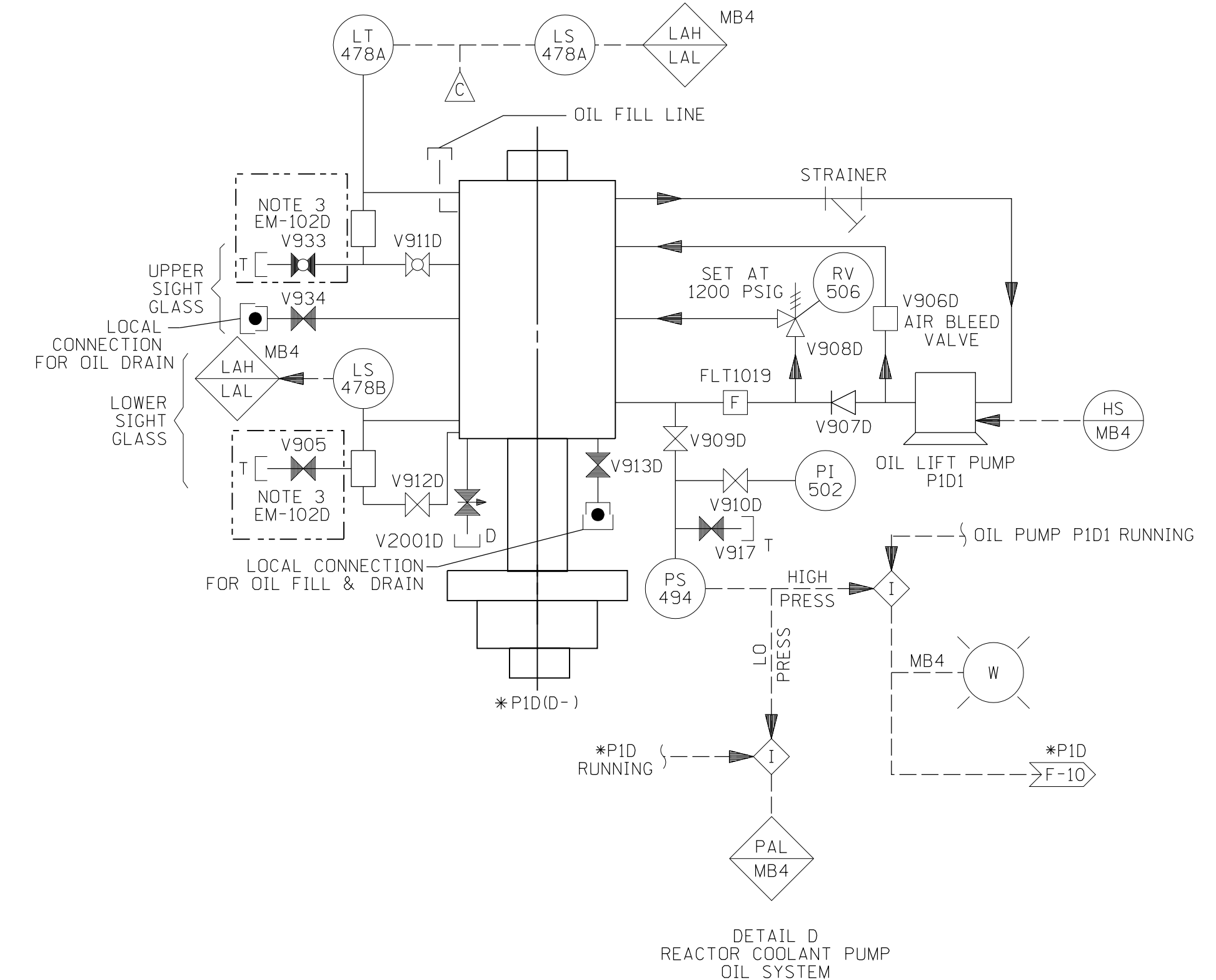
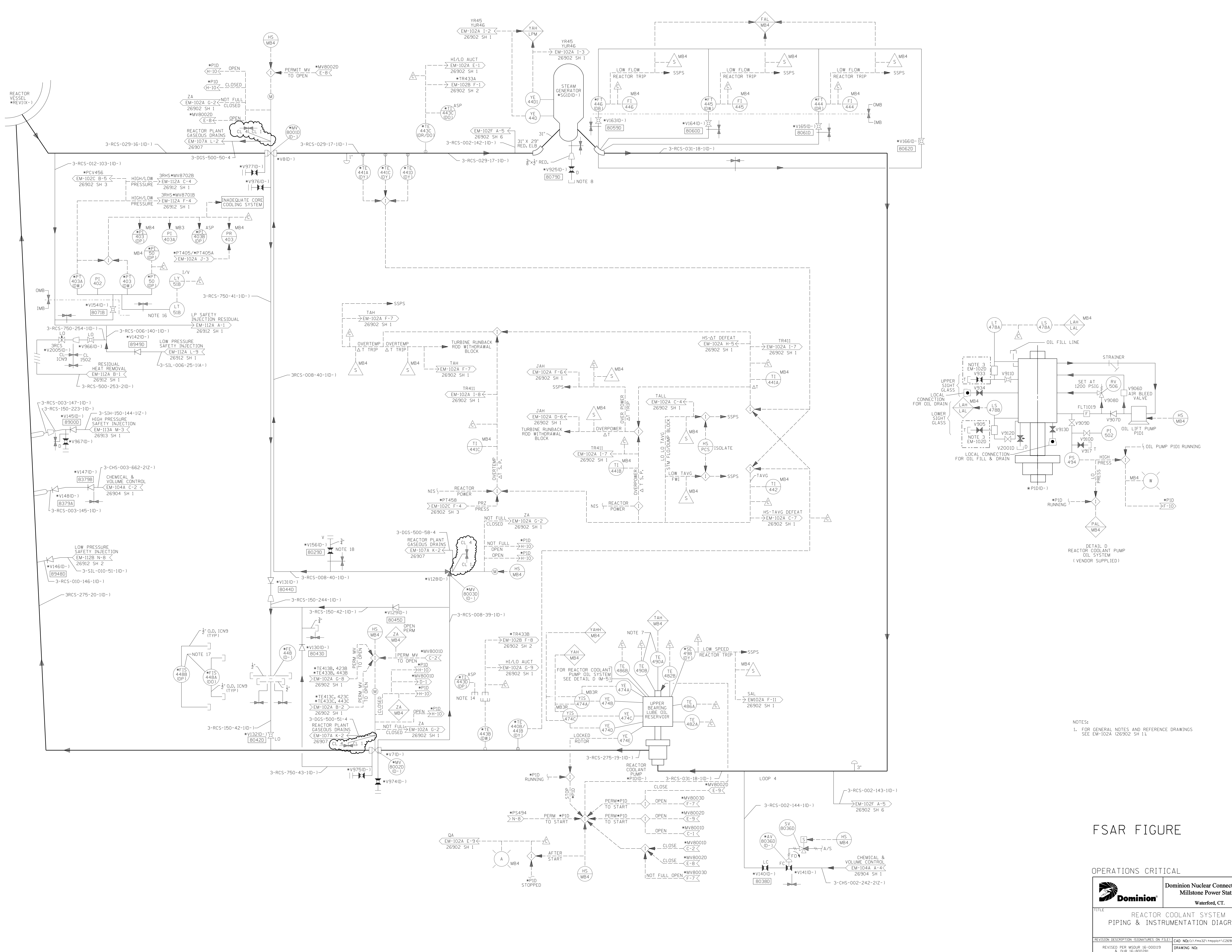


- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-102A (26902 SH 1).
 - VALVE 3RCS-V103 IS FOR REACTOR VESSEL OUTER O-RING LEAKOFF ISOLATION AND VALVE 3RCS-V104 IS FOR REACTOR VESSEL INNER O-RING LEAKOFF ISOLATION.
 - THE "SPARE" REACTOR COOLANT PUMP MOTOR, (SERIAL No. 91P06411) DOES NOT HAVE THE UPPER AND LOWER OIL LEVEL INDICATION TEST VALVES INSTALLED AS OPPOSED TO THE FOUR ORIGINAL MOTORS SUPPLIED BY WESTINGHOUSE. TEST VALVES V902/V927, V903/V929, V904/V931, AND V906/V933 ASSOCIATED WITH REACTOR COOLANT PUMPS 3RCS-M1A, 3RCS-M1B, 3RCS-M1C AND 3RCS-M1D RESPECTIVELY, WILL NOT PHYSICALLY EXIST AT WHICHEVER LOCATION THE "SPARE" REACTOR COOLANT PUMP MOTOR IS INSTALLED. FURTHERMORE, IF THE "SPARE" REACTOR COOLANT PUMP MOTOR IS NOT INSTALLED DURING ANY OPERATING CYCLE, ALL TEST VALVES NOTED ABOVE WILL EXIST IN THE PLANT.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE: REACTOR COOLANT SYSTEM PIPING & INSTRUMENTATION DIAGRAM			
REVISION DESCRIPTION: [blank]	SIGNATURES ON FILE: [blank]	CAD NO: [blank]	REV: 23
REVISION PER MSDJR 16-000119 & QSR 16-000291	DRAWING NO: 25212-26902	UNLESS OTHERWISE NOTED SH 4	

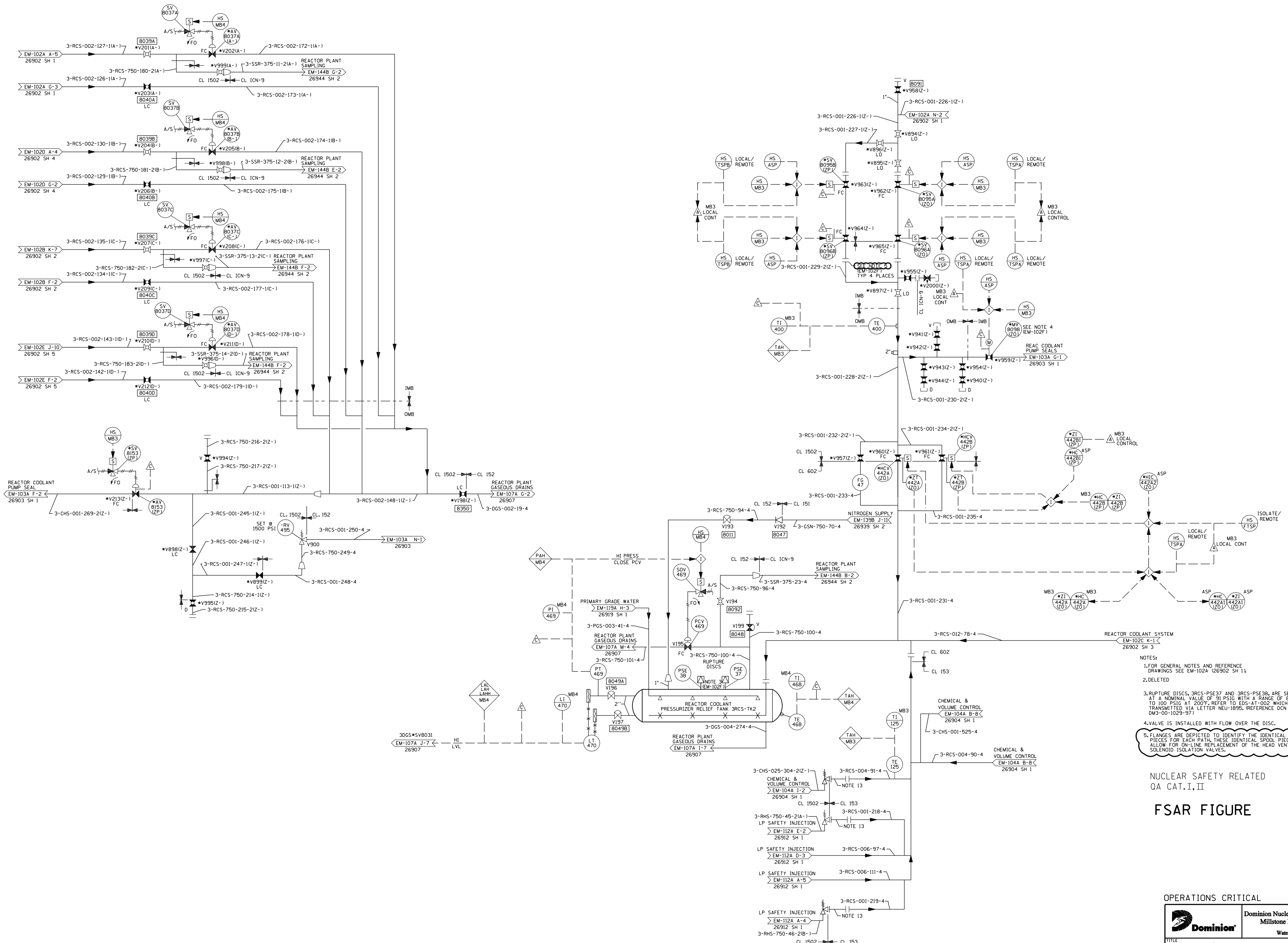


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-102A (26902 SH 1).

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Nuclear Power Station Waterford, CT.	
TITLE: REACTOR COOLANT SYSTEM PIPING & INSTRUMENTATION DIAGRAM			
REVISION DESCRIPTION REVISED PER MSUR 16-000119 & O&P 16-900281	SIGNATURES ON FILE DRAWING NO: 25212-26902	CAD NO: E:\ms32\mmp01\c269025.dgn	REV 27
DSGN DRJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 5	



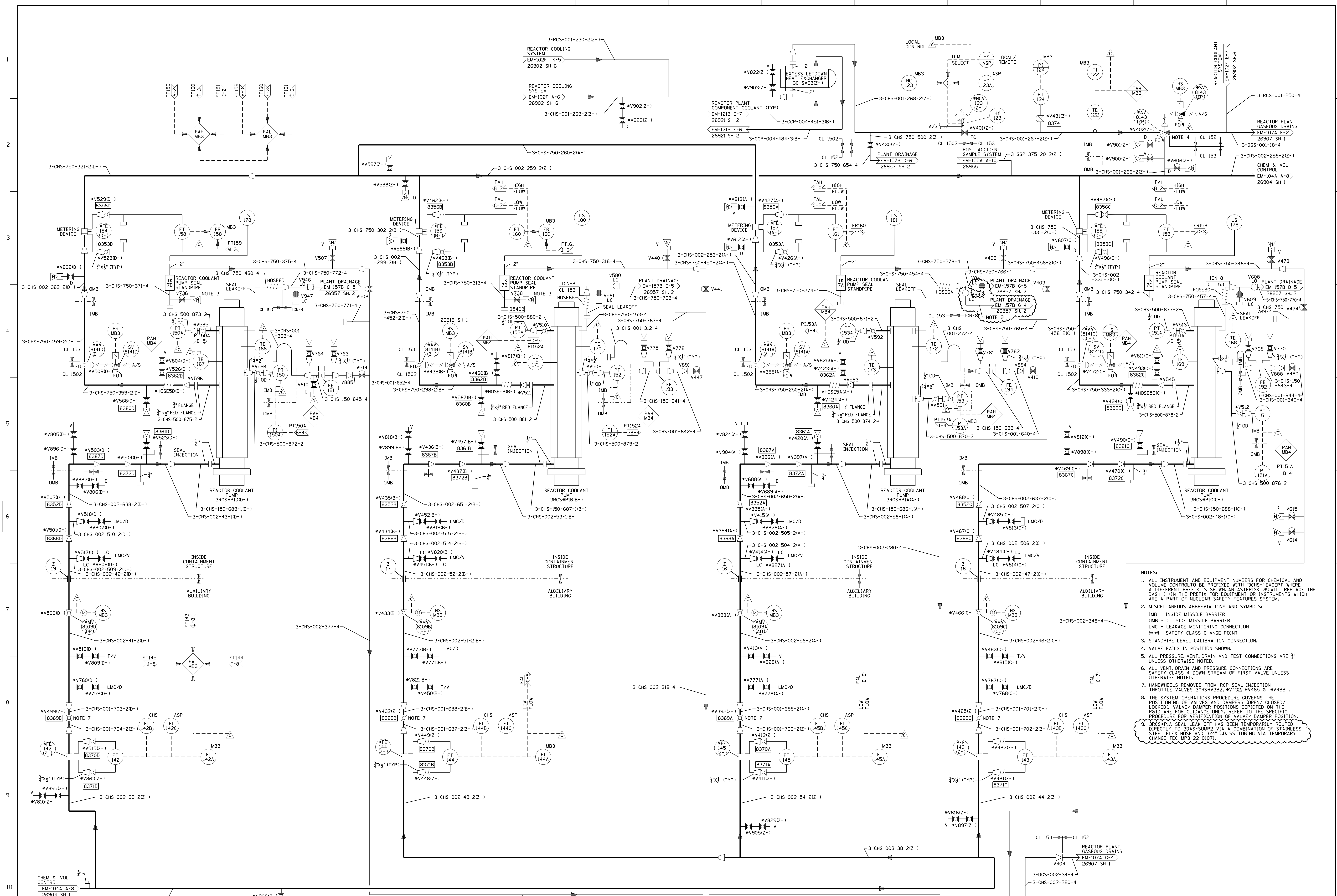
- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-102A (26902 SH 1).
 2. DELETED.
 3. RUPTURE DISCS, 3RCS-PSE37 AND 3RCS-PSE38, ARE SET AT A NOMINAL VALUE OF 91 PSIG WITH A RANGE OF 86 TO 100 PSIG AT 200°F. REFER TO EDS-A1-002 WHICH WAS TRANSMITTED VIA LETTER NEU-1895. REFERENCE DCN DMS-00-1029-97.
 4. VALVE IS INSTALLED WITH FLOW OVER THE DISC.
 5. FLANGES ARE DEPICTED TO IDENTIFY THE IDENTICAL SPOOL PIECES FOR EACH PATH. THESE IDENTICAL SPOOL PIECES ALLOW FOR ON-LINE REPLACEMENT OF THE HEAD VENT SOLENOID ISOLATION VALVES.

NUCLEAR SAFETY RELATED
QA CAT. I, II

FSAR FIGURE

OPERATIONS CRITICAL

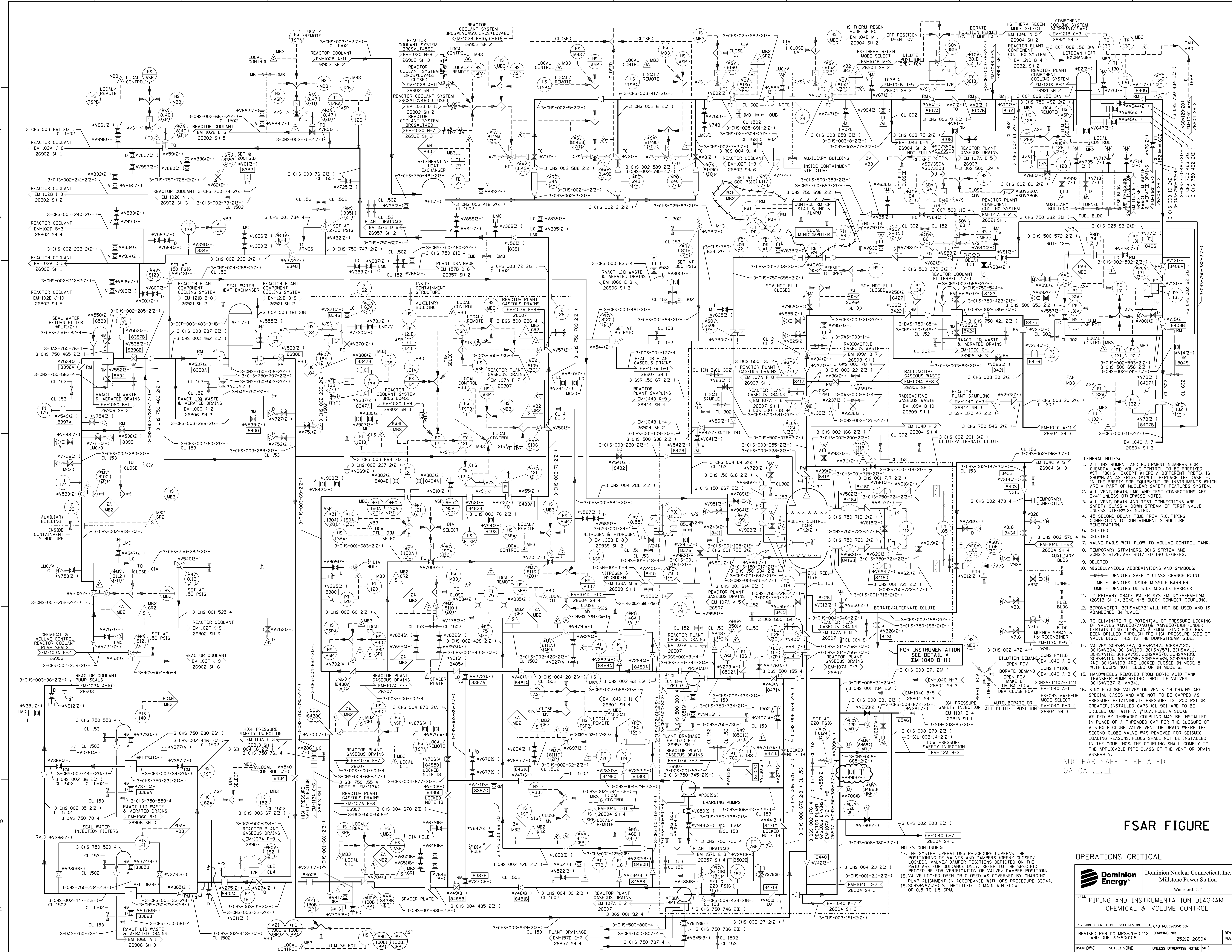
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM REACTOR COOLANT SYSTEM			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER MSUR 12-800034 AND DUR 12-800057	CAD NO. PROJECT\20000\PIPING\26902.DWG	DRAWING NO. 26212-26902	REV 17
DSON DWG	SCALE: NONE	UNLESS OTHERWISE NOTED SH 6	



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHEMICAL AND VOLUME CONTROL TO BE PREFIXED WITH "3CHS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 IMB - INSIDE MISSILE BARRIER
 OMB - OUTSIDE MISSILE BARRIER
 LMC - LEAKAGE MONITORING CONNECTION
 SFC - SAFETY CLASS CHANGE POINT
 3. STANDPIPE LEVEL CALIBRATION CONNECTION.
 4. VALVE FAILS IN POSITION SHOWN.
 5. ALL PRESSURE, VENT, DRAIN AND TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 6. ALL VENT, DRAIN AND PRESSURE CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 7. HANDWHEELS REMOVED FROM RCP SEAL INJECTION THROTTLE VALVES 3CHS*V392, *V432, *V465 & *V499.
 8. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/ LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 9. 3RCS*PIA SEAL LEAK-OFF HAS BEEN TEMPORARILY ROUTED DIRECTLY TO 30AS-SUMP2 VIA A COMBINATION OF STAINLESS STEEL FLEX HOSE AND 3/4" O.D. SS TUBING VIA TEMPORARY CHANGE TEC MP3-22-01071.

FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM REACTOR COOLANT PUMP SEALS			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER TEC MP3-22-01071 & DUR 22-800179	CAD NO: C26903.DGN DRAWING NO: 25212-26903	SCALE: NONE UNLESS OTHERWISE NOTED	SH: O REV: 30



- GENERAL NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR PRELIMINARY AND VOLUME CONTROL TO BE PREFIXED WITH "3CHS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN APOSTROPH (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL VENT, DRAIN, LMC AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 3. ALL VENT, DRAIN AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 4. 45 SECOND DELAY TIME FROM R.C. PIPING CONNECTION TO CONTAINMENT STRUCTURE PENETRATION.
 5. DELETED.
 6. DELETED.
 7. VALVE FAILS WITH FLOW TO VOLUME CONTROL TANK.
 8. TEMPORARY STRAINERS, 3CHS-STR12A AND 3CHS-STR12B, ARE ROTATED 180 DEGREES.
 9. DELETED.
 10. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - DENOTES SAFETY CLASS CHANGE POINT
 - IMB DENOTES INSIDE MISSILE BARRIER
 - OMB DENOTES OUTSIDE MISSILE BARRIER
 11. TO PRIMARY GASE WATER SYSTEM 12179-EM-119A (26919 SH 1), ZONE N-5 QUICK CONNECT COUPLER.
 12. BORMOMETR (3CHS#A73) WILL NOT BE USED AND IS ABANDONED IN PLACE.
 13. TO ELIMINATE THE POTENTIAL OF PRESSURE LOCKING OF CERTAIN CONDITIONS, AN EQUALIZING HOLE HAS BEEN DRILLED THROUGH THE HIGH PRESSURE SIDE OF VALVE DISC. THIS IS THE DOWNSTREAM SIDE.
 14. VALVES 3CHS#V379, 3CHS#V147, 3CHS#V120, 3CHS#V304, 3CHS#V100, 3CHS#V571, 3CHS#V111, 3CHS#V112, 3CHS#V39, 3CHS#V570, 3CHS#V109, 3CHS#V110, 3CHS#V98, 3CHS#V65, 3CHS#V107 AND 3CHS#V108 ARE LOCKED CLOSED IN MODE 5 WITH LOCKS NOT FILLED OR IN MODE 6.
 15. HANDWHEELS REMOVED FROM BORIC ACID TANK TRANSFER PUMP RECIRC THROTTLE VALVES 3CHS#V337 & #341.
 16. SINGLE GLOBE VALVES ON VENTS OR DRAINS ARE SPECIAL CASES AND ARE NOT TO BE CAPPED AS PRESSURE RETAINING. IF PRESSURE IS 1500 PSI OR GREATER, INSTALLED CAPS ICL 901 ARE TO BE DRILLED-OUT WITH A 1/2" DIA. HOLE. A SOCKET WELDED BY THREADED COUPLING MAY BE INSTALLED IN PLACE OF A THREADED CAP FOR THE CLOSURE OF A SINGLE GLOBE VALVE VENT OR DRAIN WHERE THE SECOND GLOBE VALVE WAS REMOVED FOR SEISMIC LOADING REASONS. PLUGS SHALL NOT BE INSTALLED IN THE COUPLINGS. THE COUPLING SHALL COMPLY TO THE APPLICABLE PIPE CLASS OF THE VENT OR DRAIN ASSEMBLY.

FOR INSTRUMENTATION SEE DETAIL A-EM-104D-D-11

NUCLEAR SAFETY RELATED
QA CAT. I, II

FSR FIGURE

OPERATIONS CRITICAL

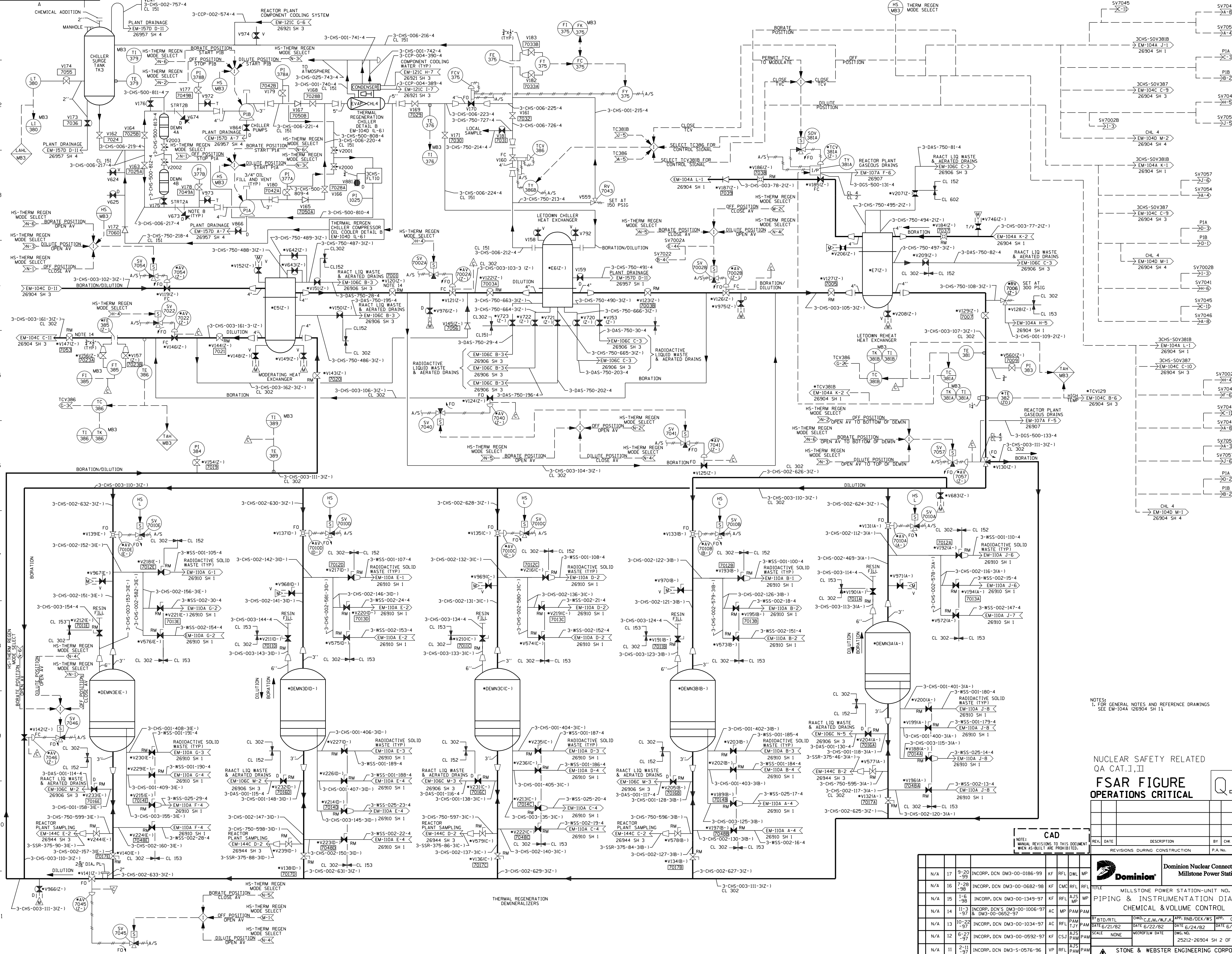
Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE: PIPING AND INSTRUMENTATION DIAGRAM
CHEMICAL & VOLUME CONTROL

REVISION DESCRIPTION (SIGNATURES ON FILE):

REVISED PER DC MP30-20-0112	DRAWING NO.	25212-26904	REV	58
AND DUR 22-800108	DATE	25212-26904	REV	58

DSOJ DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 1



NOTES:
 1. GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-104A (26904 SH 1)

NUCLEAR SAFETY RELATED
 QA CAT. J, II
FSAR FIGURE
 OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	17	9-20-99	INCCORP. DCN DM3-00-0186-99	KF	RFL	MP
N/A	16	7-28-98	INCCORP. DCN DM3-00-0682-98	KF	CMC	RFL
N/A	15	1-6-98	INCCORP. DCN DM3-00-1349-97	KF	RFL	MP
N/A	14	11-3-97	INCCORP. DCN'S DM3-00-1006-97 & DM3-00-0652-97	AC	MP	PAM
N/A	13	10-22-97	INCCORP. DCN'S DM3-00-1034-97	AC	PAM	PAM
N/A	12	6-27-97	INCCORP. DCN'S DM3-00-0592-97	KF	CSJ	PAM
N/A	11	2-11-97	INCCORP. DCN DM3-5-0576-96	VP	RFL	PAM

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

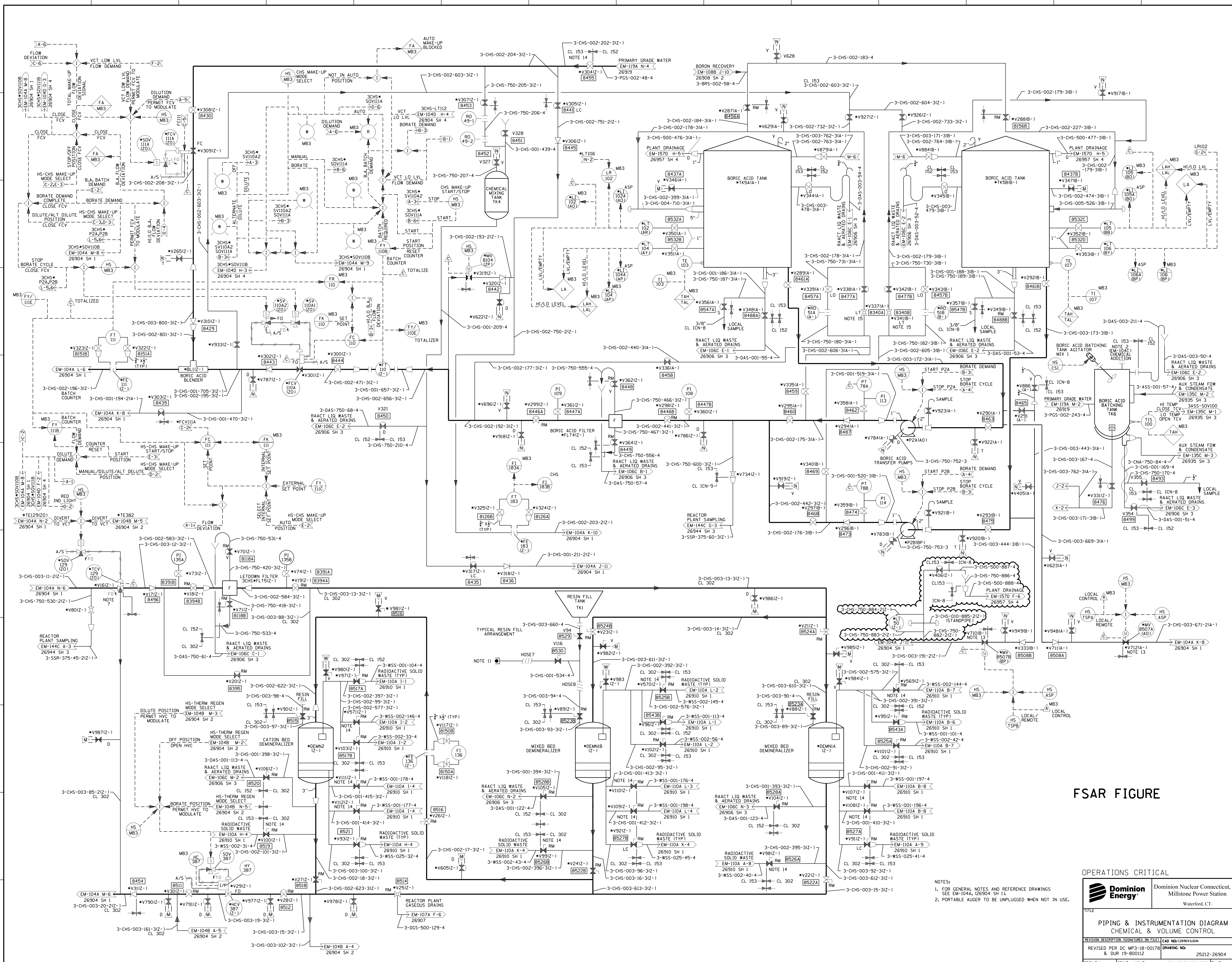
MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
 CHEMICAL & VOLUME CONTROL

DATE: 6/24/82
 SCALE: NONE
 MICROFLOW DATE: 2521-26904 SH 2 OF 4

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

CAD

NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.



FSAR FIGURE

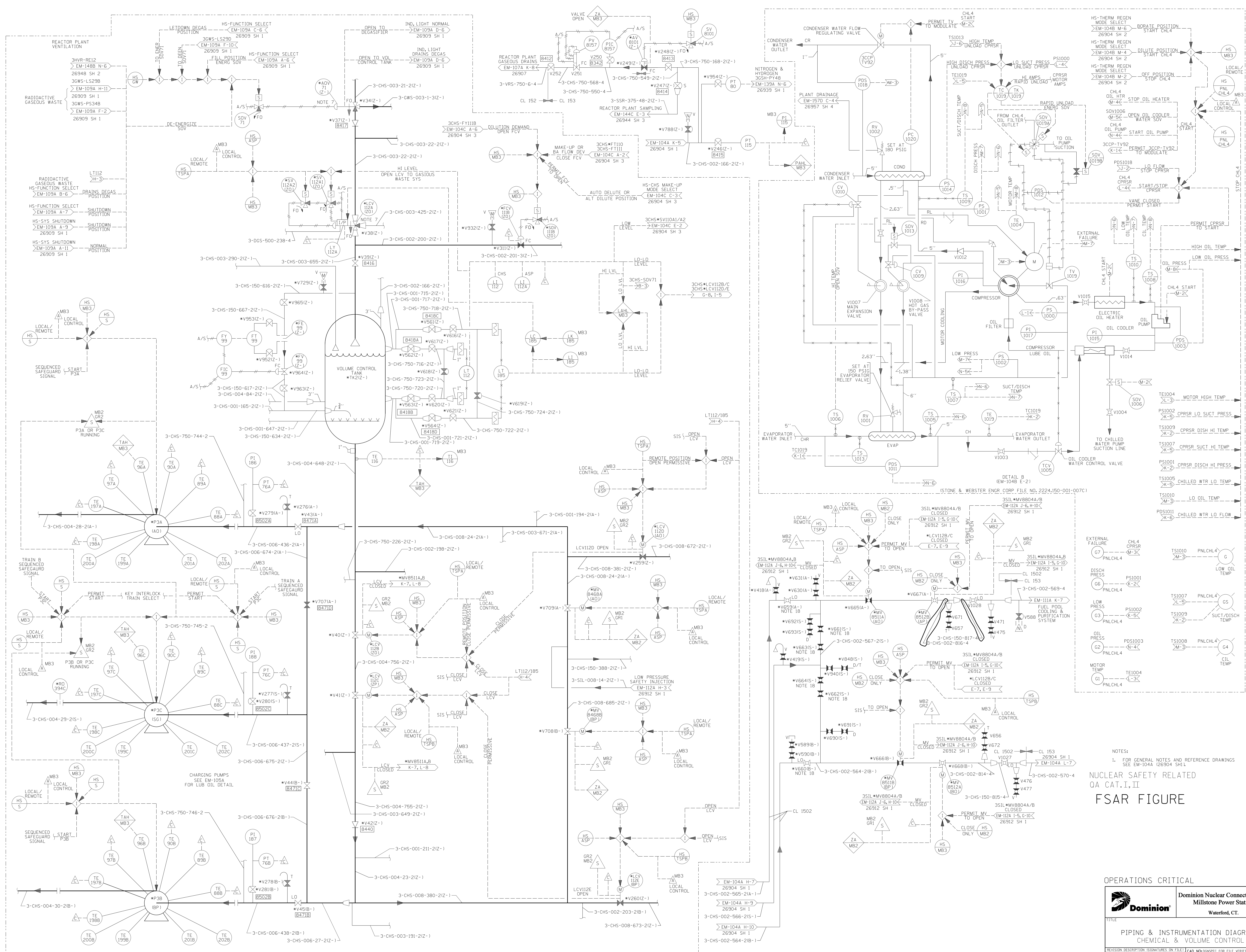
- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-104A, 26904 SH 1.
 - PORTABLE AUGER TO BE UNPLUGGED WHEN NOT IN USE.

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

PIPING & INSTRUMENTATION DIAGRAM
CHEMICAL & VOLUME CONTROL

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: C26904-3-1004
REVISED PER DC MP3-18-00178 DRAWING NO: 25212-26904 REV 33
DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 3



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-1044 (26904 SH 1)
NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE

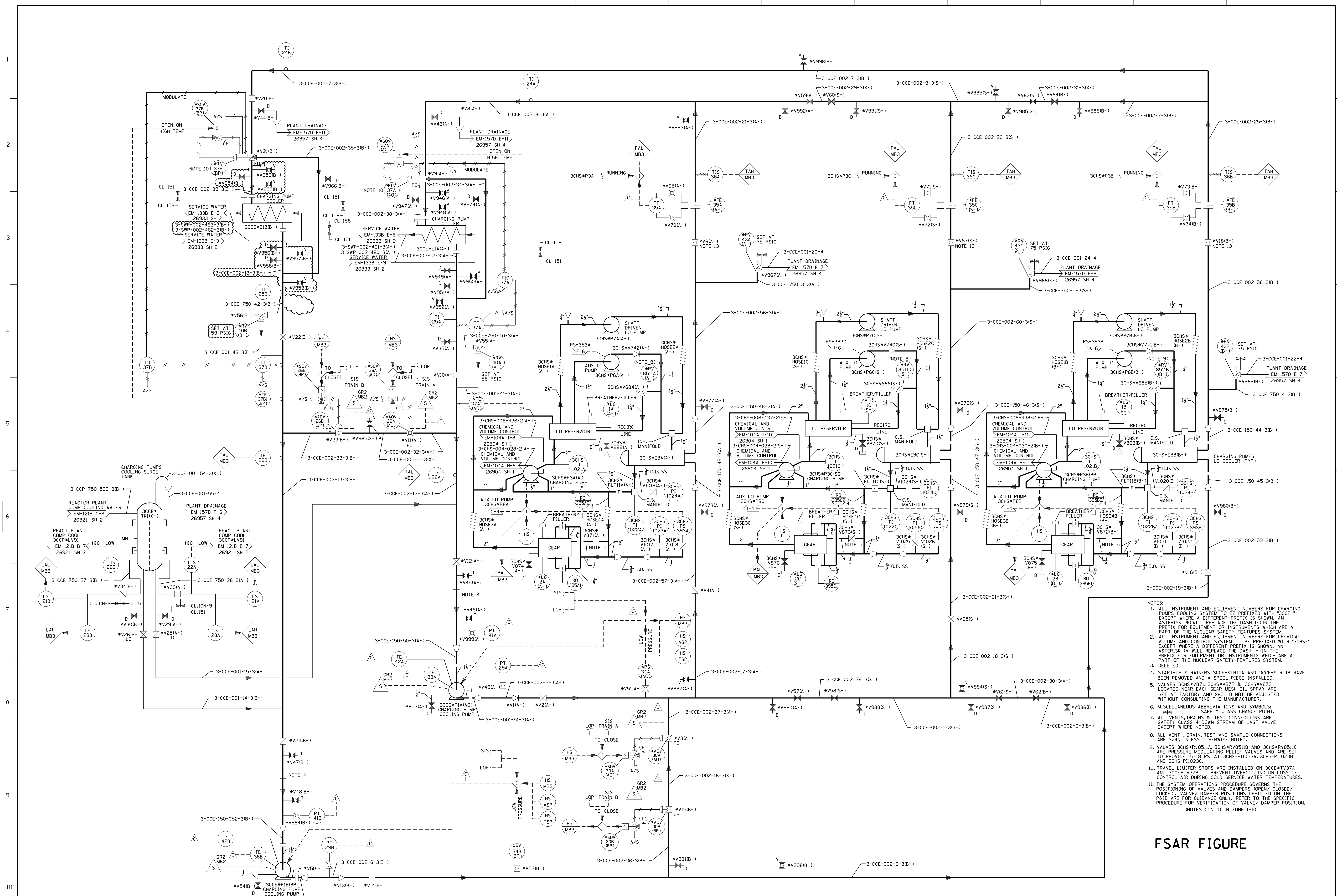
OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
 CHEMICAL & VOLUME CONTROL

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: HONPEC FOR FILE VERIFICATION
 REVISED PER MSDUR 12-000B3 & DUR 12-000B4 DRAWING NO: 25212-26904 REV 30

DSM EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 4



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHARGING PUMPS COOLING SYSTEM TO BE PREFIXED WITH "3CCE" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF THE NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHEMICAL VOLUME AND CONTROL SYSTEM TO BE PREFIXED WITH "3CHS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF THE NUCLEAR SAFETY FEATURES SYSTEM.
 3. DELETED
 4. START-UP STRAINERS 3CCE-STRT1A AND 3CCE-STRT1B HAVE BEEN REMOVED AND A SPOOL PIECE INSTALLED.
 5. VALVES 3CHS*V871, 3CHS*V872 & 3CHS*V873 LOCATED NEAR EACH GEAR MESH OIL SPRAY ARE SET AT FACTORY AND SHOULD NOT BE ADJUSTED WITHOUT CONSULTING THE MANUFACTURER.
 6. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS: SAFETY CLASS CHANGE POINT.
 7. ALL VENTS, DRAINS & TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF LAST VALVE EXCEPT WHERE NOTED.
 8. ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 9. VALVES 3CHS*V8511A, 3CHS*V8511B AND 3CHS*V8511C ARE PRESSURE MODULATING RELIEF VALVES AND ARE SET TO PROVIDE 15-19 PSIG AT 3CHS*P1023A, 3CHS*P1023B AND 3CHS*P1023C.
 10. TRAVEL LIMITER STOPS ARE INSTALLED ON 3CCE*V37A AND 3CCE*V37B TO PREVENT OVERCOOLING ON LOSS OF CONTROL AIR DURING COLD SERVICE WATER TEMPERATURES.
 11. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS INDICATED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION. (NOTES CONT'D IN ZONE I-10)

(NOTES CONT'D)
 12. ALL PIPING IS CLASS 151 UNLESS OTHERWISE NOTED.
 13. VALVES 3CCE*V61A-1, 3CCE*V181B-1 AND 3CCE*V671S-1 ARE THROTTLED VALVES.

FSAR FIGURE

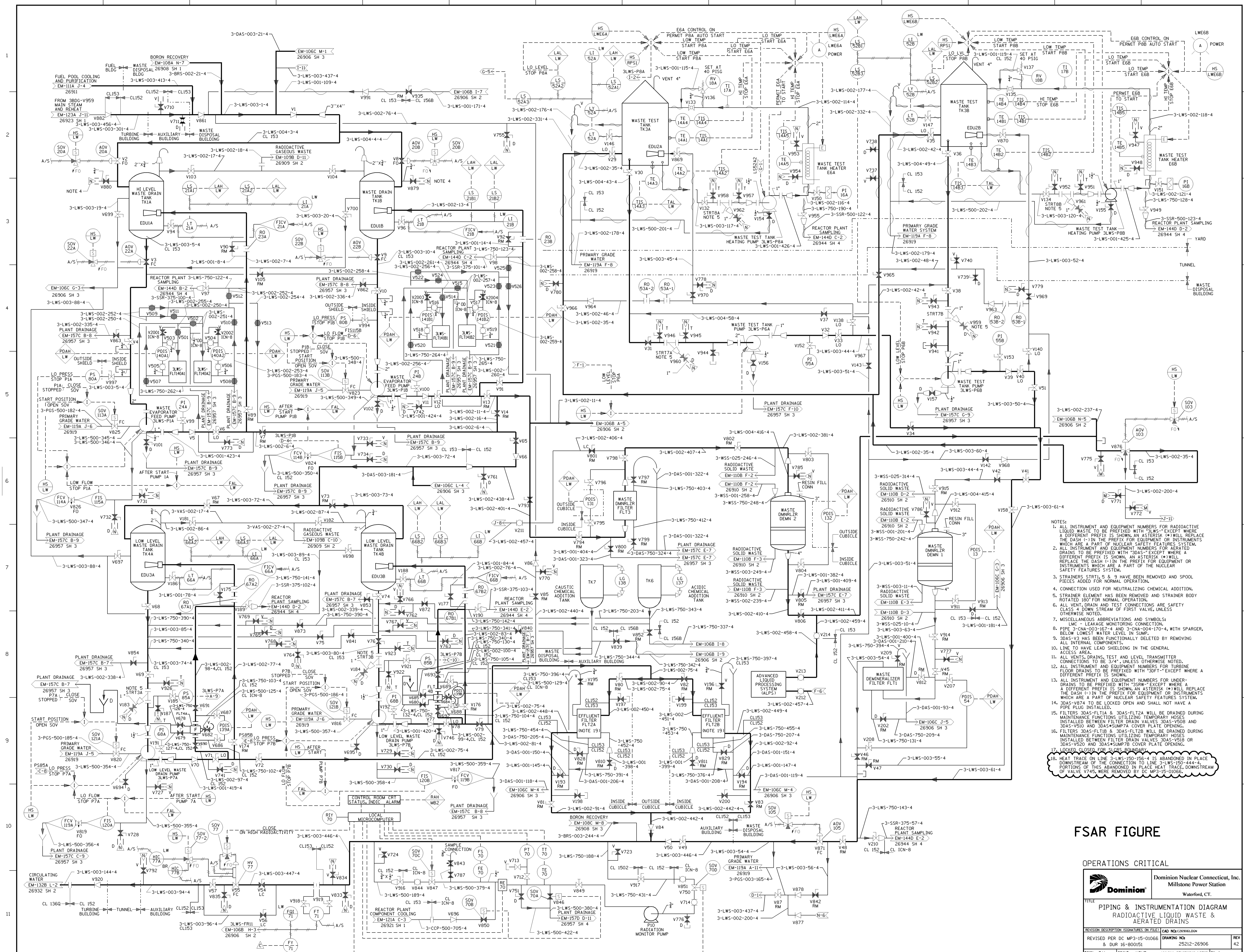
OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.

TITLE: **PIPING & INSTRUMENTATION DIAGRAM CHARGING PUMP SEALING AND LUBRICATION**

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 126901000
 REVISED PER DC MP3-18-0010 AND DUR 22-800099 DRAWING NO: 25121-26905 REV 25

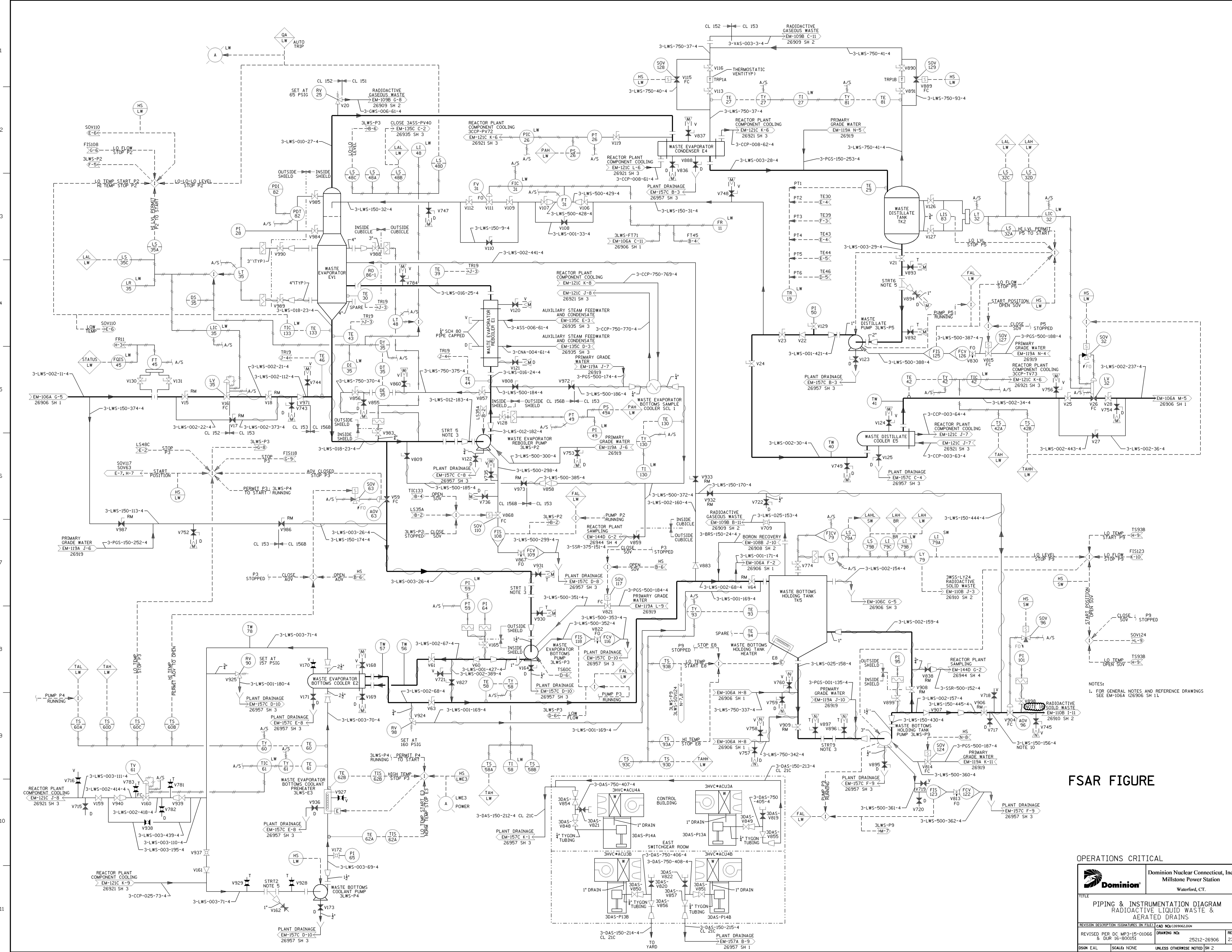
DSGN DWJ SCALE NONE UNLESS OTHERWISE NOTED SH 1



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR RADIOACTIVE LIQUID WASTE TO BE PREFIXED WITH "3-LWS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AERATED DRAINS TO BE PREFIXED WITH "3-DAS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF THE NUCLEAR SAFETY FEATURES SYSTEM.
 3. STRAINERS S7111, S 8 AND 9 HAVE BEEN REMOVED AND SPOOL PIECES ADDED FOR NORMAL OPERATION.
 4. CONNECTION USED FOR NEUTRALIZING CHEMICAL ADDITION.
 5. STRAINER ELEMENT HAS BEEN REMOVED AND STRAINER BODY ROTATED 180° FOR NORMAL OPERATION.
 6. ALL VENT, DRAIN AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FILTER VALVE UNLESS OTHERWISE NOTED.
 7. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 LMC - LEAKAGE MONITORING CONNECTION.
 P - PIPE
 S - STOP
 T - TEST
 V - VALVE
 W - WASTE
 X - EXHAUST
 8. PIPE 3-CNA-003-167-4 AND 3-CNA-004-170-4, WITH SPARGER, BELOW LOWEST WATER LEVEL IN TANK.
 9. 30AS-V2 HAS BEEN FUNCTIONALLY DELETED BY REMOVING ALL INTERNAL COMPONENTS.
 10. LINE TO HAVE LEAD SHIELDING IN THE GENERAL ACCESS AREA.
 11. ALL VENTS, DRAINS, TEST AND LEVEL TRANSMITTER CONNECTIONS TO BE 3/4" UNLESS OTHERWISE NOTED.
 12. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE FLOOR DRAINS TO BE PREFIXED WITH "30FT-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 13. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR UNDER-DRAINS TO BE PREFIXED WITH "3SRK-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 14. 30AS-V874 TO BE LOCKED OPEN AND SHALL NOT HAVE A PIPE PLUG INSTALLED.
 15. FILTERS 30AS-F11A & 30AS-F12A WILL BE DRAINED DURING MAINTENANCE FUNCTIONS UTILIZING TEMPORARY HOSES INSTALLED BETWEEN FILTER DRAIN VALVES 30AS-V508 AND 30AS-V510 AND 30AS-SUMP7A COVER PLATE OPENING.
 16. FILTERS 30AS-F11B & 30AS-F12B WILL BE DRAINED DURING MAINTENANCE FUNCTIONS UTILIZING TEMPORARY HOSES INSTALLED BETWEEN FILTER DRAIN VALVES 30AS-V508 OR 30AS-V520 AND 30AS-SUMP7B COVER PLATE OPENING.
 17. LOCKED CLOSED FOR SRS BOUNDARY.
 18. HEAT TRACE ON LINE 3-LWS-150-156-4 IS ABANDONED IN PLACE DOWNSTREAM OF THE CONNECTION TO LINE 3-LWS-150-144-4. PORTIONS OF THIS ABANDONED IN PLACE HEAT TRACE, DOWNSTREAM OF VALVE V745, WERE REMOVED BY DC MP-16-01066.

FSAR FIGURE

OPERATIONS CRITICAL	
PIPING & INSTRUMENTATION DIAGRAM RADIOACTIVE LIQUID WASTE & AERATED DRAINS	
REVISION DESCRIPTION	SIGNATURES ON FILE
REVISED PER DC MP-15-01066	DRAWING NO. 25212-26906
AND DUR 16-800151	REV 42
DSGN EAL	SCALE: NONE UNLESS OTHERWISE NOTED SH 1

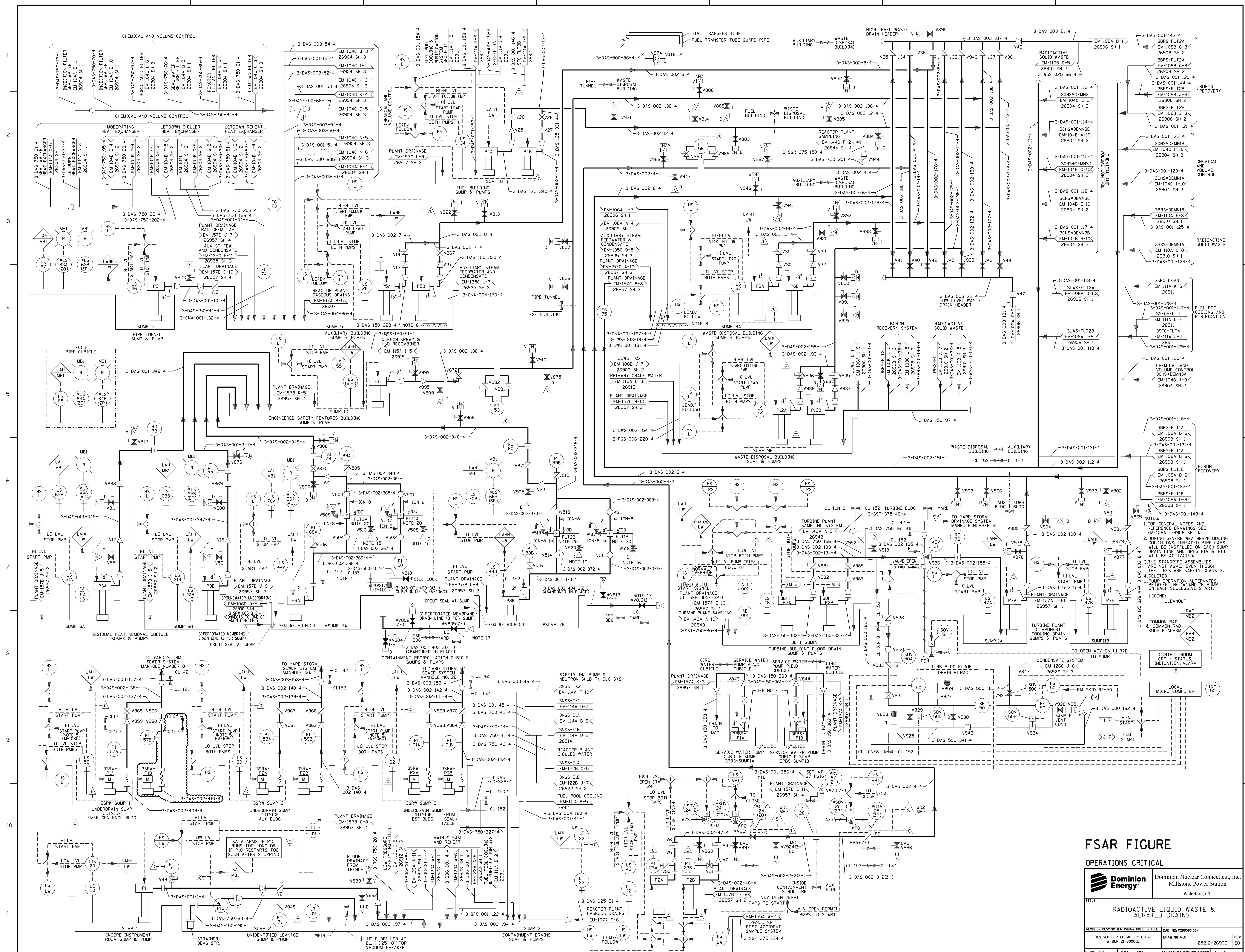


FSAR FIGURE

NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-106A (26906 SH 11)

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
PIPING & INSTRUMENTATION DIAGRAM RADIOACTIVE LIQUID WASTE & AERATED DRAINS		
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISION NO.	CAD NO. (26906-200) DRAWING NO.	REV. NO. (23) DATE (25212-26906)
DSON EAL	SCALE (NONE)	UNLESS OTHERWISE NOTED (SH 2)

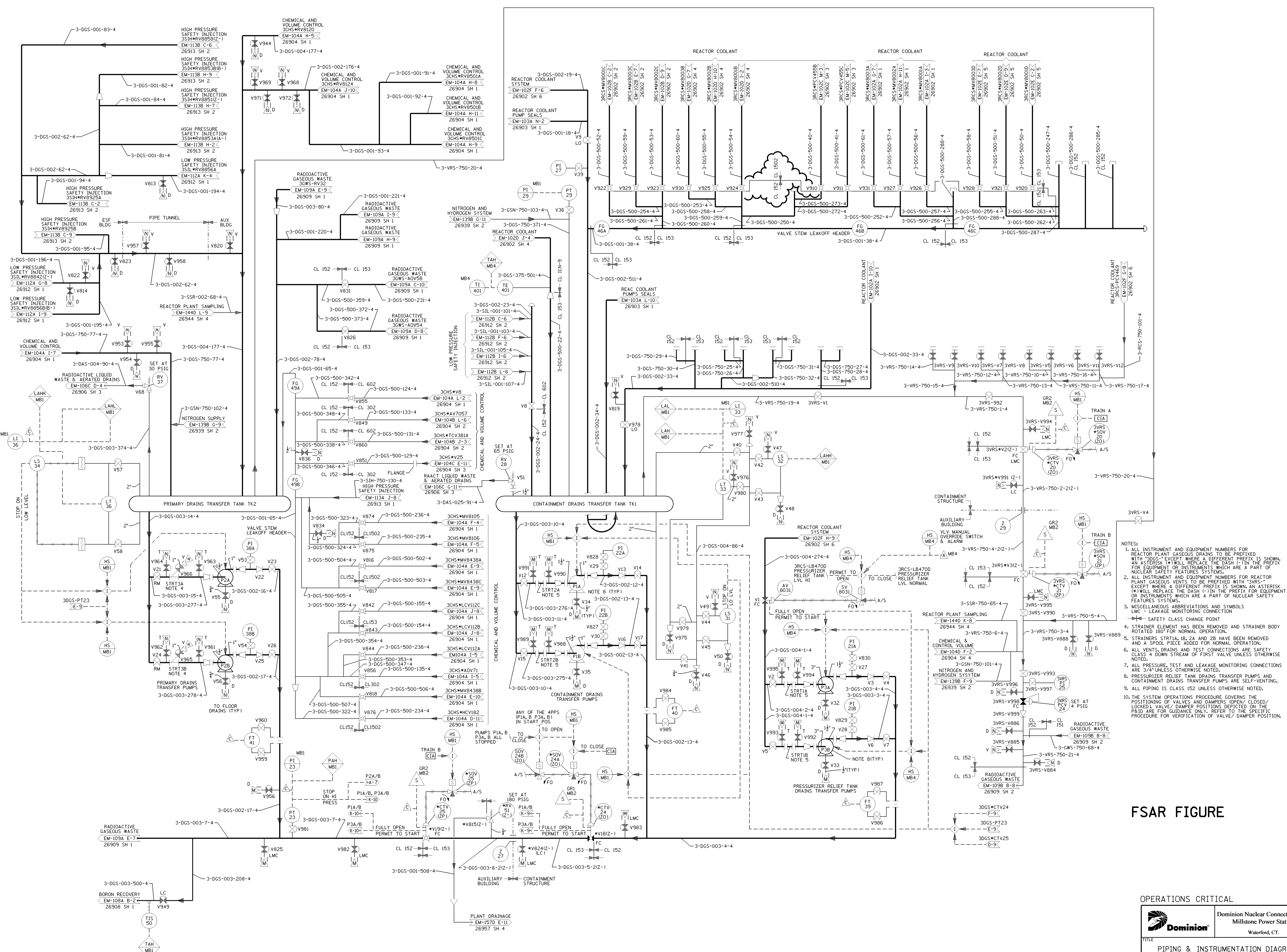


FSAR FIGURE
OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
 RADIOACTIVE LIQUID WASTE &
 AERATED DRAINS

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: C26963.00N
 REVISED PER EC: WP3-19-0167
 DRAWING NO: 25212-26906 REV 50
 DSN: EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 3



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR PLANT GASEOUS DRAINS TO BE PREFIXED WITH "3DGS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEMS.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR PLANT GASEOUS VENTS TO BE PREFIXED WITH "3VRS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEMS.
 3. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS
 LMC - LEAKAGE MONITORING CONNECTION
 - - - SAFETY CLASS CHANGE POINT
 4. STRAINER ELEMENT HAS BEEN REMOVED AND STRAINER BODY ROTATED 180° FOR NORMAL OPERATION.
 5. STRAINERS STRT1A, 1B, 2A AND 2B HAVE BEEN REMOVED AND A SPOOL PIECE ADDED FOR NORMAL OPERATION.
 6. ALL VENTS, DRAINS AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 7. ALL PRESSURE, TEST AND LEAKAGE MONITORING CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 8. PRESSURIZER RELIEF TANK DRAINS TRANSFER PUMPS AND CONTAINMENT DRAINS TRANSFER PUMPS ARE SELF-VENTING.
 9. ALL PIPING IS CLASS 152 UNLESS OTHERWISE NOTED.
 10. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

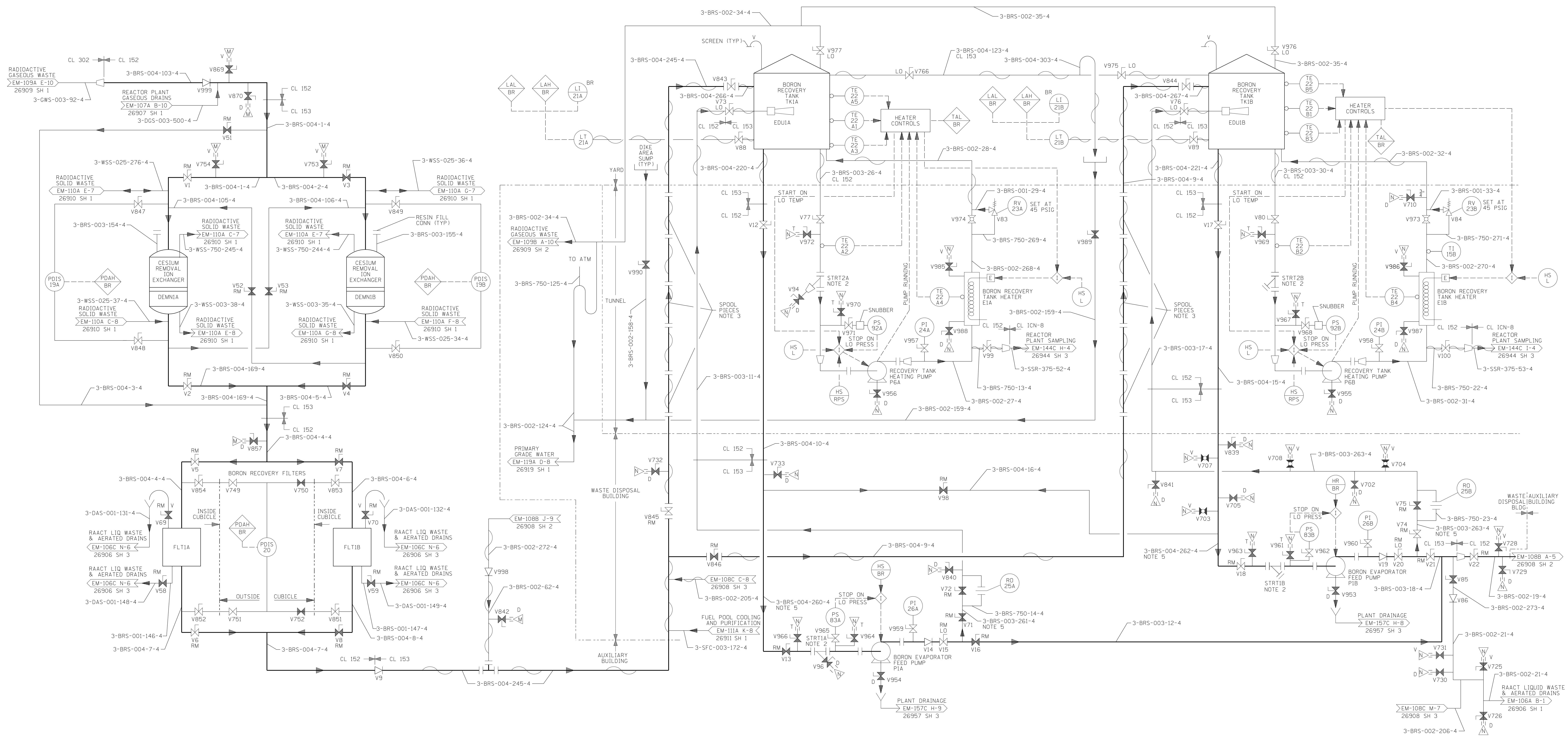
FSAR FIGURE

OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
REACTOR PLANT GASEOUS DRAINS

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: C26907.DGN
 REVISED PER MSDR 16-000121 & DUR 16-000202 DRAWING NO: 25212-26907 REV 28
 DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 0



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR BORON RECOVERY TO BE PREFIXED WITH "3BRS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENTS OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. STRAINER ELEMENT HAS BEEN REMOVED AND STRAINER BODY ROTATED 180 DEGREES FOR NORMAL OPERATIONS.
 3. SPOOL PIECES TO BE LOCATED IN TUNNEL AREA TO FACILITATE CLEANING OF SOLIDIFIED BORON IN PIPE, IF EVER NECESSARY.
 4. STRAINER STRIPS HAS BEEN REMOVED AND A SPOOL PIECE ADDED FOR NORMAL OPERATIONS.
 5. LINE TO HAVE LEAD SHIELDING IN THE GENERAL ACCESS AREA.
 6. ALL VENTS, DRAINS & PRESSURE CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 7. ALL VENT, DRAIN & PRESSURE CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 8. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED). VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

CAD
 NOTE: REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. NO.						

Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

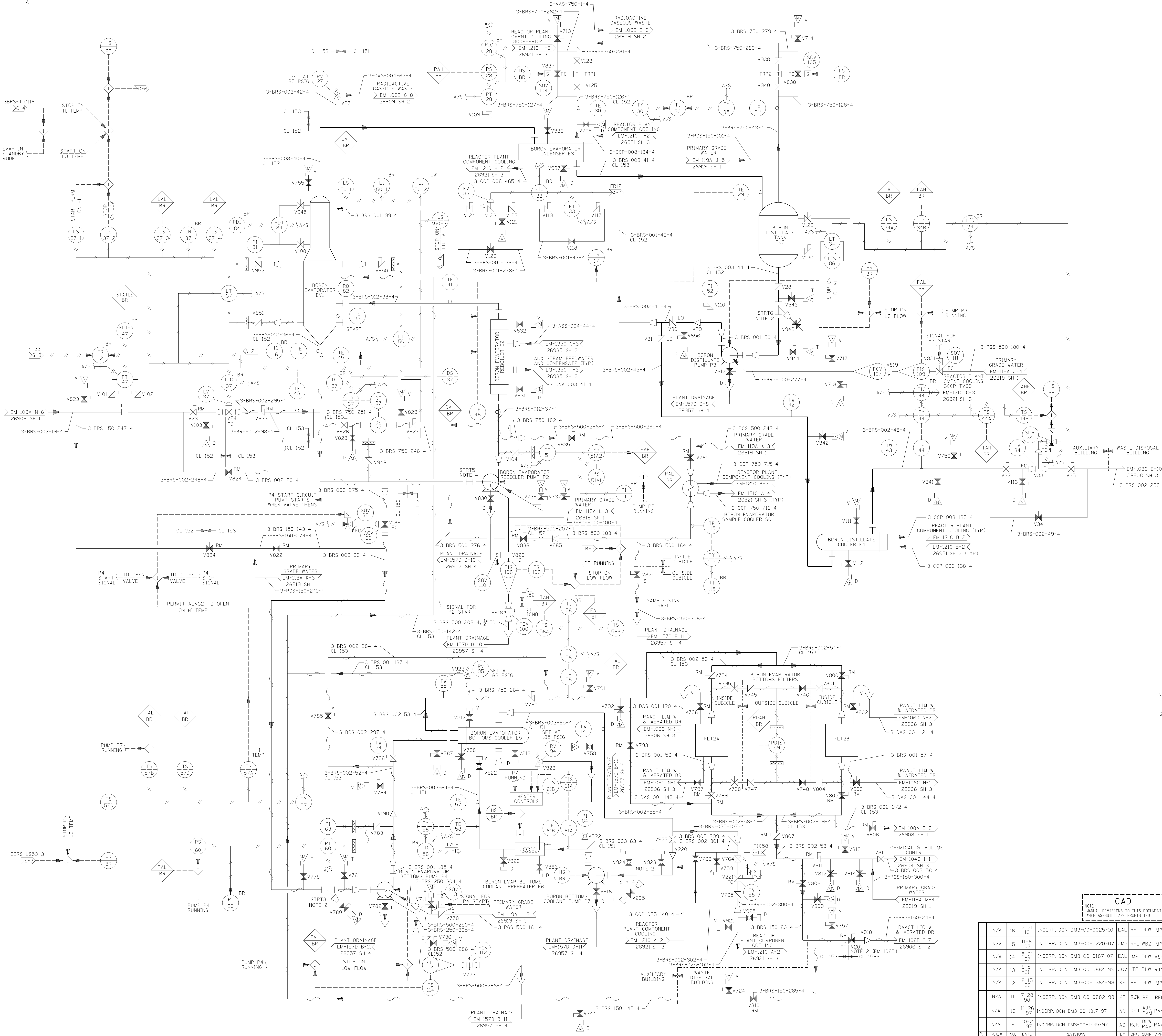
TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 BORON RECOVERY SYSTEM

BY: FJE/RTL	CHKD: CEM/WD	APP: RNB/JLC/RAB	APP: AWR
DATE: 2-2-82	DATE: 2-19-82	DATE: 2-19-82	DATE: 3-9-82
SCALE: NONE	MICROFILM DATE	DWG. NO.	REV
71-156		25212-26908 SH 1	19

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

P.A. NO.	NO.	DATE	REVISIONS	BY	CHK	CORR	APP.
N/A	19	3-31-10	INCPOR. DCN DM3-00-0025-10	EAL	REF	DLW	MP
N/A	18	3-18-09	INCPOR. DCN DM3-00-0075-09	DWJ	REF	DLW	MP
N/A	17	5-30-02	INCPOR. DCN DM3-00-0222-01	JCV	TF	DLW	RJY

RESP. ENGR. R. BONE, F. CORTINI
 DESGN. ENGR. C.E. MADONDO/DFE



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-108A, 26908 SH 11
 2. LOCKED CLOSED PER C OP 200.12

QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

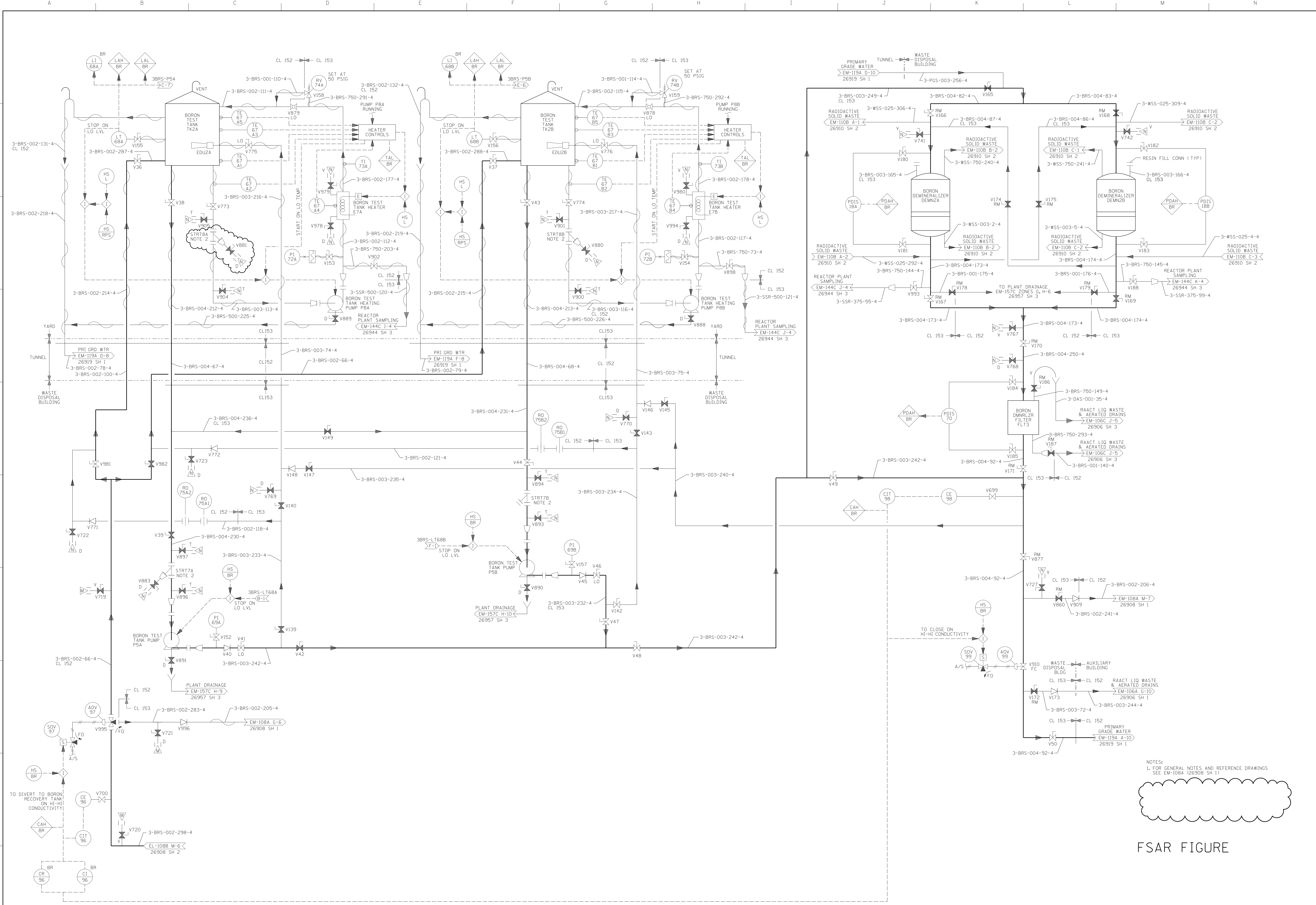
CAD				REVISIONS DURING CONSTRUCTION				P.A. NO.		
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP				
N/A	16	3-3-10	INCORP. DCN DM3-00-0025-10	EAL	RFL	DLW	MP			
N/A	15	5-31-07	INCORP. DCN DM3-00-0220-07	JMS	RFL	DLW	MP			
N/A	14	5-31-07	INCORP. DCN DM3-00-0187-07	EAL	MP	DLW	ASK			
N/A	13	9-5-01	INCORP. DCN DM3-00-0684-99	JCV	TF	DLW	RJY			
N/A	12	6-15-99	INCORP. DCN DM3-00-0364-98	KF	RFL	DLW	MP			
N/A	11	7-28-98	INCORP. DCN DM3-00-0682-98	KF	RJK	RFL	REFL			
N/A	10	11-26-97	INCORP. DCN DM3-00-1317-97	AC	CSJ	AJS	PAM			
N/A	9	10-2-97	INCORP. DCN DM3-00-1445-97	AC	RJK	DLW	PAM			
P.A.#	NO.	DATE	REVISIONS	BY	CHK	CORR	APP.			



MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
BORON RECOVERY SYSTEM

BY	FJE/RTL	CHKD.	CEM/WD	APP'RND/DEK/RPB	APP.	GOB	
DATE	2-2-82	DATE	2-19-82	DATE	2-19-82	DATE	3-9-82
SCALE	NONE	MICROFILM DATE	DATE	NO.	DATE	REV	APP.
				25212-26908 SH.2			16

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



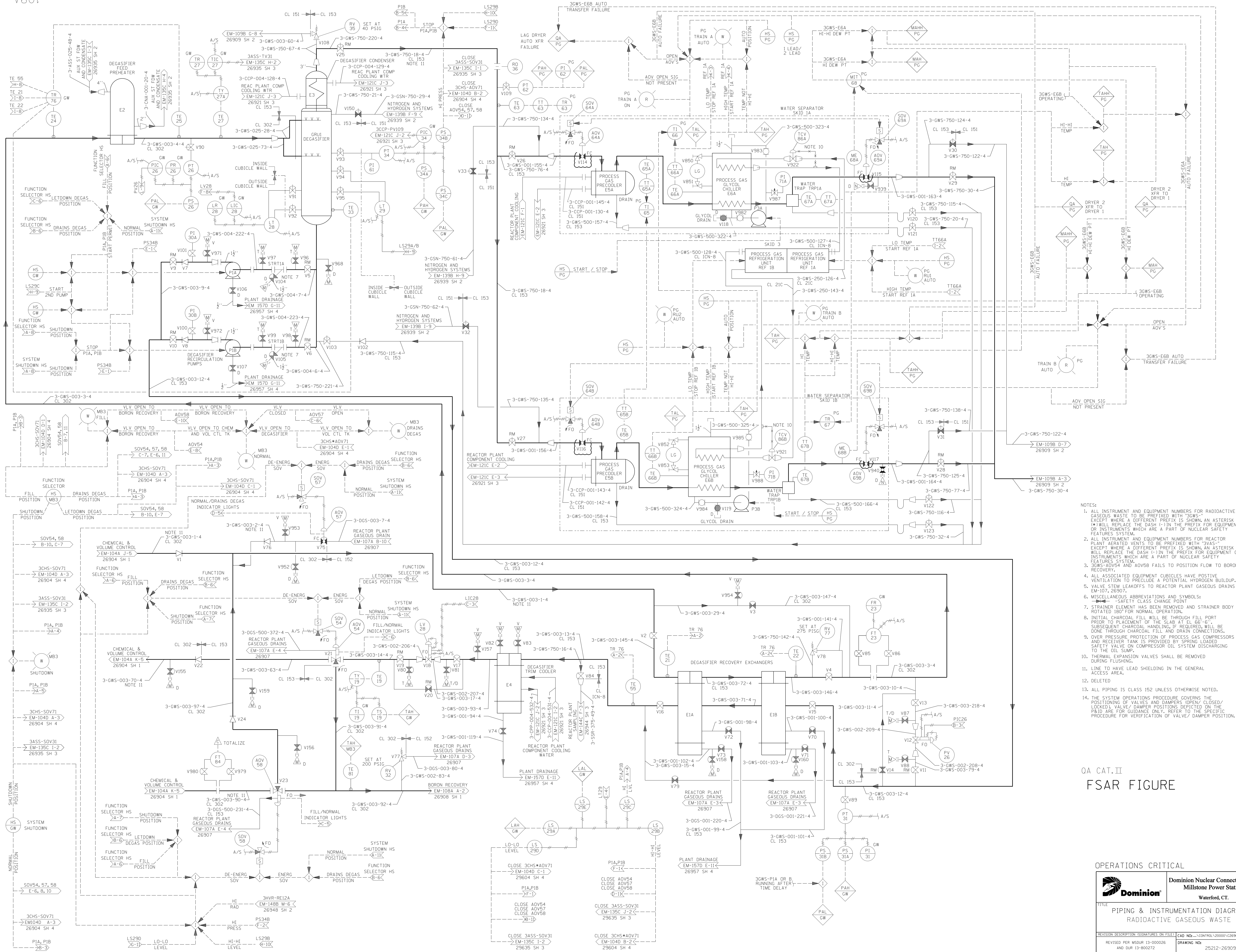
FSAR FIGURE

OPERATIONS CRITICAL

Dominion Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
BORON RECOVERY SYSTEM

REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO	EM-108A-C-10
REVISED PER MSDUR 17-000155 AND DUR 17-800330		DRAWING NO	25212-26908
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 3	REV 15



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR RADIOACTIVE GASEOUS WASTE TO BE PREFIXED WITH "3GWS-". EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN, AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR PLANT AREA VENTS TO BE PREFIXED WITH "3GWS-". EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN, AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. 3GWS-ADV4 AND ADV5B FAILS TO POSITION FLOW TO BORON RECOVERY.
 4. ALL ASSOCIATED EQUIPMENT CUBICLES HAVE POSITIVE VENTILATION TO PRECLUDE A POTENTIAL HYDROGEN BUILDUP.
 5. VALVE STEM LEAKOFFS TO REACTOR PLANT GASEOUS DRAINS EM-107, 26907.
 6. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 * SAFETY CLASS CHANGE POINT
 * STRAINER ELEMENT HAS BEEN REMOVED AND STRAINER BODY ROTATED 180° FOR NORMAL OPERATION.
 7. INITIAL CHARCOAL FILL WILL BE THROUGH FILL PORT PRIOR TO PLACEMENT OF THE SLAB AT EL 66'-6". SUBSEQUENT CHARCOAL HANDLING, IF REQUIRED, WILL BE DONE THROUGH CHARCOAL FILL AND DRAIN CONNECTIONS.
 8. OVER PRESSURE PROTECTION OF PROCESS GAS COMPRESSORS AND RECEIVER TANK IS PROVIDED BY SPRING LOADED SAFETY VALVE ON COMPRESSOR OIL SYSTEM DISCHARGING TO THE OIL SUMP.
 9. THERMAL EXPANSION VALVES SHALL BE REMOVED DURING FLUSHING.
 10. LINE TO HAVE LEAD SHIELDING IN THE GENERAL ACCESS AREA.
 11. DELETED
 12. ALL PIPING IS CLASS 152 UNLESS OTHERWISE NOTED.
 13. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

QA CAT. II
FSAR FIGURE

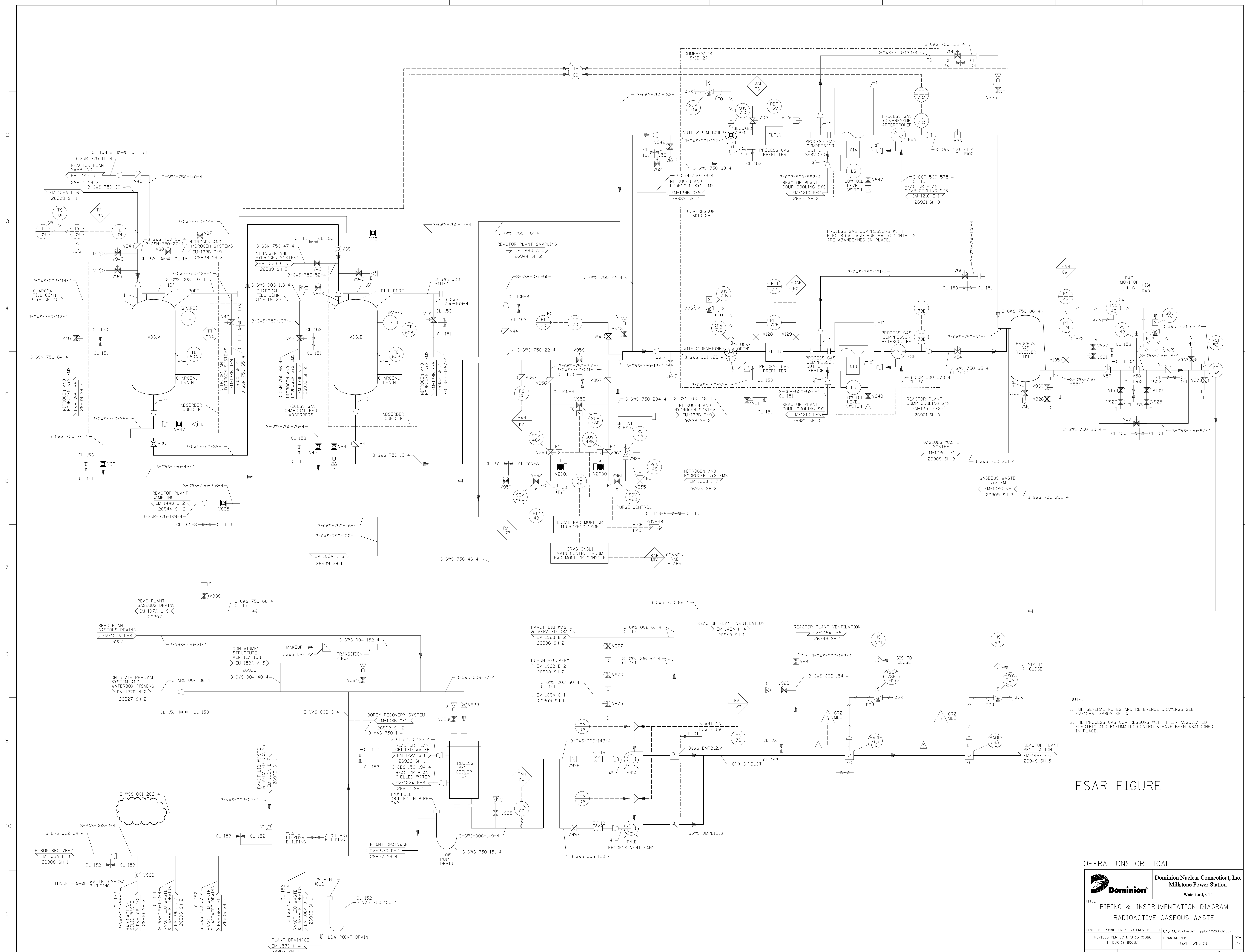
OPERATIONS CRITICAL

Dominion Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
RADIOACTIVE GASEOUS WASTE

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO.: CONTROL\2000\269091.DGN
REVISED PER MSDR 13-00026 AND DCR 13-800272 DRAWING NO: 25212-26909 REV 22

DSM DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 1



NOTE:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-109A (26909 SH 1)
 2. THE PROCESS GAS COMPRESSORS WITH THEIR ASSOCIATED ELECTRICAL AND PNEUMATIC CONTROLS HAVE BEEN ABANDONED IN PLACE.

FSAR FIGURE

OPERATIONS CRITICAL

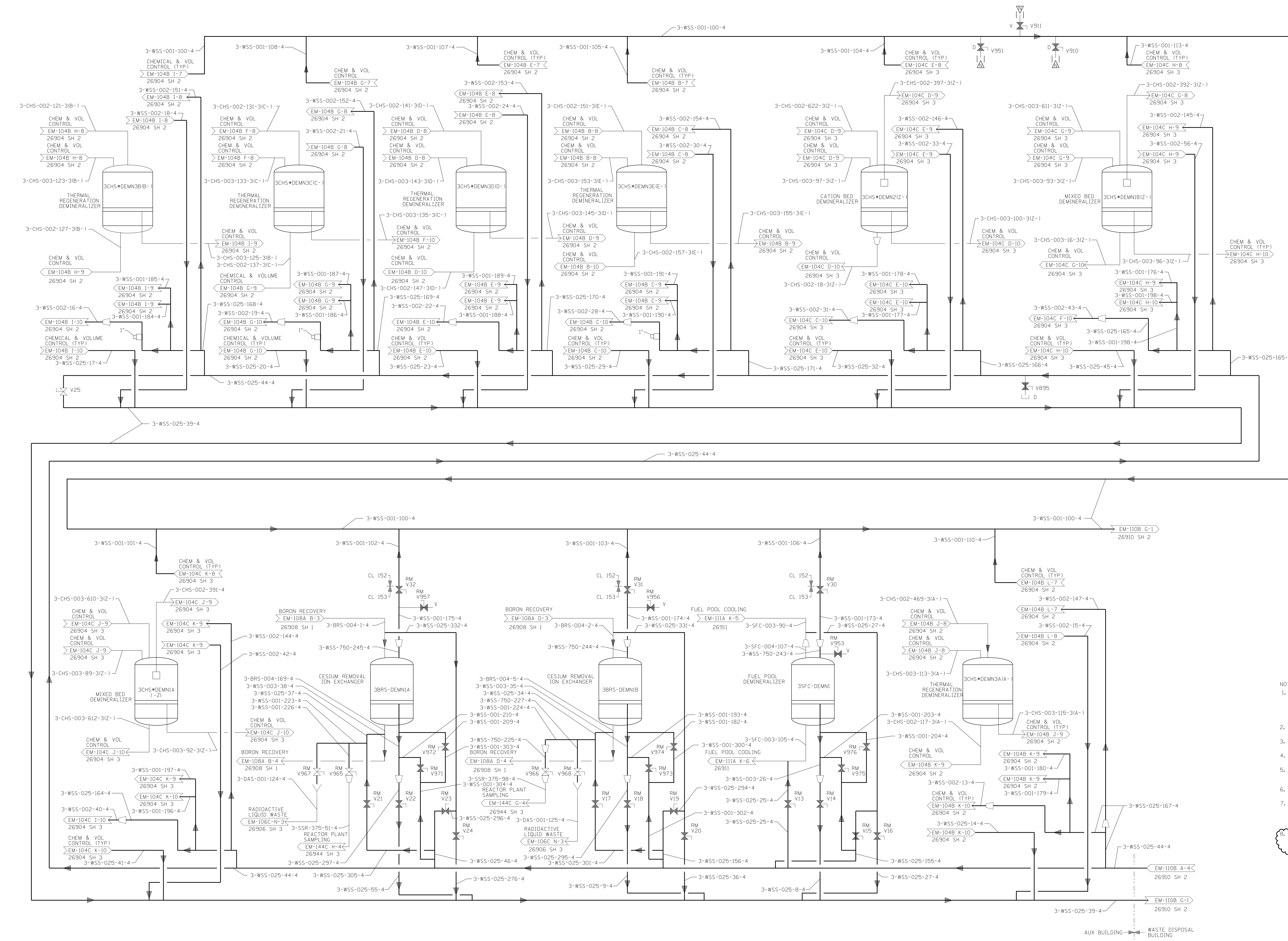
Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
 PIPING & INSTRUMENTATION DIAGRAM
 RADIOACTIVE GASEOUS WASTE

REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO	DATE
REVISED PER DC MP3-15-01066 & OUR 16-001015		25212-26909	2015-08-11

DSGN MGN SCALE: NONE UNLESS OTHERWISE NOTED SH 2

S&W DWG. NO.12179-EM-109B



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR RADIOACTIVE SOLID WASTE TO BE PREFIXED WITH "3WSS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. INSTALL BLANK FLANGE WHEN RESIN FILL HEAD IS NOT IN USE.
 3. STRAINERS STRT2 AND 6 HAVE BEEN REMOVED AND A SPOOL PIECE ADDED FOR NORMAL OPERATION.
 4. ALL REMAINING WORK IN THE BINDER TANK VAULT SHALL NOT BE PERFORMED.
 5. AFTER NORMAL DRAINING OF SYSTEM, A VACUUM PUMP SHALL BE USED TO REMOVE REMAINING WASTE FROM PUMP AND DISCHARGE PIPING.
 6. LINE TO HAVE LEAD SHIELDING IN THE GENERAL ACCESS AREA.
 7. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED). VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 8. SEE DRAWINGS 25212-26919 SH.1 AND 25212-26938 SH.1 FOR ADDITIONAL CONNECTIONS TO 3WSS-SKID. SEE DRAWINGS 25212-26906 SH.1, 25212-26919 SH.1, AND 25212-26938 SH.1 FOR ADDITIONAL CONNECTIONS TO 3WSS-SKID.

FSAR FIGURE

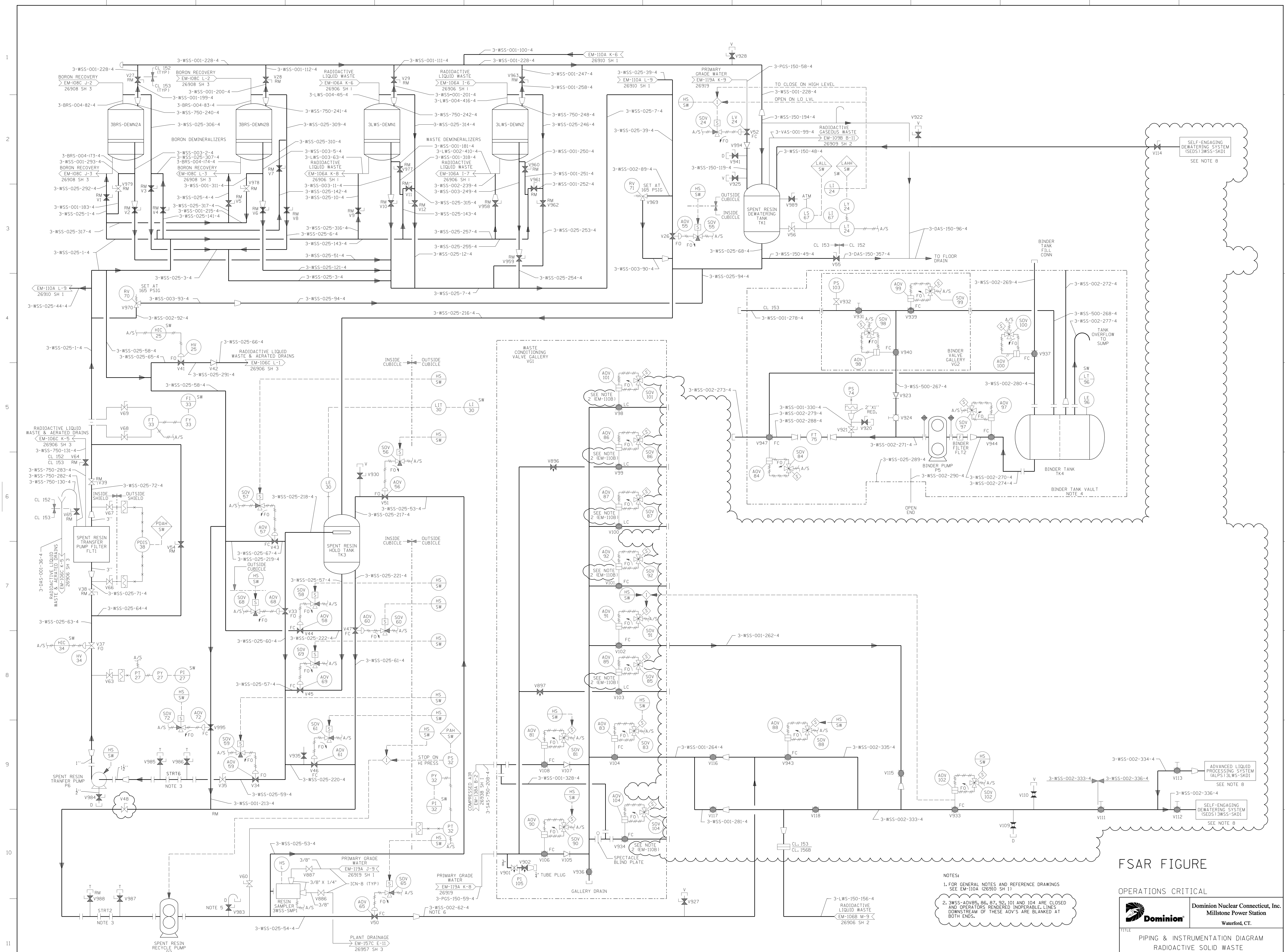
OPERATIONS CRITICAL

Dominion Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
**PIPING & INSTRUMENTATION DIAGRAM
RADIOACTIVE SOLID WASTE**

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: E11.m3621.mpg011.026901.DGN
REVISED PER DC MP3-15-01066 & CUR 17-090082 DRAWING NO: 25212-26910 REV 14

OSDN MWN SCALE: NONE UNLESS OTHERWISE NOTED SH. 1



FSAR FIGURE

OPERATIONS CRITICAL

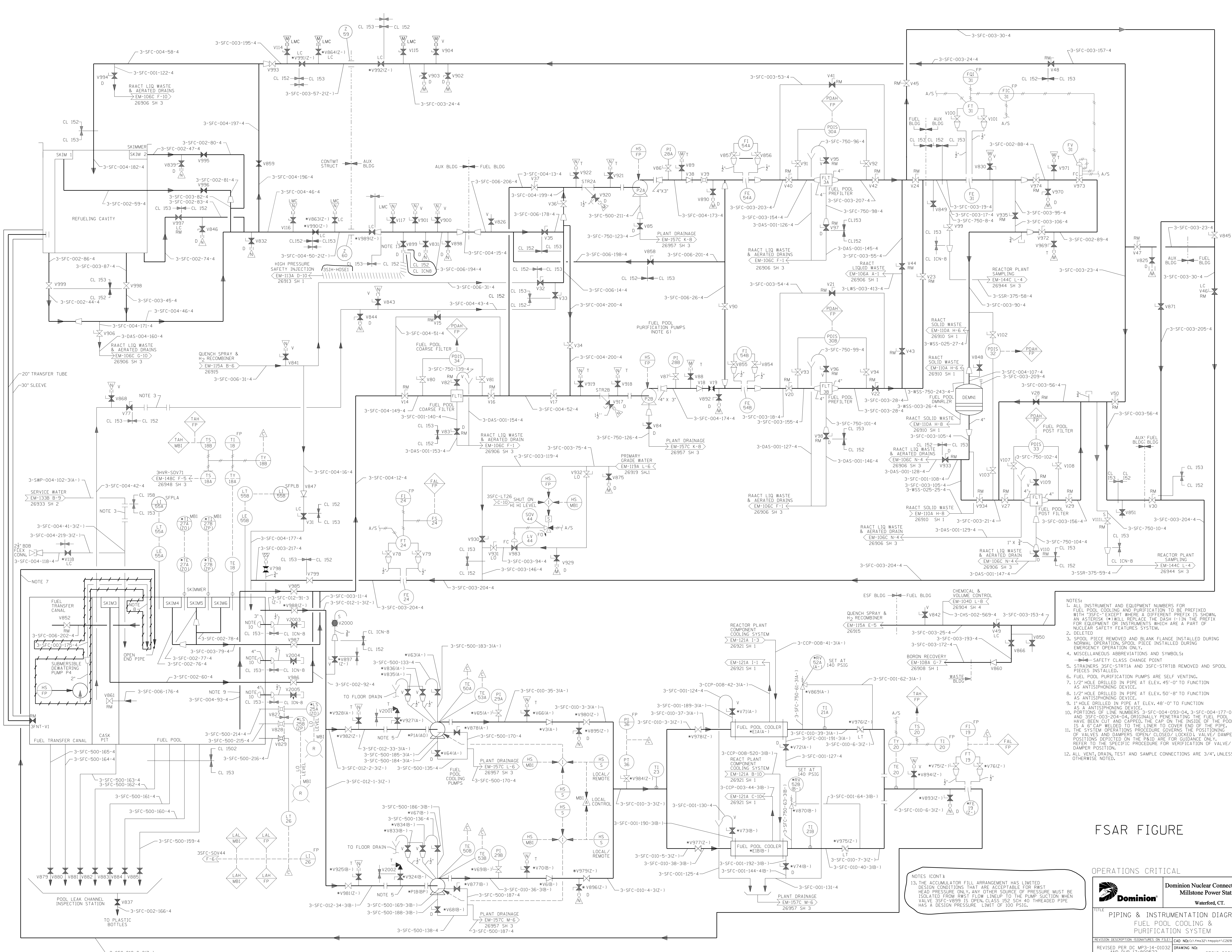
Dominion Nuclear Contract, Inc.
Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
RADIOACTIVE SOLID WASTE

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: E:\ms32\mproj\1\269102.DGN
 REVISED PER DC MP3-18-0106 AND DUP 17-RO0092 DRAWING NO: 25121-26910 REV 23

DSGN MKN SCALE: NONE UNLESS OTHERWISE NOTED SH 2

- NOTES:**
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-110A (26910 SH 1)
 - 3WSS-ADV85, 86, 87, 92, 101 AND 104 ARE CLOSED AND OPERATORS RENDERED IMPERABLE. LINES DOWNSTREAM OF THESE ADV'S ARE BLANKED AT BOTH ENDS.



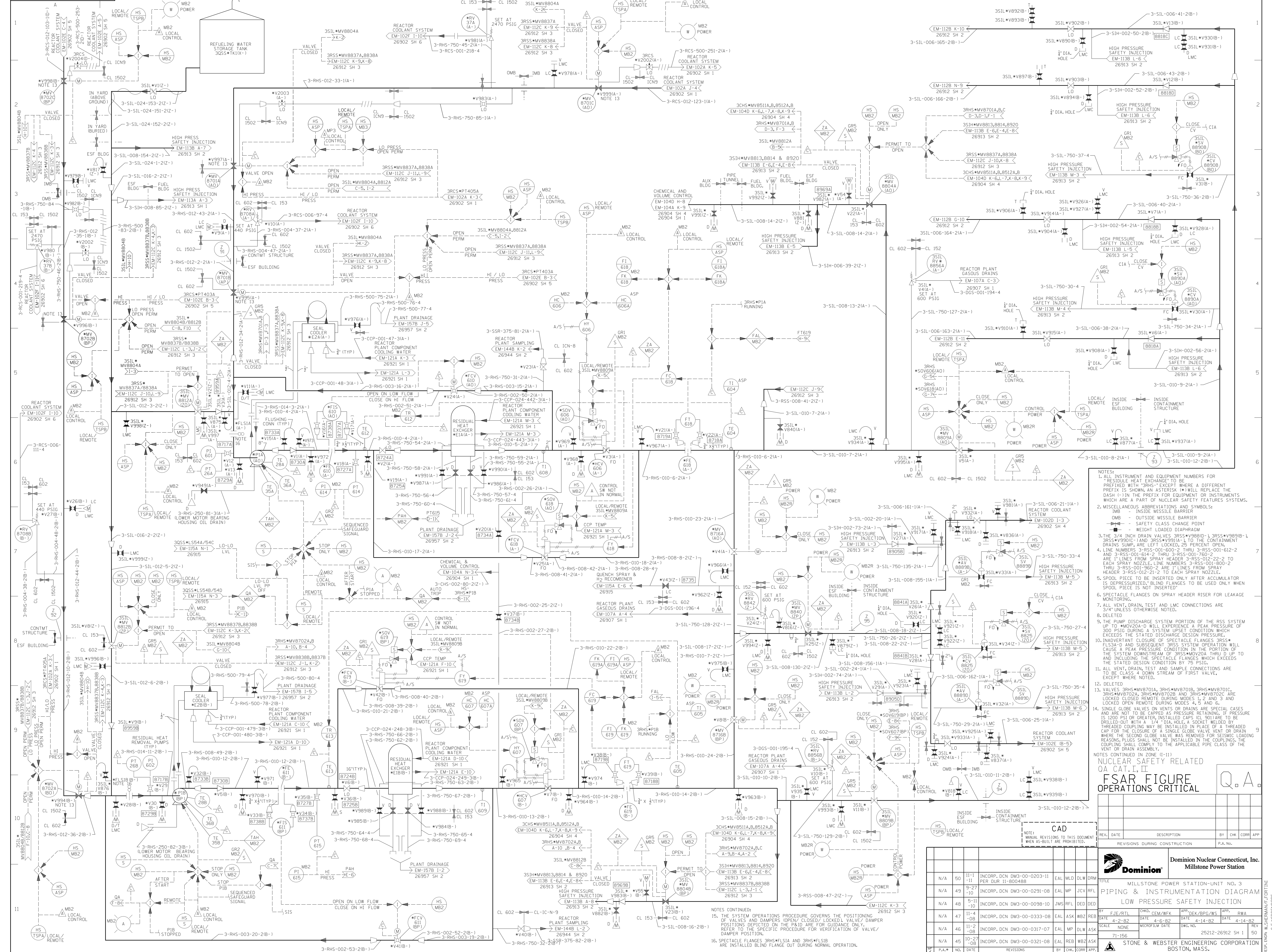
FSAR FIGURE

OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
FUEL POOL COOLING & PURIFICATION SYSTEM

REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO.	DATE	REV
REVISED PER DC MFP-14-01032 AND DUR 17-800523		25212-26911	25212-26911	39



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR RESIDUAL EXCHANGE TO BE PREFIXED WITH "3RS" UNLESS OTHERWISE NOTED. IF A DIFFERENT PREFIX IS SHOWN, AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEMS.
 2. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 MB2 - INSIDE MISSILE BARRIER
 OMB - OUTSIDE MISSILE BARRIER
 S - SAFETY CLASS DIVISION POINT
 W - WEIGHT LOADED DIAPHRAGM
 3. THE 3/4 INCH DRAIN VALVES 3RS5*V898B-1, 3RS5*V898B-1, 3RS5*V900C-1 AND 3RS5*V991A-1 TO THE CONTAINMENT DRAINING SYSTEM ARE LEFT CLOSED. SAFETY FEATURES OPERATIONAL.
 4. LINE NUMBERS 3-RSS-001-600-2 THRU 3-RSS-001-612-2 AND 3-RSS-001-614-1 THRU 3-RSS-001-760-2 ARE 1/2 INCH FROM SPRAY HEADERS. 3-RSS-012-22-2 TO EACH SPRAY NOZZLE. LINE NUMBERS 3-RSS-001-800-2 THRU 3-RSS-001-860-2 ARE 1/2 INCH FROM SPRAY HEADERS. 3-RSS-012-21-2 TO EACH SPRAY NOZZLE.
 5. SPOOL PIECE TO BE INSERTED ONLY AFTER ACCUMULATOR IS DEPRESSURIZED. BLIND FLANGES TO BE USED ONLY WHEN SPOOL PIECE IS NOT INSERTED.
 6. SPECTACLE FLANGES ON SPRAY HEADER RISER FOR LEAKAGE MONITORING.
 7. ALL VENT, DRAIN, TEST AND LMC CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 8. DELETED
 9. THE PUMP DISCHARGE SYSTEM PORTION OF THE BSS SYSTEM TO MW20204-D WILL EXPERIENCE THE PEAK PRESSURE OF 300 PSIG DURING A SYSTEM UPSET CONDITION WHICH EXCEEDS THE STATED DISCHARGE PRESSURE.
 10. INADVERTENT CLOSURE OF SPECTACLE FLANGES 3RS5*FL53A-D AND SUBSEQUENT 3RS5 SYSTEM OPERATION WILL CAUSE A PEAK PRESSURE CONDITION IN THE PORTION OF THE SYSTEM DOWNSTREAM OF 3RS5*W202A THRU D UP TO AND INCLUDING THE SPECTACLE FLANGES WHICH EXCEEDS THE STATED DESIGN CONDITION BY 79 PSIG.
 11. ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE TO BE CLASS 4 DOWN STREAM OF FIRST VALVE, EXCEPT WHERE NOTED.
 12. DELETED
 13. VALVES 3RS5*V8701A, 3RS5*V8701B, 3RS5*V8701C, 3RS5*V8702A, 3RS5*V8702B, 3RS5*V8702C ARE LOCKED CLOSED REMOTE DURING MODES 1, 2 AND 3 AND LOCKED OPEN REMOTE DURING MODES 4, 5 AND 6. SINGLE GLOBE VALVES ON VENT OR DRAIN SPECIAL CASES AND ARE NOT TO BE CAPPED AS PRESSURE RETAINING. IF PRESSURE IS 1200 PSI OR GREATER, INSTALLED CAPS (LO 90) ARE TO BE DRILLED-OUT WITH A 1/4" DIA. DRILL BIT. CAPS WELDED BY THREADED COUPLING MAY BE INSTALLED IN PLACE OF A THREADED CAP. THE CLOSURE OF A CAP OR DRAIN VALVE OR DRAIN WELDED SECOND GLOBE VALVE WAS REMOVED FOR SEISMIC LOADING REASONS. PLUS SHALL NOT BE INSTALLED IN THE COUPLINGS. COUPLING SHALL COMPLY TO THE APPLICABLE PIPE CLASS OF THE VENT OR DRAIN ASSEMBLY.
 14. SPECTACLE FLANGES 3RS5*V51A AND 3RS5*V51B ARE INSTALLED BLIND FLANGE OUT DURING NORMAL OPERATION.

NUCLEAR SAFETY RELATED
 QA CAT. III
FSR FIGURE OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CRK	APP.

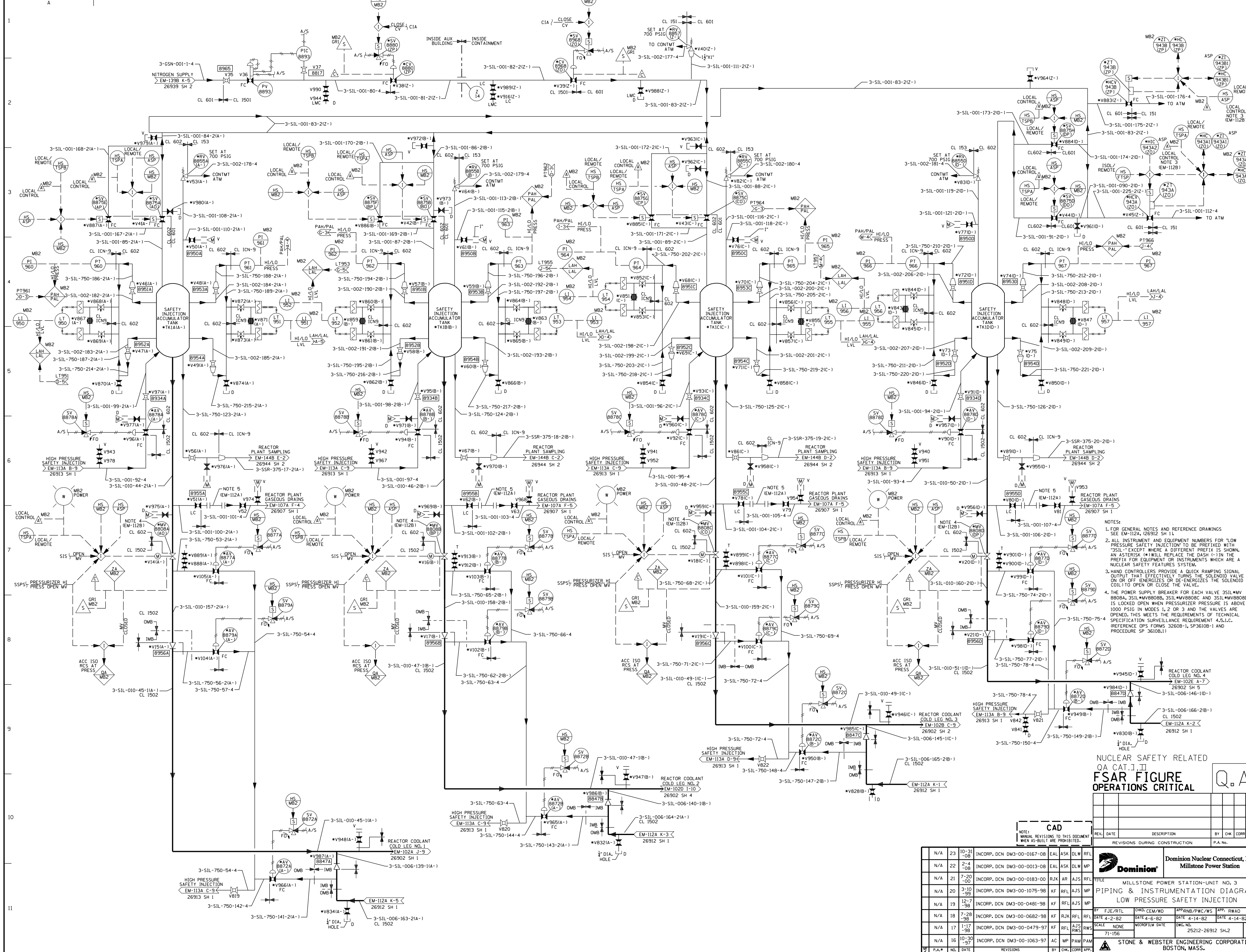
Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 LOW PRESSURE SAFETY INJECTION

DATE	F3E/RTL	CHG.	DATE/WRK	APP.	DEK/BRG/WS	APP.	RWA
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82
4-1-82			4-6-82				4-14-82

SCALE: NONE
 MICROFILM DATE: 7/1-156
 25212-26912 SH 1 50

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



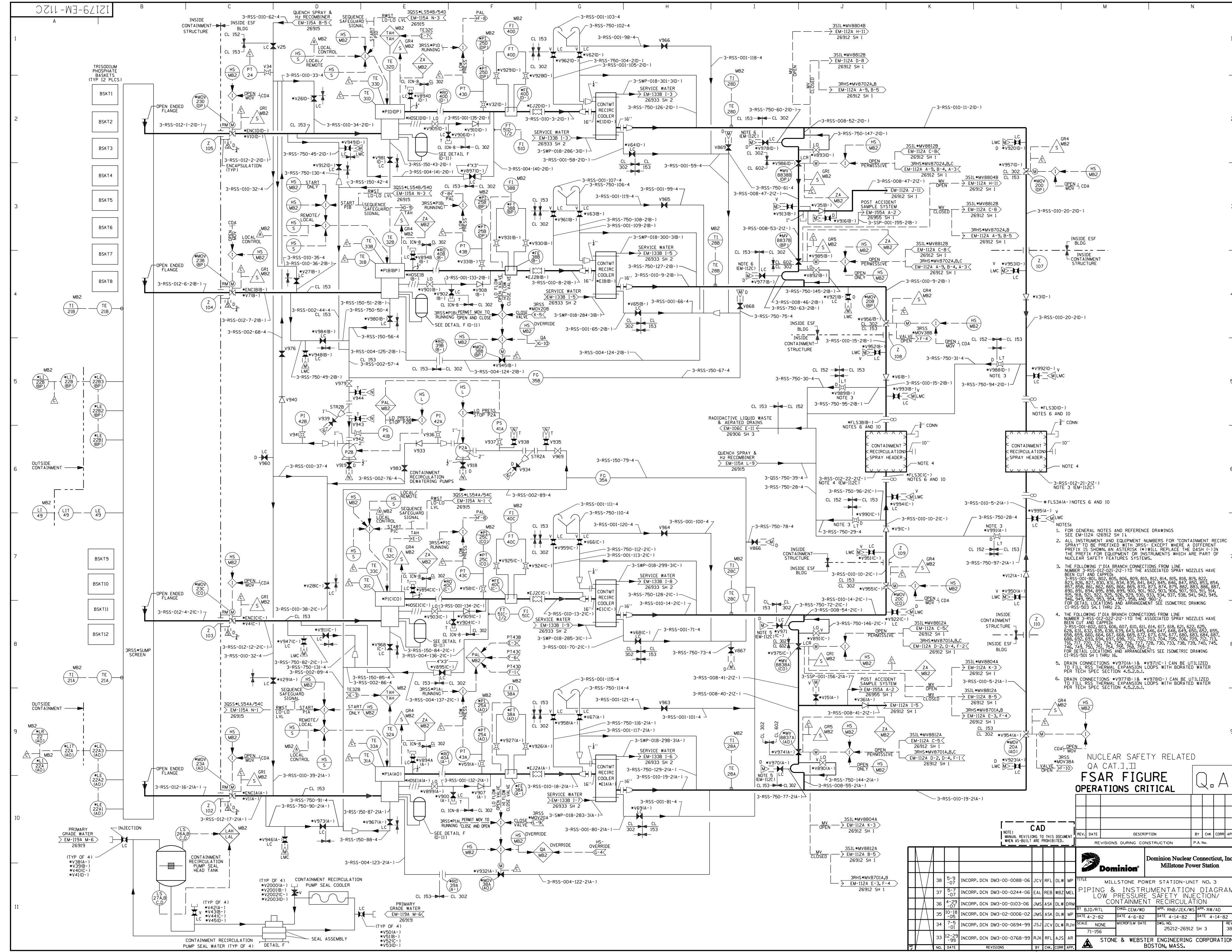
- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-112A, 26912 SH 1.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR "LOW PRESSURE SAFETY INJECTION" TO BE PREFIXED WITH "3SIL-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A NUCLEAR SAFETY FEATURES SYSTEM.
 3. HAND CONTROLLERS PROVIDE A QUICK RAMPING SIGNAL OUTPUT THAT EFFECTIVELY TURNS THE SOLENOID VALVE ON OR OFF (ENERGIZES OR DE-ENERGIZES THE SOLENOID COIL) TO OPEN OR CLOSE THE VALVE.
 4. THE POWER SUPPLY BREAKER FOR EACH VALVE 3SIL-MV-8800A, 3SIL-MV8000B, 3SIL-MV8000C AND 3SIL-MV8000D IS LOCKED OPEN WHEN PRESSURIZER PRESSURE IS ABOVE 1000 PSIG IN MODES 1, 2 OR 3 AND THE VALVES ARE OPENED. THIS MEETS THE REQUIREMENTS OF TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT 4.5.1.c. (REFERENCE OPS FORMS 32608-1, SP3610B-1 AND PROCEDURE SP 3610B.1)

NUCLEAR SAFETY RELATED
QA CAT. I
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	23	10-31-08	INCRP. DCN DM3-00-0167-08	EAL	ASK	DLW
N/A	22	2-4-08	INCRP. DCN DM3-00-0013-08	EAL	ASK	DLW
N/A	21	7-20-00	INCRP. DCN DM3-00-0183-00	RJK	AR	AJS
N/A	20	3-10-99	INCRP. DCN DM3-00-1075-98	KF	RFL	AJS
N/A	19	12-7-98	INCRP. DCN DM3-00-0481-98	KF	RFL	AJS
N/A	18	7-28-98	INCRP. DCN DM3-00-0682-98	KF	RJK	RFL
N/A	17	1-17-98	INCRP. DCN DM3-00-0479-97	KF	RFL	AJS
N/A	16	10-30-97	INCRP. DCN DM3-00-1063-97	AC	MP	PAM

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-112A (26912 SH 1)
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR "CONTAINMENT RECIRCULATION" TO BE PREFIXED WITH "3RSS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF NUCLEAR SAFETY FEATURES SYSTEMS.
 - THE FOLLOWING 1" DIA BRANCH CONNECTIONS FROM LINE NUMBER 3-RSS-010-02-2(10) TO THE ASSOCIATED SPRAY NOZZLES HAVE BEEN CUT AND CAPPED:
 3-RSS-001-801, 802, 805, 806, 809, 810, 812, 814, 815, 818, 819, 822, 823, 826, 827, 830, 831, 834, 836, 841, 842, 845, 846, 847, 850, 853, 854, 857, 858, 861, 862, 865, 866, 869, 870, 873, 874, 879, 882, 883, 886, 887, 890, 893, 894, 898, 899, 900, 901, 902, 905, 906, 907, 910, 911, 914, 915, 918, 921, 922, 925, 926, 929, 930, 933, 934, 937, 938, 941, 942, 945, 946, 949, 950, 953, 954, 957, 958, and 960-2.
 FOR DETAILED LOCATIONS AND ARRANGEMENTS SEE ISOMETRIC DRAWING CI-RSS-503 SH 1 THRU 23.
 - THE FOLLOWING 1" DIA BRANCH CONNECTIONS FROM LINE NUMBER 3-RSS-010-02-2(10) TO THE ASSOCIATED SPRAY NOZZLES HAVE BEEN CUT AND CAPPED:
 3-RSS-001-803, 806, 607, 610, 611, 614, 617, 618, 621, 622, 625, 628, 631, 632, 636, 638, 639, 643, 645, 646, 647, 648, 649, 650, 652, 655, 658, 659, 660, 663, 666, 669, 672, 674, 676, 677, 680, 683, 684, 687, 688, 692, 693, 694, 697, 698, 701, 702, 703, 704, 705, 706, 709, 712, 713, 716, 717, 721, 724, 726, 727, 728, 730, 733, 738, 739, 740, 745, 746, 749, 750, 751, 754, 756, 758, 759, 762.
 FOR DETAILED LOCATIONS AND ARRANGEMENTS SEE ISOMETRIC DRAWING CI-RSS-501 SH 1 THRU 16.
 - DRAIN CONNECTIONS *V9701A-1 & *V9710C-1 CAN BE UTILIZED TO FILL RES THERMAL EXPANSION LOOPS WITH BORATED WATER PER THE TECH SPEC SECTION 4.5.2.D.1.
 - DRAIN CONNECTIONS *V9718-1 & *V9780D-1 CAN BE UTILIZED TO FILL RES THERMAL EXPANSION LOOPS WITH BORATED WATER PER THE TECH SPEC SECTION 4.5.2.D.1.

NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE
 OPERATIONS CRITICAL

CAD

REV. DATE	DESCRIPTION	BY	CHK	CORR	APP

NO.	DATE	REVISIONS	BY	CHK	CORR	APP.
38	5-9-07	INCOMP. DCN DM3-00-0088-06	JCV	RL	DLW	MP
37	5-7-07	INCOMP. DCN DM3-00-0244-06	EAL	REB	WBZ	MEL
36	4-29-07	INCOMP. DCN DM3-00-0103-06	JMS	ASK	DLW	DRM
35	10-18-05	INCOMP. DCN DM3-02-0006-02	JMS	ASK	DLW	MP
34	7-5-01	INCOMP. DCN DM3-00-0694-99	JSJ	JCV	DLW	RJH
33	12-29-99	INCOMP. DCN DM3-00-0768-99	RJK	RL	AJS	AR

REVISIONS DURING CONSTRUCTION

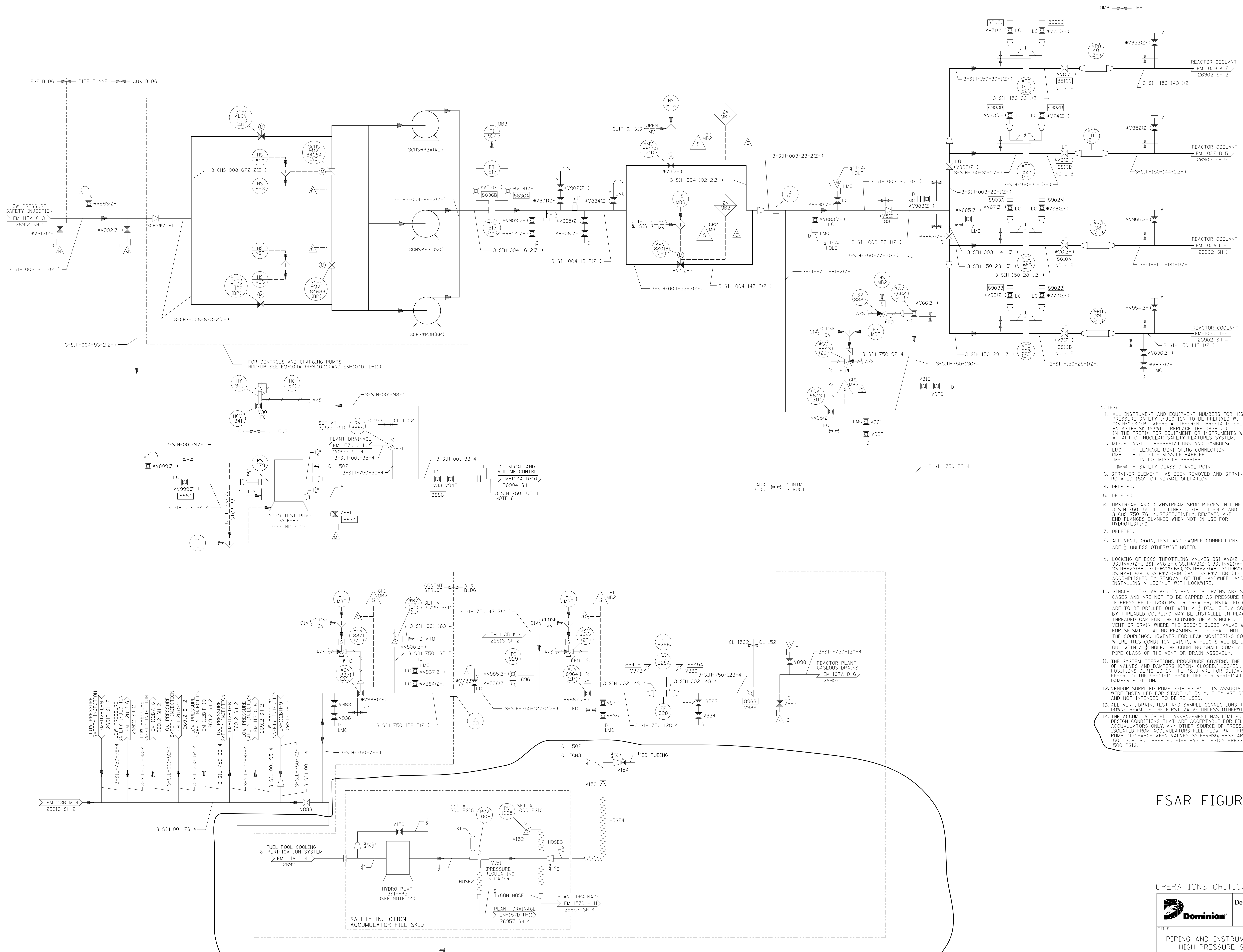
REV. DATE	DESCRIPTION	BY	CHK	CORR	APP

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 LOW PRESSURE SAFETY INJECTION/
 CONTAINMENT RECIRCULATION

DATE: 4-14-82
 SCALE: NONE
 MICROFILM DATE: 2512-26912 SH 3
 DWG. NO.: 71-156

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

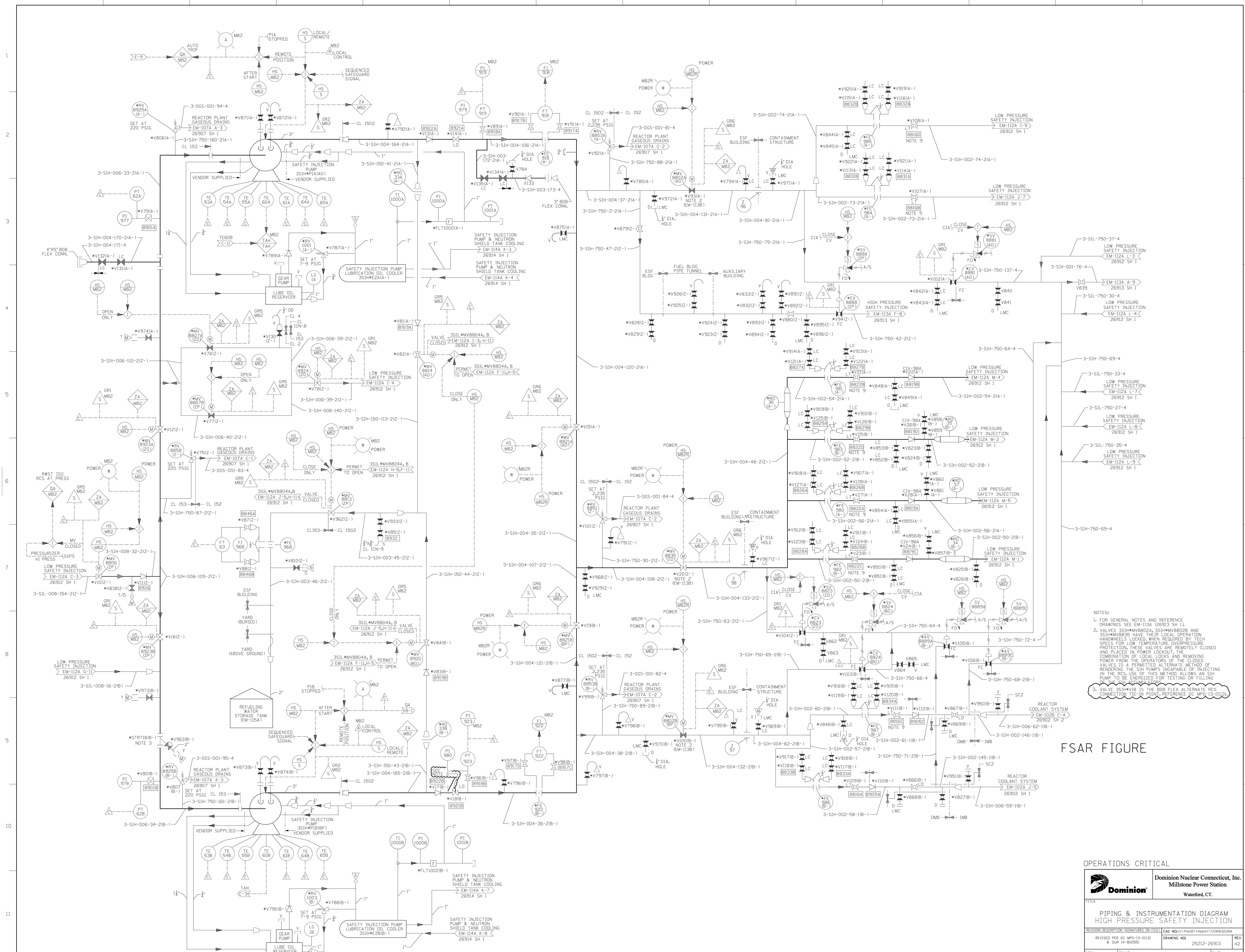


- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR HIGH PRESSURE SAFETY INJECTION TO BE PREFIXED WITH "35IH" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 LMC - LEAKAGE MONITORING CONNECTION
 OMB - OUTSIDE MISSILE BARRIER
 IMB - INSIDE MISSILE BARRIER
 S - SAFETY CLASS CHANGE POINT
 - STRAINER ELEMENT HAS BEEN REMOVED AND STRAINER BODY ROTATED 180° FOR NORMAL OPERATION.
 - DELETED.
 - DELETED.
 - UPSTREAM AND DOWNSTREAM SPOOLPIECES IN LINE 3-5IH-750-155-4 TO LINES 3-5IH-001-99-4 AND 3-CHS-750-761-4, RESPECTIVELY, REMOVED AND END FLANGES BLANKED WHEN NOT IN USE FOR HYDROTESTING.
 - DELETED.
 - ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE 3" UNLESS OTHERWISE NOTED.
 - LOCKING OF ECCS THROTTLING VALVES 35IH*V61Z-1, 35IH*V71Z-1, 35IH*V91Z-1, 35IH*V21A-1, 35IH*V21B-1, 35IH*V25B-1, 35IH*V27(A)-1, 35IH*V107(A)-1, 35IH*V108(A)-1, 35IH*V109(B)-1 AND 35IH*V110(B)-1 IS ACCOMPLISHED BY REMOVAL OF THE HANDWHEEL AND INSTALLING A LOCKNUT WITH LOCKWIRE.
 - SINGLE GLOBE VALVES ON VENTS OR DRAINS ARE SPECIAL CASES AND ARE NOT TO BE CAPPED AS PRESSURE RETAINING. IF PRESSURE IS 1200 PSI OR GREATER, INSTALLED CAPS (CL 901) ARE TO BE DRILLED OUT WITH A 1/2" DIA. HOLE. A SOCKET WELDED BY THREADED COUPLING MAY BE INSTALLED IN PLACE OF A THREADED CAP FOR THE CLOSURE OF A SINGLE GLOBE VALVE VENT OR DRAIN WHERE THE SECOND GLOBE VALVE WAS REMOVED FOR SEISMIC LOADING REASONS. FLUGS SHALL NOT BE INSTALLED IN THE COUPLINGS, HOWEVER, FOR LEAK MONITORING CONNECTIONS WHERE THIS CONDITION EXISTS, A PLUG SHALL BE INSTALLED, DRILLED OUT WITH A 1/2" HOLE. THE COUPLING SHALL COMPLY TO THE APPLICABLE PIPE CLASS OF THE VENT OR DRAIN ASSEMBLY.
 - THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITIONING.
 - VENDOR SUPPLIED PUMP 35IH-P3 AND ITS ASSOCIATED COMPONENTS WERE INSTALLED FOR START-UP ONLY. THEY ARE RETIRED IN PLACE AND NOT INTENDED TO BE RE-USED.
 - ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS TO BE CLASS 4 DOWNSTREAM OF THE FIRST VALVE UNLESS OTHERWISE NOTED.
 - THE ACCUMULATOR FILL ARRANGEMENT HAS LIMITED DESIGN CONDITIONS THAT ARE ACCEPTABLE FOR FILLING THE ACCUMULATORS. ONLY ANY OTHER SOURCE OF PRESSURE MUST BE ISOLATED FROM ACCUMULATORS FILL FLOW PATH FROM THE PUMP DISCHARGE WHEN VALVES 35IH-V929, V937 ARE OPEN. CLASS 1502 SCH 160 THREADED PIPE HAS A DESIGN PRESSURE LIMIT OF 1500 PSIG.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE PIPING AND INSTRUMENTATION DIAGRAM HIGH PRESSURE SAFETY INJECTION		
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISION NO. AND DUR 17-800523	CAD NO. (1) FMS321.mpp001\1269131.DGN DRAWING NO. 25212-26913	REV 33
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1



- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-1134 126913 SH 1.
 2. VALVES 35SH*MB804A, 35SH*MB802B AND 35SH*MB803B HAVE THEIR LOCAL OPERATION HANDWHEELS LOCKED, WHEN REQUIRED BY TECH SPECS FOR LOW TEMPERATURE OVERPRESSURE PROTECTION. THESE VALVES ARE REMOTELY CLOSED AND PLACED IN POWER LOCKOUT. THE COMBINATION OF LOCAL LOCKS AND REMOVING POWER FROM THE OPERATORS OF THE CLOSED VALVES IS A PERMITTED ALTERNATE METHOD OF RENDERING THE SIH PUMPS INCAPABLE OF INJECTING IN THE RCS. USE OF THIS METHOD ALLOWS AN SIH PUMP TO BE ENERGIZED FOR TESTING OR FILLING OF THE SIH CIRCUITRY.
 3. VALVE 35SH*V18 IS THE BOB FLEX ALTERNATE RCS CONNECTION TIE-IN POINT. REFERENCE DC MP6-11-01131.

FSAR FIGURE

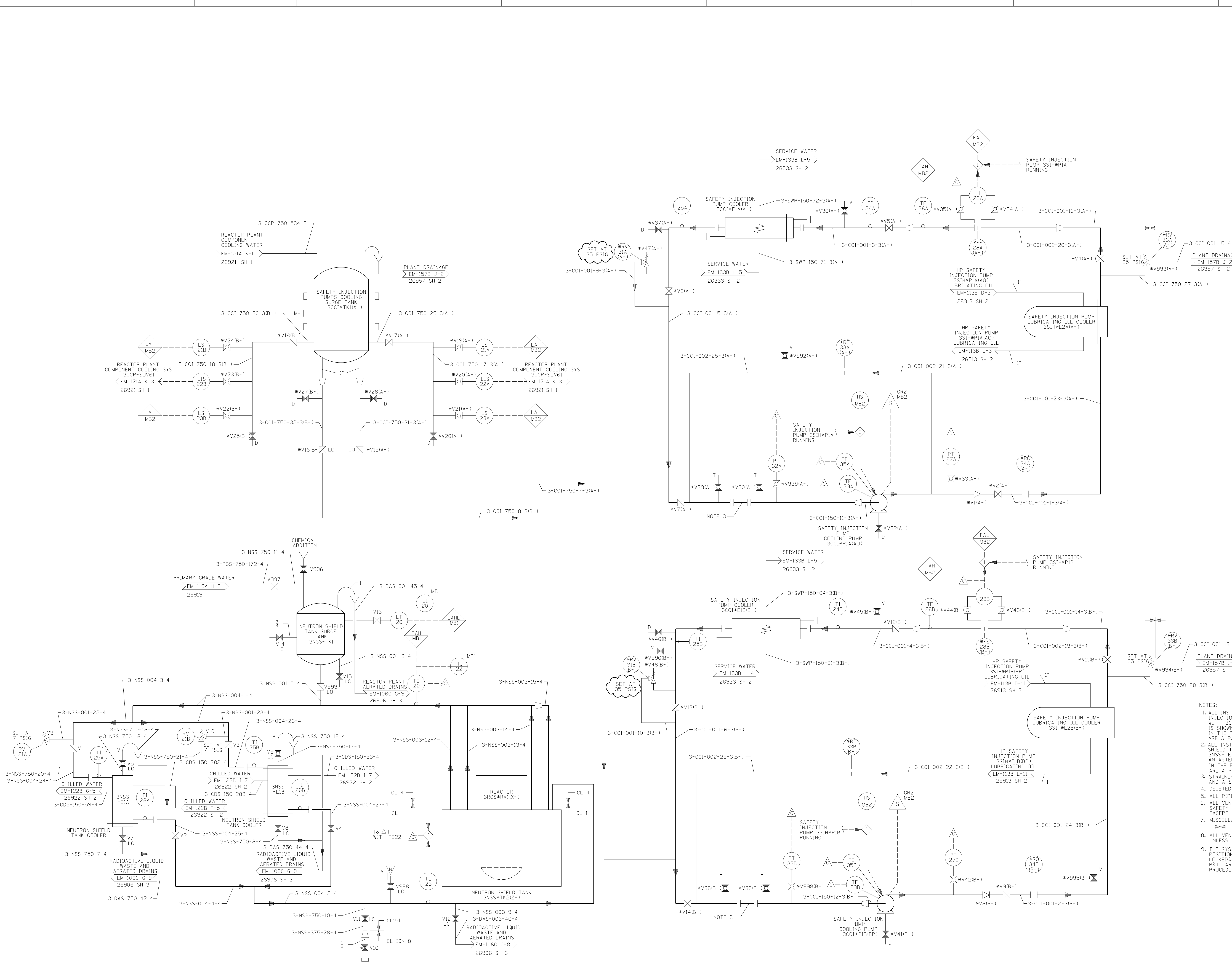
OPERATIONS CRITICAL

Dominion Nuclear Power Reactor, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
HIGH PRESSURE SAFETY INJECTION

REVISION DESCRIPTION (SIGNALS ARE ON FILE) CAD NO: 01-11-30-321-110001-1126913-01N
REVISED PER DC MP6-13-01131 & DWR 14-000591 DRAWING NO: 25212-26913 REV 42

DSSN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 2



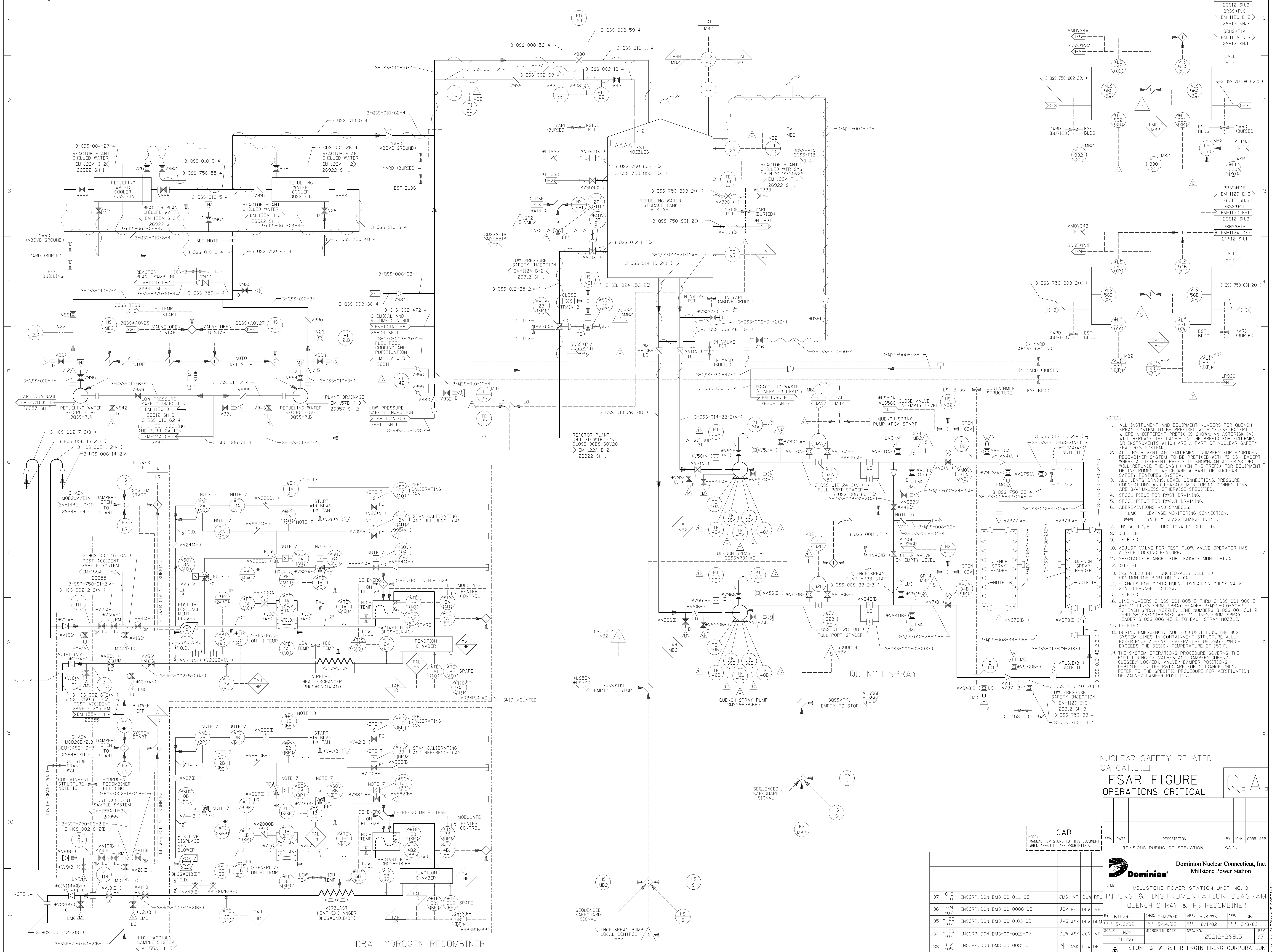
- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SAFETY INJECTION PUMP COOLING SYSTEM TO BE PREFIXED WITH "3CCI-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR NEUTRON SHIELD TANK COOLING TO BE PREFIXED WITH "3NSS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. STRAINERS 3RT1A, AND 3B HAVE BEEN REMOVED AND A SPOOL PIECE ADDED FOR NORMAL OPERATION.
 4. DELETED
 5. ALL PIPING IS CLASS 151 UNLESS OTHERWISE NOTED.
 6. ALL VENT, DRAIN AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWNSTREAM OF FIRST VALVE, EXCEPT WHERE NOTED.
 7. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - SAFETY CLASS CHANGE POINT
 8. ALL VENT, DRAIN AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWNSTREAM OF FIRST VALVE, EXCEPT WHERE NOTED.
 9. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED). VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE

SAFETY INJECTION PUMP COOLING

NEUTRON SHIELD TANK COOLING

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM SAFETY INJECTION PUMP & NEUTRON SHIELD TANK COOLING SYSTEMS			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: 80NSPEC FOR FILE VERIFICATION	
REVISED PER DC MP3-11-01134 & DWR 12-800164		DRAWING NO: 25212-26914	
DSGM EAL		SCALE: NONE	
UNLESS OTHERWISE NOTED SH 1		REV 18	



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR QUENCH SPRAY SYSTEM TO BE PREFIXED WITH "3QSS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR HYDROGEN RECOMBINER SYSTEM TO BE PREFIXED WITH "3HCS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. ALL VENTS, DRAINS, LEVEL CONNECTIONS, PRESSURE CONNECTIONS AND LEAKAGE MONITORING CONNECTIONS ARE 3/4" UNLESS OTHERWISE SPECIFIED.
 4. SPOOL PIECE FOR RWST DRAINING.
 5. SPOOL PIECE FOR RWST DRAINING.
 6. ABBREVIATIONS AND SYMBOLS:
 LMC - LEAKAGE MONITORING CONNECTION
 LSC - SAFETY CLASS CHANGE POINT
 7. INSTALLED, BUT FUNCTIONALLY DELETED.
 8. DELETED.
 9. ADJUST VALVE FOR TEST FLOW. VALVE OPERATOR HAS A SELF LOCKING FEATURE.
 10. SPECTACLE FLANGES FOR LEAKAGE MONITORING.
 11. DELETED.
 12. DELETED BUT FUNCTIONALLY DELETED.
 13. FLANGES FOR CONTAINMENT STRUCTURE ISOLATION CHECK VALVE SEAT LEAKAGE TESTING.
 14. DELETED.
 15. DELETED.
 16. DURING EMERGENCY/FAULTED CONDITIONS, THE HCS SYSTEM LINES IN CONTAINMENT STRUCTURE WILL EXPERIENCE A PEAK TEMPERATURE OF 265°F WHICH EXCEEDS THE DESIGN TEMPERATURE OF 150°F.
 17. DELETED.
 18. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/LOCKED VALVE/DAMPER POSITIONS DETECTED ON THE FMS ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE
 OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

REVISIONS DURING CONSTRUCTION		P.A. NOS.	

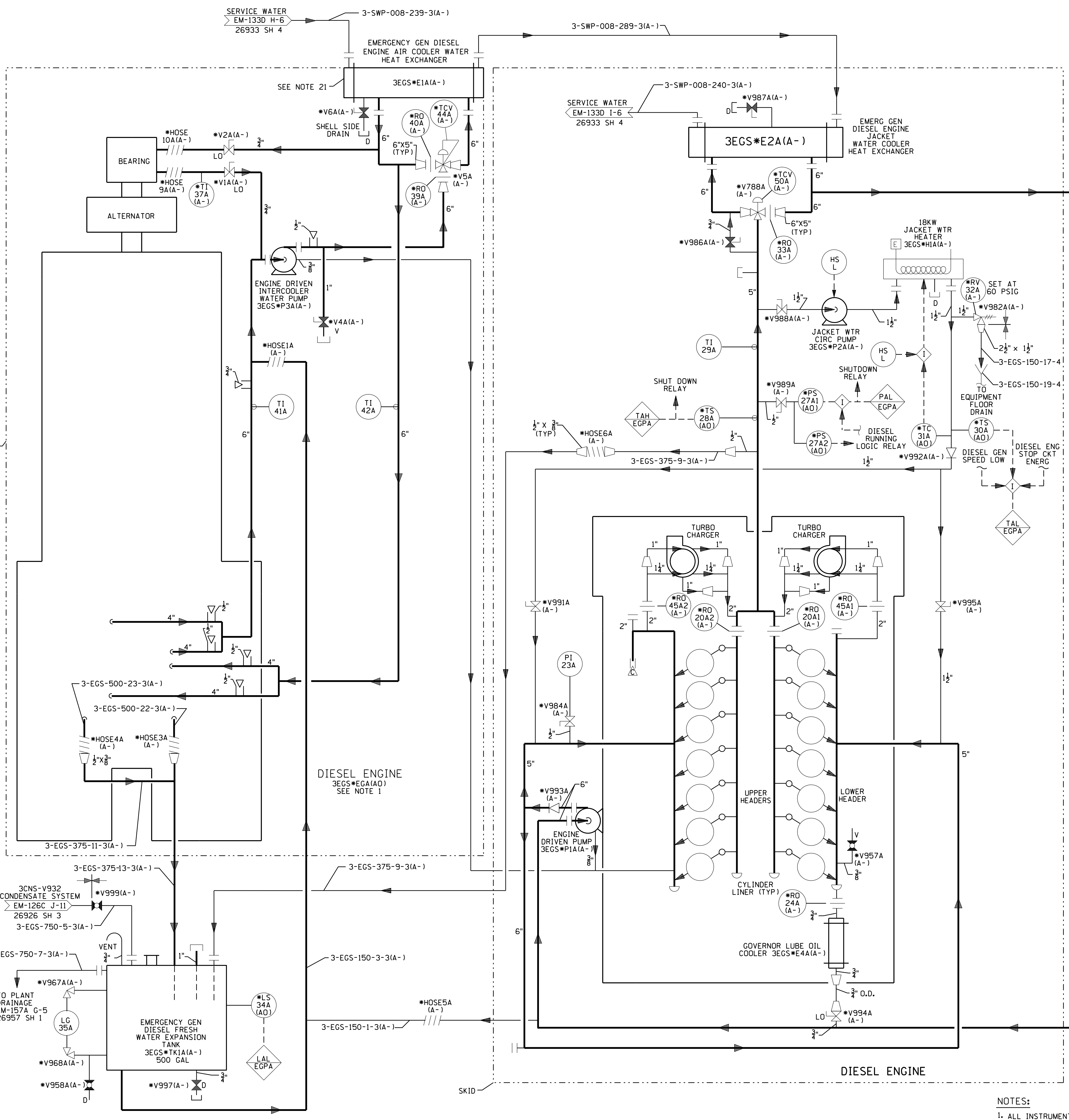
Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 QUENCH SPRAY & H₂ RECOMBINER

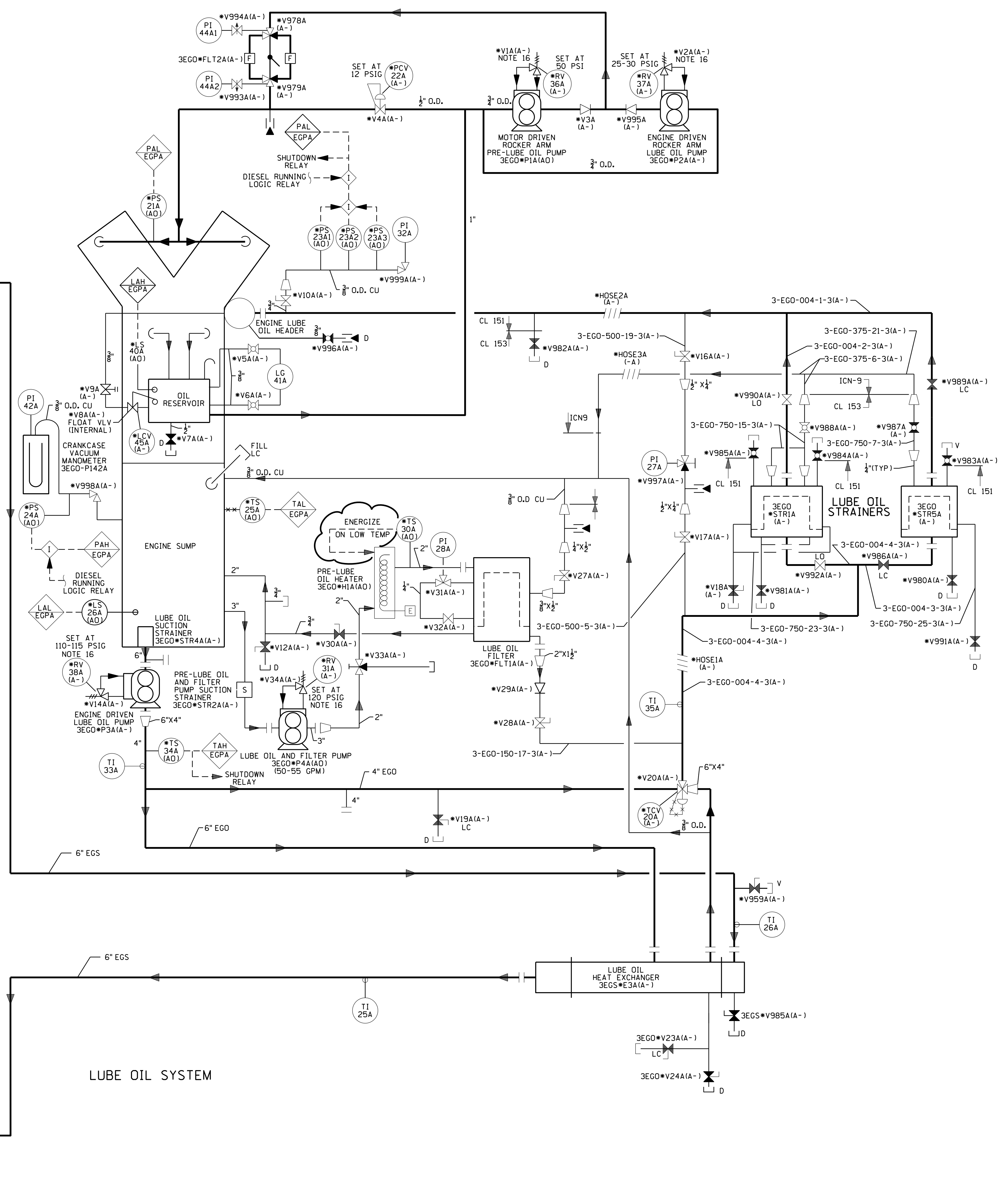
DATE: 5/13/82
 DATE: 6/1/82
 DATE: 6/3/82

SCALE: NONE
 MICROFILM DATE: 25212-26915
 37

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



COOLING WATER SYSTEM



LUBE OIL SYSTEM

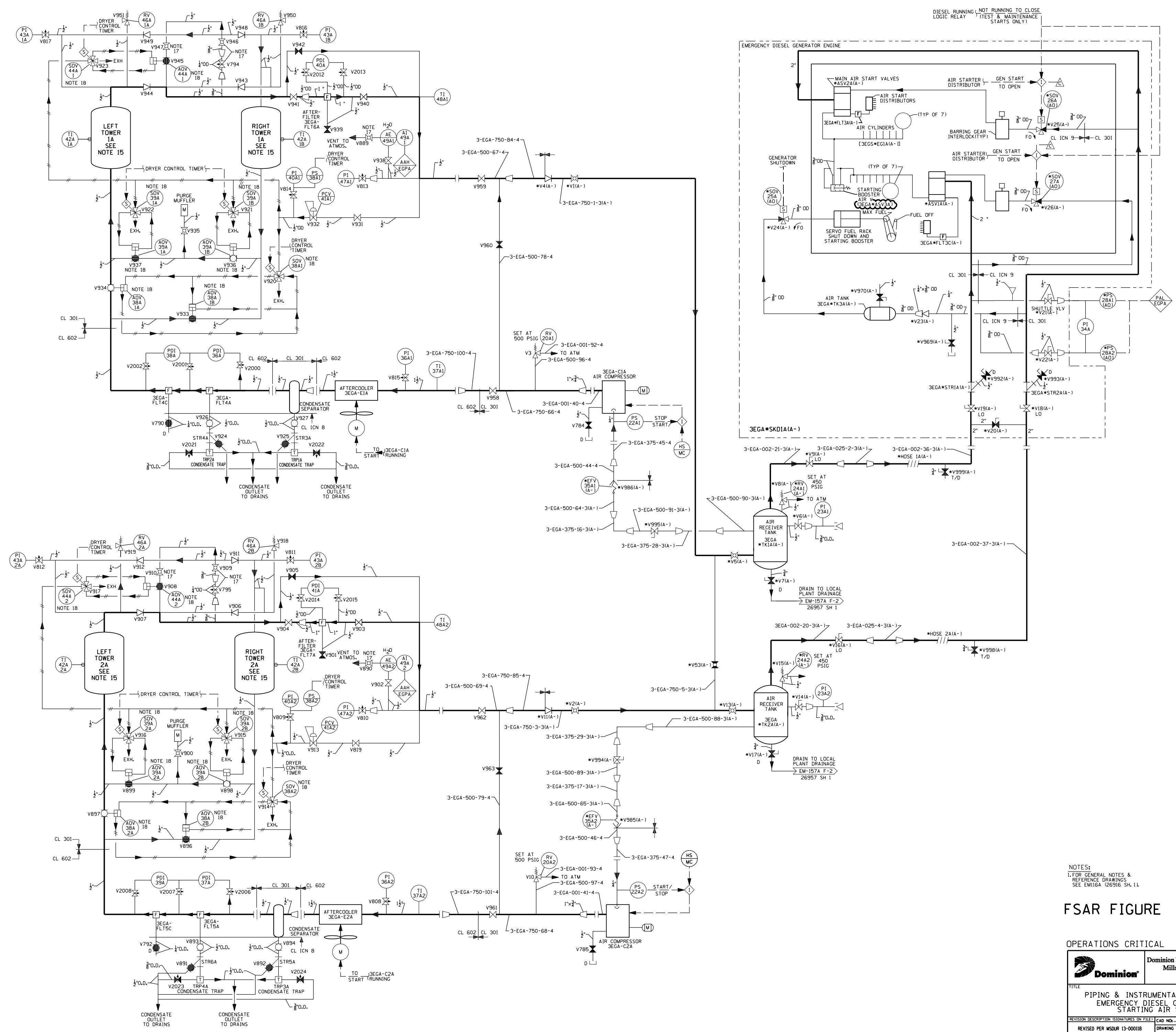
NOTES:

1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR DIESEL INTERCOOLER WATER SYSTEM TO BE PREFIXED BY "3EGS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK(*) REPLACES THE DASH(-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF THE NUCLEAR SAFETY FEATURES SYSTEMS.
2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AIR START-UP SYS FOR EMERGENCY DIESEL GENERATORS TO BE PREFIXED BY "3EGA-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK(*) REPLACES THE DASH(-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF THE NUCLEAR SAFETY FEATURES SYSTEMS.
3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR EMERGENCY DIESEL LUBE OIL SYSTEM TO BE PREFIXED BY "3EGO-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK(*) REPLACES THE DASH(-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF THE NUCLEAR SAFETY FEATURES SYSTEMS.
4. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR DIESEL GENERATOR 3EGS*E1A(A-) SHALL HAVE AN "A" SUFFIX, AND THOSE FOR DIESEL GENERATOR 3EGS*E2A(A-) SHALL HAVE A "B" SUFFIX.
5. ALL VENT, DRAIN & PRESSURE CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
6. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR EMERGENCY DIESEL EXHAUST AND COMBUSTION AIR AND CRANKCASE VACUUM SYSTEM TO BE PREFIXED WITH "3EGD-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK(*) REPLACES THE DASH(-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF THE NUCLEAR SAFETY FEATURES SYSTEMS.
7. BUTTERFLY VALVES 3EGD*V1(A-) AND 3EGD*V2(B-) MUST BE SET FOR 1 INCH W.G. CRANKCASE VACUUM AT RATED LOAD.
8. DELETED
9. DELETED
10. ~~---~~ DENOTES SAFETY CLASS CHANGE POINT.
11. DELETED
12. DELETED
13. DELETED
14. ELECTRICAL OVERCODING IS ORANGE IN GENERATOR A & PURPLE IN GENERATOR B.
15. TOWERS ARE SHOWN WITH LEFT TOWER IN SERVICE AND RIGHT TOWER REACTIVATING.
16. RELIEF VALVES SHOWN ARE INTEGRAL TO THE PUMPS
17. VALVES 3EGA-V794, V795, V909, V910, V946, V947, V899, V890, V845, V846, V796, V797, V836, V870, V878 & V879 ARE THROTTLED VALVES.
18. THE FAILED POSITION FOR THESE VALVES IS NOT INDICATED. FOR ACTIONS REFER TO THE APPLICABLE TEST LOOP AND LOGIC DIAGRAMS.
19. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED). VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
20. ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE 3/4 IN. UNLESS OTHERWISE NOTED.
21. HEAT EXCHANGER 3EGS*E1A IS THE BOB FLEX SERVICE WATER CONNECTION TIE-IN POINT. REFERENCE DC MGP-13-0113L.

FSAR FIGURE

OPERATIONS CRITICAL

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.		
	TITLE PIPING & INSTRUMENTATION DIAGRAM EMERGENCY DIESEL GENERATOR A LUBE OIL & COOLING WATER		
REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: C26916.DWG		DRAWING NO: 25212-26916	REV 53
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1	

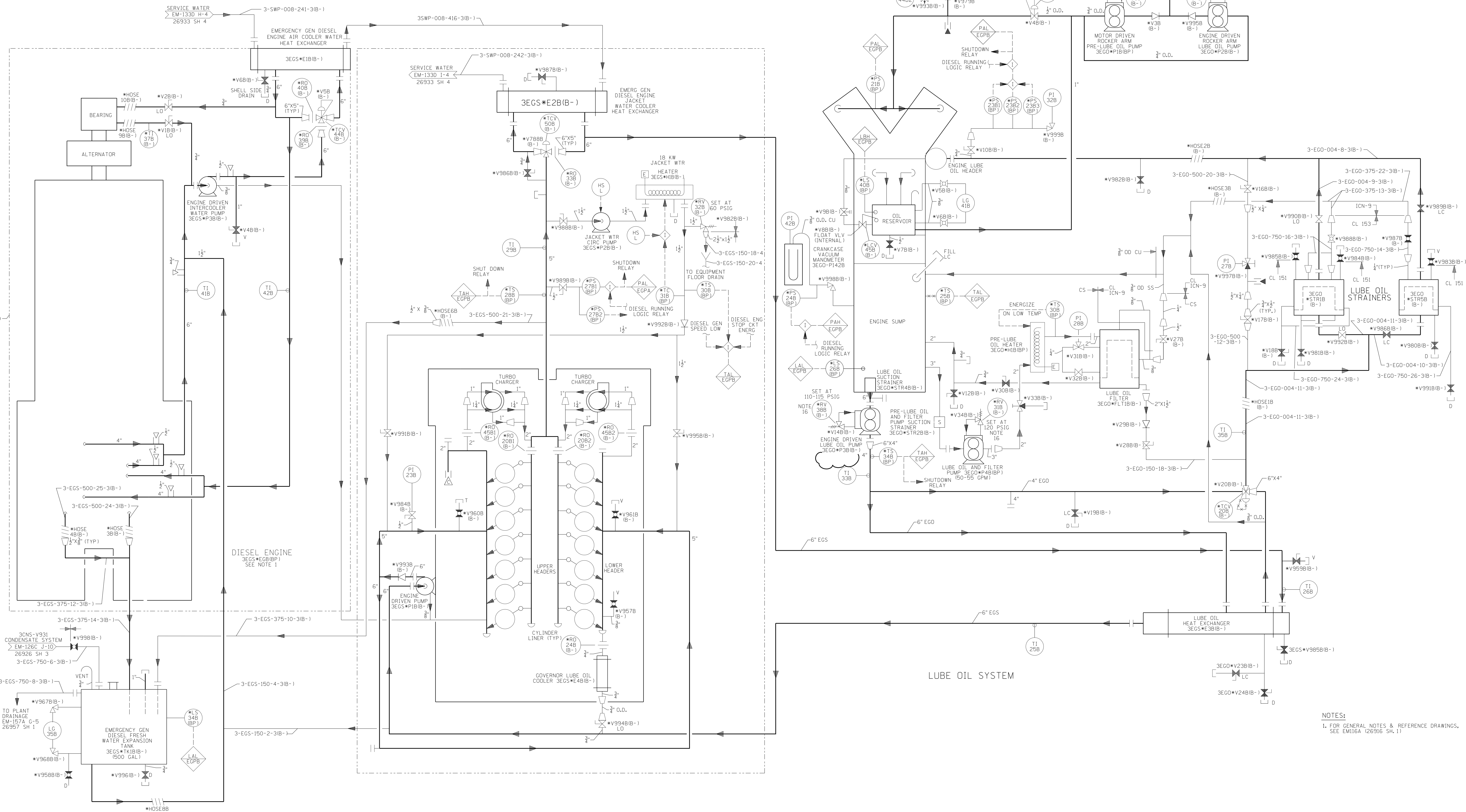


NOTES:
 1. FOR GENERAL NOTES &
 REFERENCE DRAWINGS
 SEE EM16A (26916 SH 1)

FSAR FIGURE

OPERATIONS CRITICAL

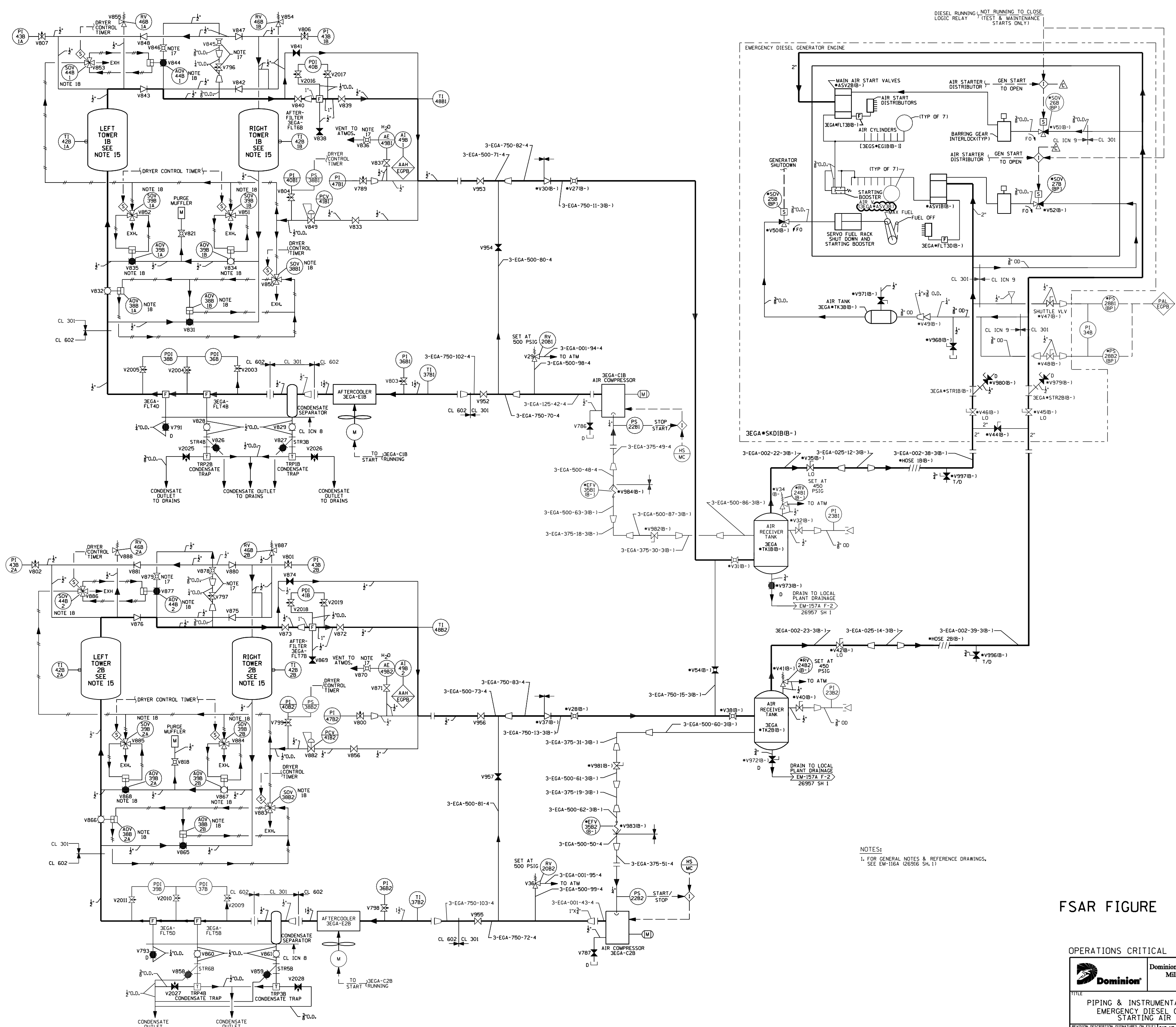
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM EMERGENCY DIESEL GENERATOR A STARTING AIR SYSTEM			
<small>REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO. CONTROL 20000-C29H42.00N</small>			
<small>REVISED PER NSUR 13-00018 & DLR 13-800563</small>	<small>DRAWING NO. 25212-26916</small>	<small>REV 39</small>	<small>DATE 05/01/08</small>
<small>DESIGN EAL</small>		<small>SCALE: NONE UNLESS OTHERWISE NOTED SH 2</small>	



NOTES:
 1. FOR GENERAL NOTES & REFERENCE DRAWINGS, SEE EM116A 126916 SH.1)

FSAR FIGURE

OPERATIONS CRITICAL	
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE PIPING & INSTRUMENTATION DIAGRAM EMERGENCY DIESEL GENERATOR B LUBE OIL & COOLING WATER	
REVISION DESCRIPTION	SIGNATURES ON FILE
REVISED PER MSDR 17-000040 & DUR 17-600069	DRAWING NO: 25212-26916
DSGN DLW	SCALE: NONE
	UNLESS OTHERWISE NOTED SH 3

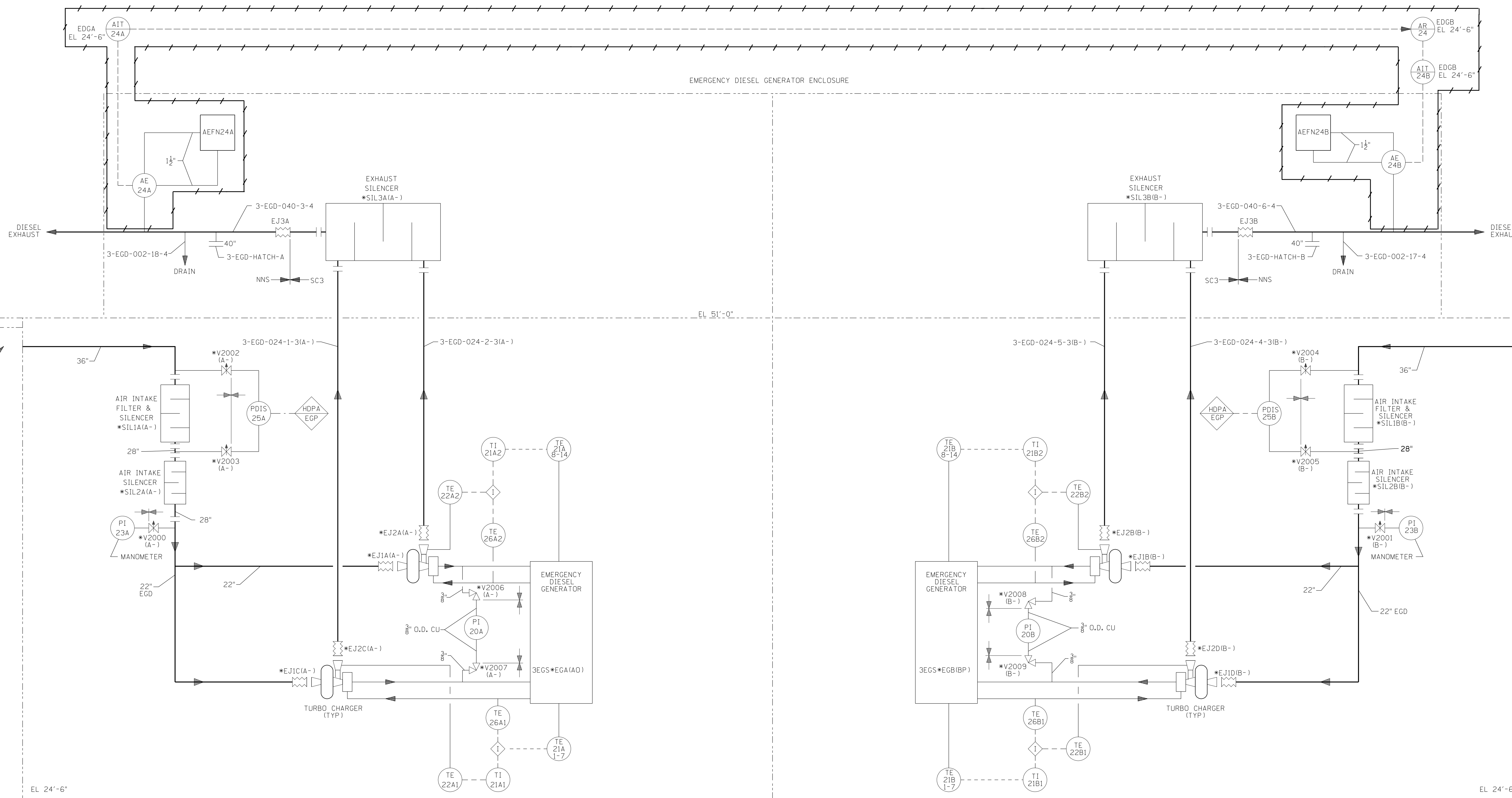


NOTES:
 1. FOR GENERAL NOTES & REFERENCE DRAWINGS, SEE EM-116A (26916 SH.1)

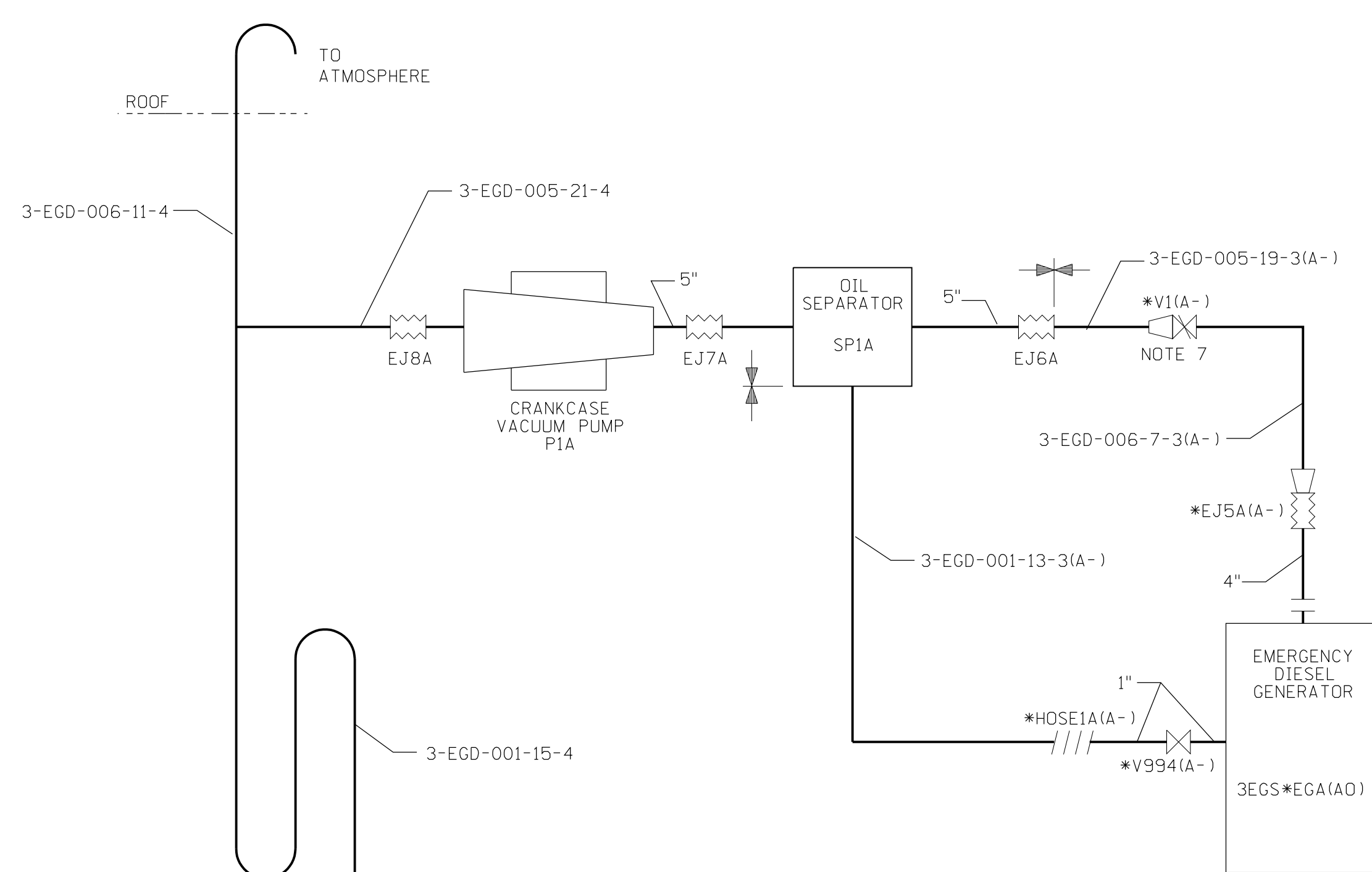
FSAR FIGURE

OPERATIONS CRITICAL

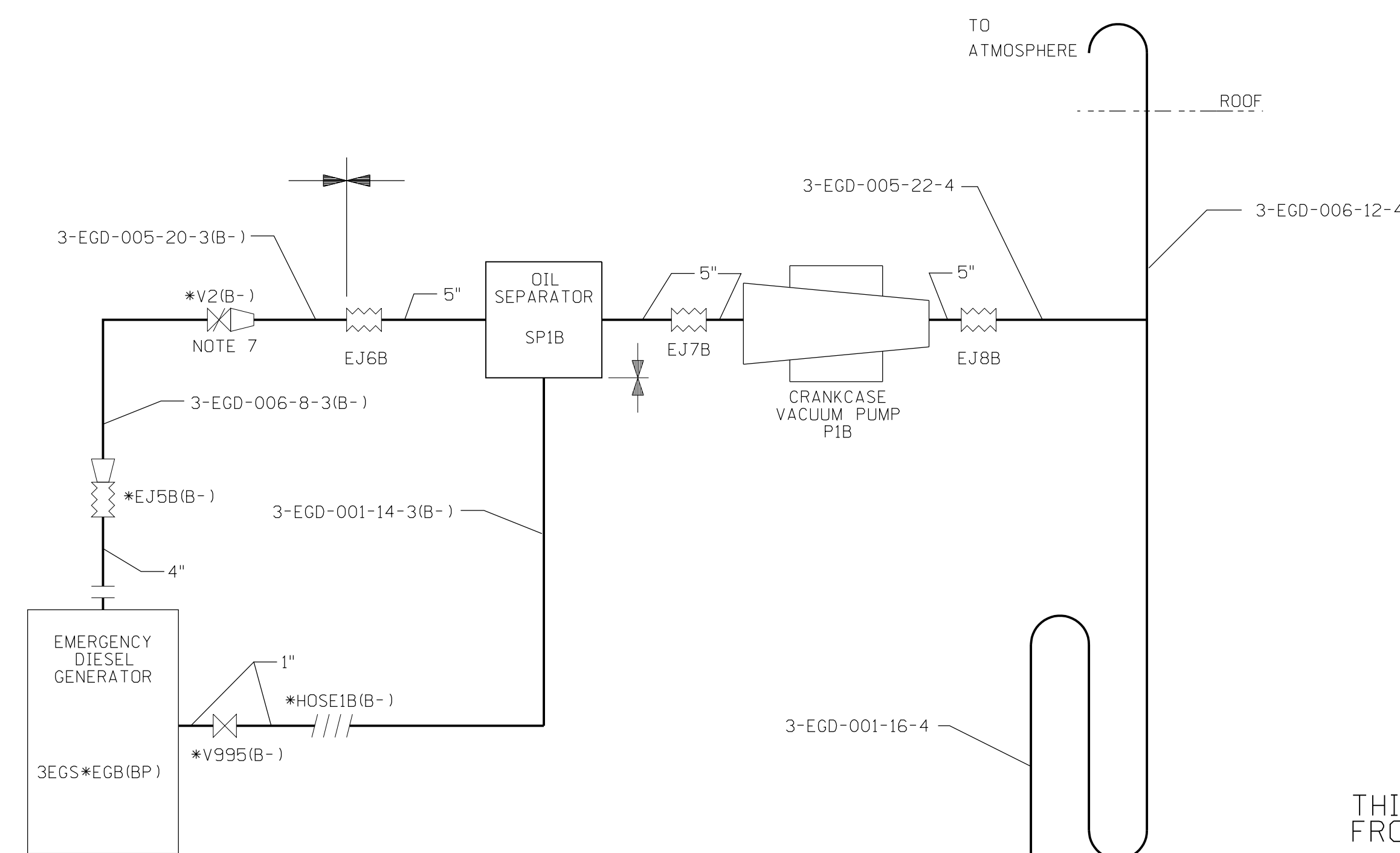
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM EMERGENCY DIESEL GENERATOR B STARTING AIR SYSTEM			
REVISION DESCRIPTION: SIGNATURES BY FIELD		CAD NO.: PROJECT: 200001P26916A.DGN	
REVISED PER MSDUR 13-000118 & DUR 13-800563		DRAWING NO: 25212-26916	
DESIGN EAL		SCALE: NONE	
		UNLESS OTHERWISE NOTED SH. 4	



EMERGENCY DIESEL EXHAUST AND COMBUSTION AIR SYSTEM



EMERGENCY DIESEL CRANKCASE VACUUM SYSTEM



NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-116A, (26916 SH 1)

THIS DRAWING HAS BEEN CREATED FROM EM-116C, REV 3
NUCLEAR SAFETY RELATED
QA CAT. I,II

FSAR FIGURE OPERATIONS CRITICAL Q.A.

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

REVISIONS DURING CONSTRUCTION		P.A. No.

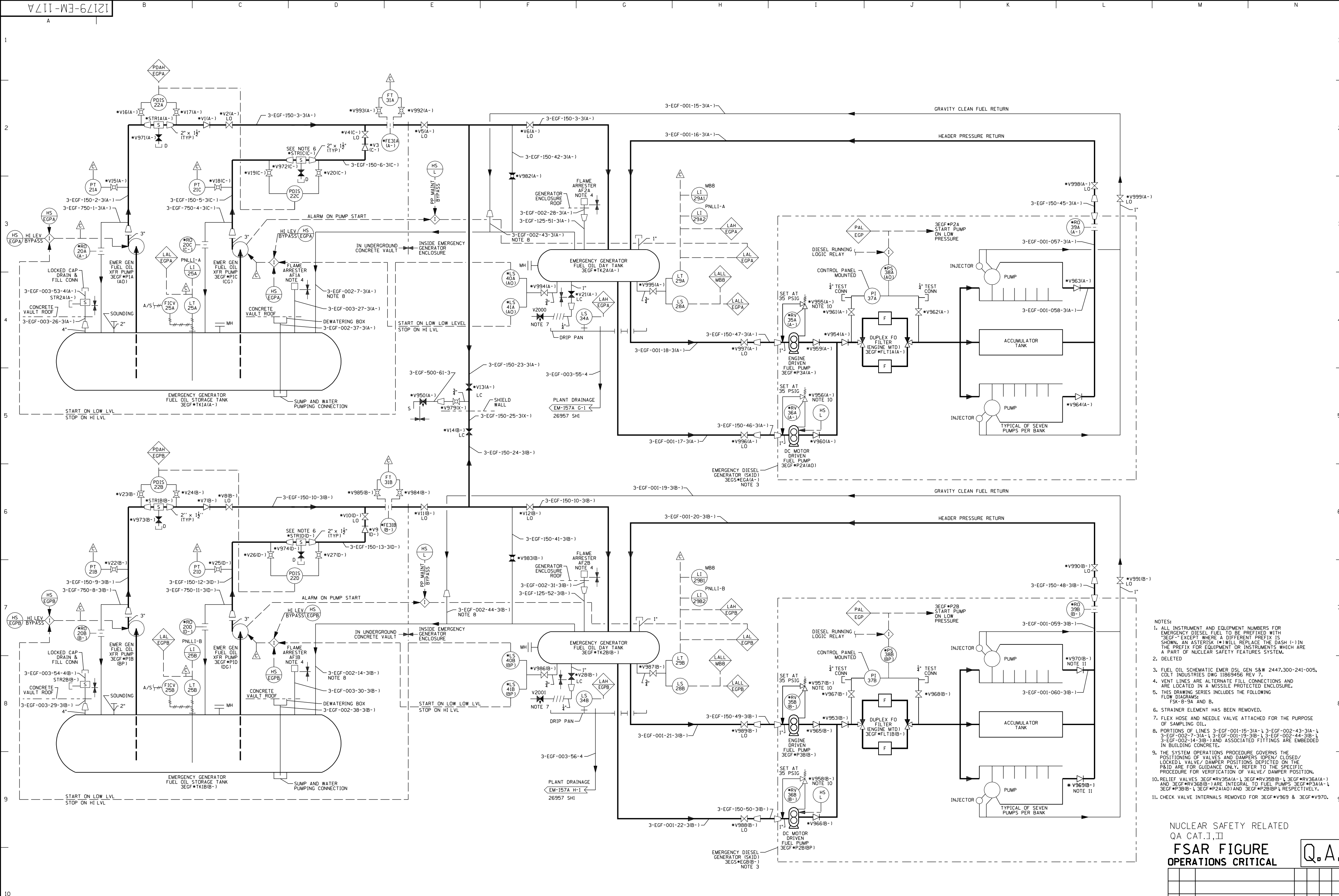
NO.	DATE	REVISIONS	BY	CHK.	CORR	APP.

Dominion Millstone Power Station

MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
EMERGENCY DIESEL EXHAUST, COMBUSTION AIR, AND CRANKCASE VACUUM SYSTEM

DATE: 8-29-96
SCALE: NONE
P.A.#: 25212-26916 SH 5

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR EMERGENCY DIESEL FUEL TO BE PREFIXED WITH "3EGF" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. DELETED
 3. FUEL OIL SCHEMATIC EMER DSN GEN S&W 2447,300-241-005, COLT INDUSTRIES DWG I1889456 REV 7.
 4. VENT LINES ARE ALTERNATE FILL CONNECTIONS AND ARE LOCATED IN A MISSILE PROTECTED ENCLOSURE.
 5. THIS DRAWING SERIES INCLUDES THE FOLLOWING FLOW DIAGRAMS: FSK-B-5A AND B.
 6. STRAINER ELEMENT HAS BEEN REMOVED.
 7. FLEX HOSE AND NEEDLE VALVE ATTACHED FOR THE PURPOSE OF SAMPLING OIL.
 8. PORTIONS OF LINES 3-EGF-001-15-3(A)-1, 3-EGF-002-43-3(A)-1, 3-EGF-001-19-3(B)-1, 3-EGF-002-44-3(B)-1, 3-EGF-002-14-3(B)-1 AND ASSOCIATED FITTINGS ARE EMBEDDED IN BUILDING CONCRETE.
 9. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 10. RELIEF VALVES 3EGF#RV35A(A)-1, 3EGF#RV35B(B)-1, 3EGF#RV36A(A)-1 AND 3EGF#RV36B(B)-1 ARE INTEGRAL TO FUEL PUMPS 3EGF#P3A(A)-1, 3EGF#P3B(B)-1, 3EGF#P2A(A) AND 3EGF#P2B(B) RESPECTIVELY.
 11. CHECK VALVE INTERNALS REMOVED FOR 3EGF#V965 & 3EGF#V970.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

CAD	
REV.	DATE

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP	
N/A	23	3-9-01	INCORP. DCN DM3-00-0109-01	MP	CSJ	DLW	RJY
N/A	22	11-2-00	INCORP. DCN DM3-00-0394-00	RFL	CSJ	AJS	PFL
N/A	21	8-25-99	INCORP. DCN DM3-00-0388-99	KF	CSJ	AJS	MP
N/A	20	11-24-98	INCORP. DCN DM3-00-0602-98	KF	MP	AJS	RFL
N/A	19	11-5-98	INCORP. DCN DM3-00-0973-98	JSC	RFL	RFL	MP
N/A	18	7-28-98	INCORP. DCN DM3-00-0682-98	KF	RJK	RFL	RFL
N/A	17	4-22-98	INCORP. DCN DM3-00-0375-98	JSC	RFL	GJZ	MP
N/A	16	10-31-97	INCORP. DCN DM3-00-1266-97	AC	MP	PAM	PAM

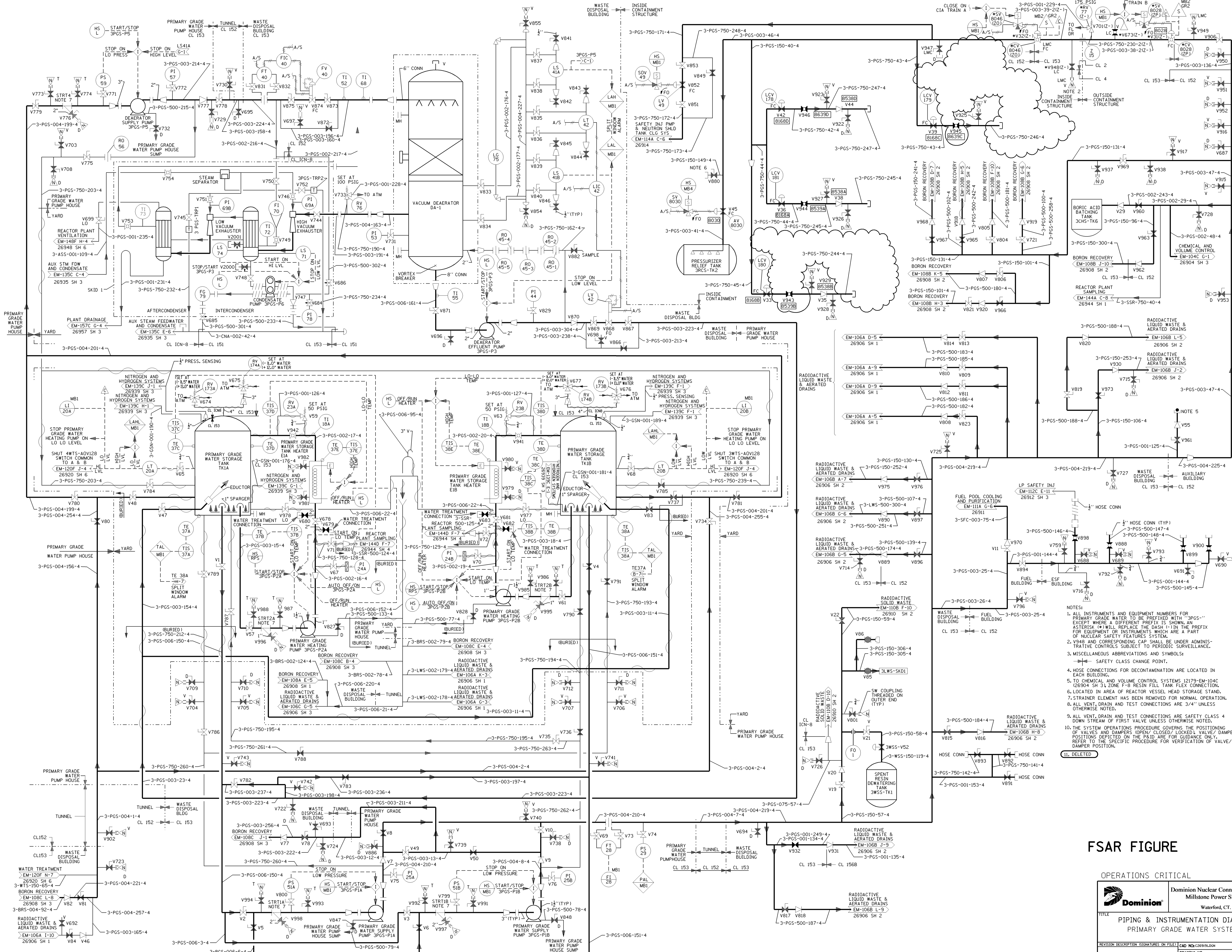
Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
EMERGENCY GENERATOR FUEL OIL SYS

BY: RJK/RTL CWD: CEM/WD APP: WS/DEK/LWM APP: RWA
DATE: 4-14-82 DATE: 4-20-82 DATE: 4-29-82

SCALE: NONE MICROFILM DATE: DWG. NO.: 25212-26917 SH 1 OF 1 23

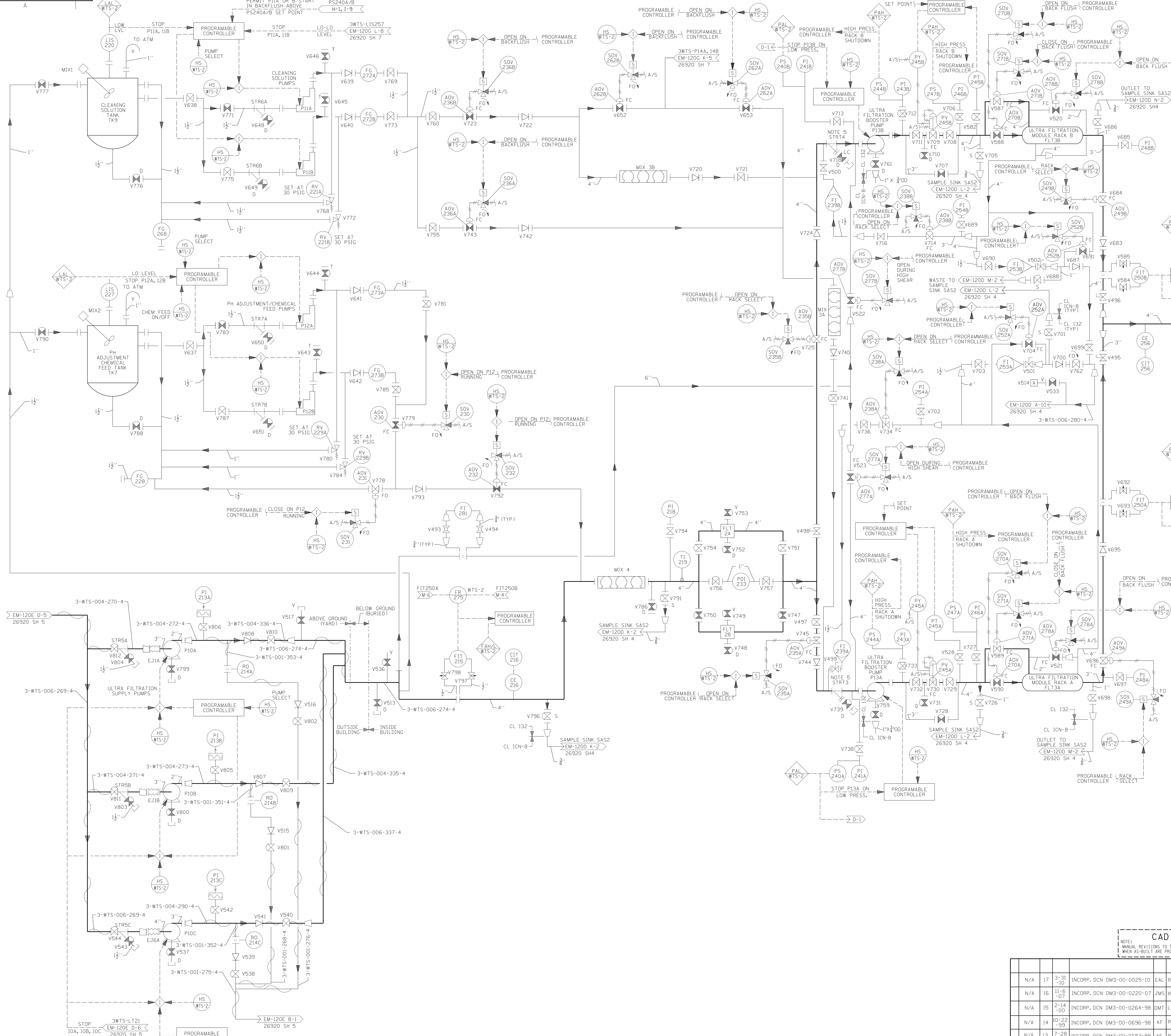
STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM PRIMARY GRADE WATER SYSTEM			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER DC MP3-14-01022 & DUR 16-800193	DRAWING NO. 25212-26919	CAD NO. C26919.DGN	REV 34
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1	



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR WATER TREATING TO BE PREFIXED WITH "3WTS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR WASTE WATER TREATING TO BE PREFIXED WITH "3WTW" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. ALL CL 132 ROOT CONNECTIONS ARE 1" UNLESS OTHERWISE NOTED.
 4. STRAINERS STRT 1A & 1B HAVE BEEN REMOVED AND A SPOOL PIECE ADDED FOR NORMAL OPERATION.
 5. STRAINER ELEMENT HAS BEEN REMOVED FOR NORMAL OPERATION.
 6. V524, 525 ARE INSIDE THE CONDENSATE POLISHING ENCLOSURE
 7. VENT & DRAIN VALVES ADDED TO CL 138A, B LINES WILL CONTAIN THREADED NYLON PLUGS. VENT & DRAIN VALVES ADDED TO CL 152 LINES WILL CONTAIN MONEL OR NYLON THREADED PLUGS.
 8. HEAT TRACED, FLEXIBLE HOSES SHOULD BE UTILIZED DURING WINTER MONTHS WHEN CONNECTING VALVES V474, V475, V476, V489 THRU V489 TO THE CONTRACTED WATER TREATMENT FACILITY. FIRE HOSES MAY BE USED IN PLACE OF HEAT TRACED HOSES WHEN WHETHER CONDITIONS PERMIT.
 9. ALL VENT AND DRAIN CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 10. DUE TO MATERIAL AVAILABILITY ON SITE LINES 341 & 342 ARE MADE UP OF BOTH CL132 & CL133 MATERIAL.
 11. THE AIR SUPPLY TO THE FOLLOWING COMPONENTS HAS BEEN TERMINATED:
3WTS-ADV93, ADV95, ADV97, ADV99, ADV101, ADV103, ADV138, ADV139, ADV140, ADV141, ADV142, ADV143, FIT96, FIT100, FIT104, PT124, PT174, TT105, TT105S, LC68 AND LV68.
 12. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED/ VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY, REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

NON	Q	A
-----	---	---

CAD
 NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

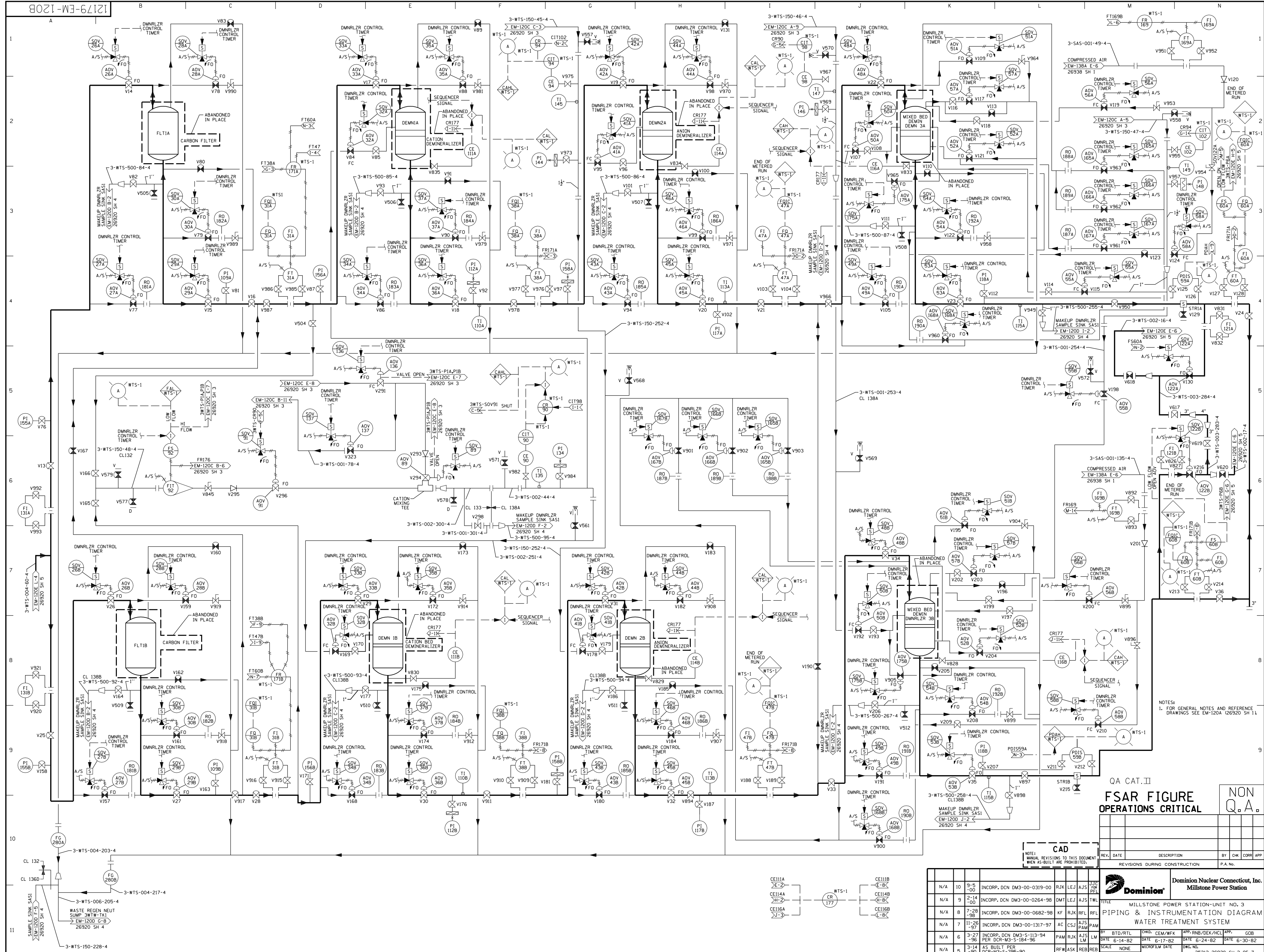
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	17	3-31-10	INCCORP. DCN DM3-00-0025-10	EAL	RFL	MP
N/A	16	11-6-07	INCCORP. DCN DM3-00-0220-07	JMS	RFL	WBZ
N/A	15	2-14-00	INCCORP. DCN DM3-00-0264-98	DMT	LEJ	AJS
N/A	14	10-22-99	INCCORP. DCN DM3-00-0696-98	KF	RFL	AJS
N/A	13	7-28-98	INCCORP. DCN DM3-00-0682-98	KF	RJK	RFL
N/A	12	11-26-97	INCCORP. DCN DM3-00-1317-97	AC	CSJ	AJS
N/A	11	11-17-97	INCCORP. DCN DM3-00-0892-97	KF	CSJ	AJS

Dominion
 Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 WATER TREATMENT SYSTEM

DATE: 6-16-82
 SCALE: NONE
 DRAWING NO.: 25212-26920 SH 1

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-120A (26920 SH 1)

QA CAT. II
FSAR FIGURE OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

PIPING & INSTRUMENTATION DIAGRAM
WATER TREATMENT SYSTEM

BY: BTD/RLL
DATE: 6-14-82
SCALE: NONE

CHK: CEM/WFK
DATE: 6-17-82

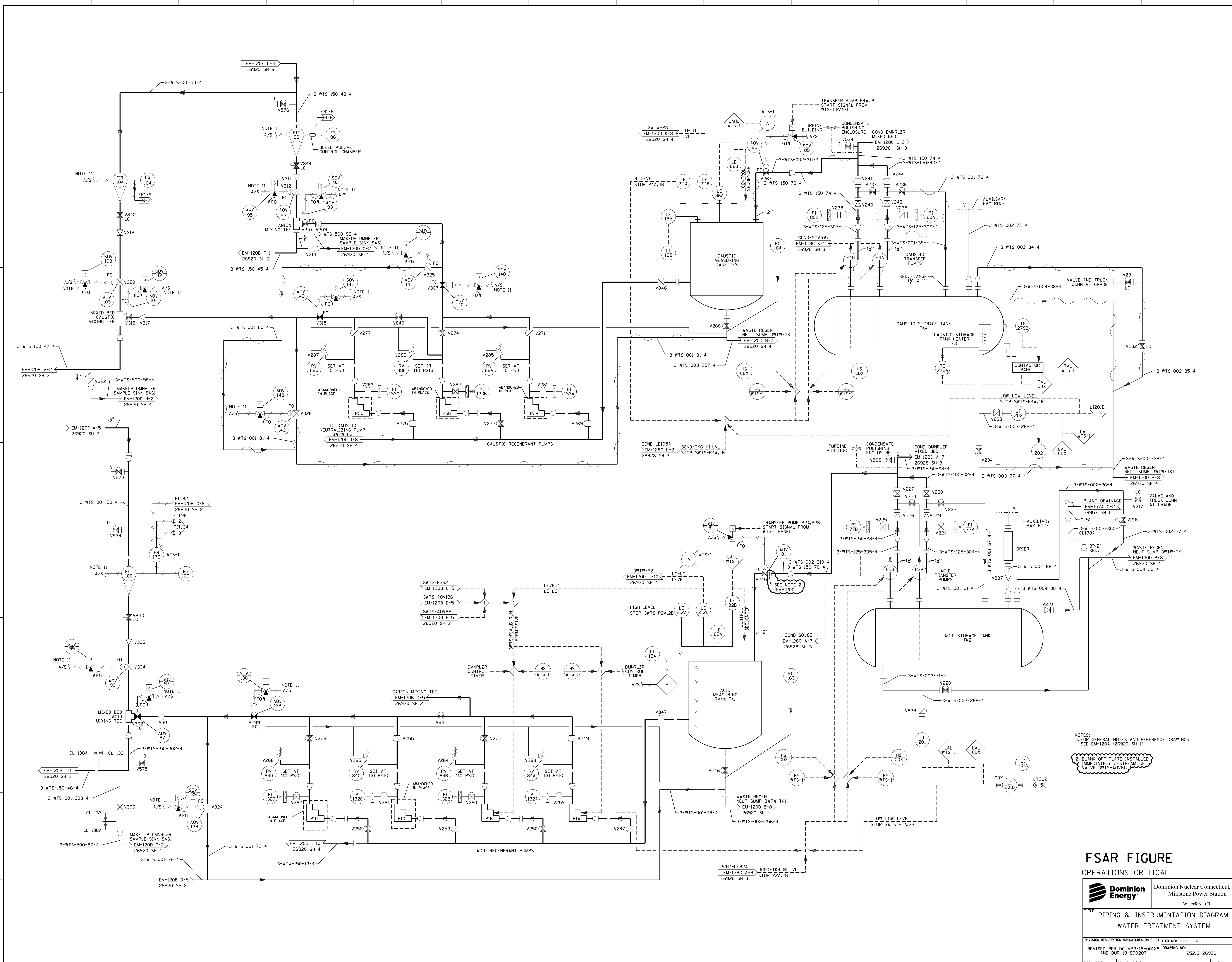
APP: RNB/DEK/HCL
DATE: 6-30-82

DRG. NO.: 25212-26920 SH 2 OF 7

71-156

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
N/A	10-9-00	INCORP. DCN DM3-00-0319-00	RJK	LEJ	AJS	JJC/PFL
N/A	9-2-14-00	INCORP. DCN DM3-00-0264-98	DMT	LEJ	AJS	TWL
N/A	8-7-28-98	INCORP. DCN DM3-00-0682-98	KF	RJK	RFL	RFL
N/A	7-11-97	INCORP. DCN DM3-00-1317-97	AC	CSJ	AJS	PAM
N/A	3-27-96	INCORP. DCN DM3-5-113-94 PER DCR-M3-5-184-96	PAM	RJK	AJS	LM
N/A	3-14-90	AS BUILT PER DCR-M3-5-295-90	RFW	ASK	REB	REB
4	6-24-87	INCORPORATED E&DCRS N-ME-03554, N-ME-04155	SAS	DSJ	RWB	MFS/FJL
1	1-15-82	REVISIONS	BY	CHK.	CORR.	APP.



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-120A 26920 SH 11.
 2. BLANK OFF PLATE INSTALLED IMMEDIATELY UPSTREAM OF VALVE 3WTS-ADV81.

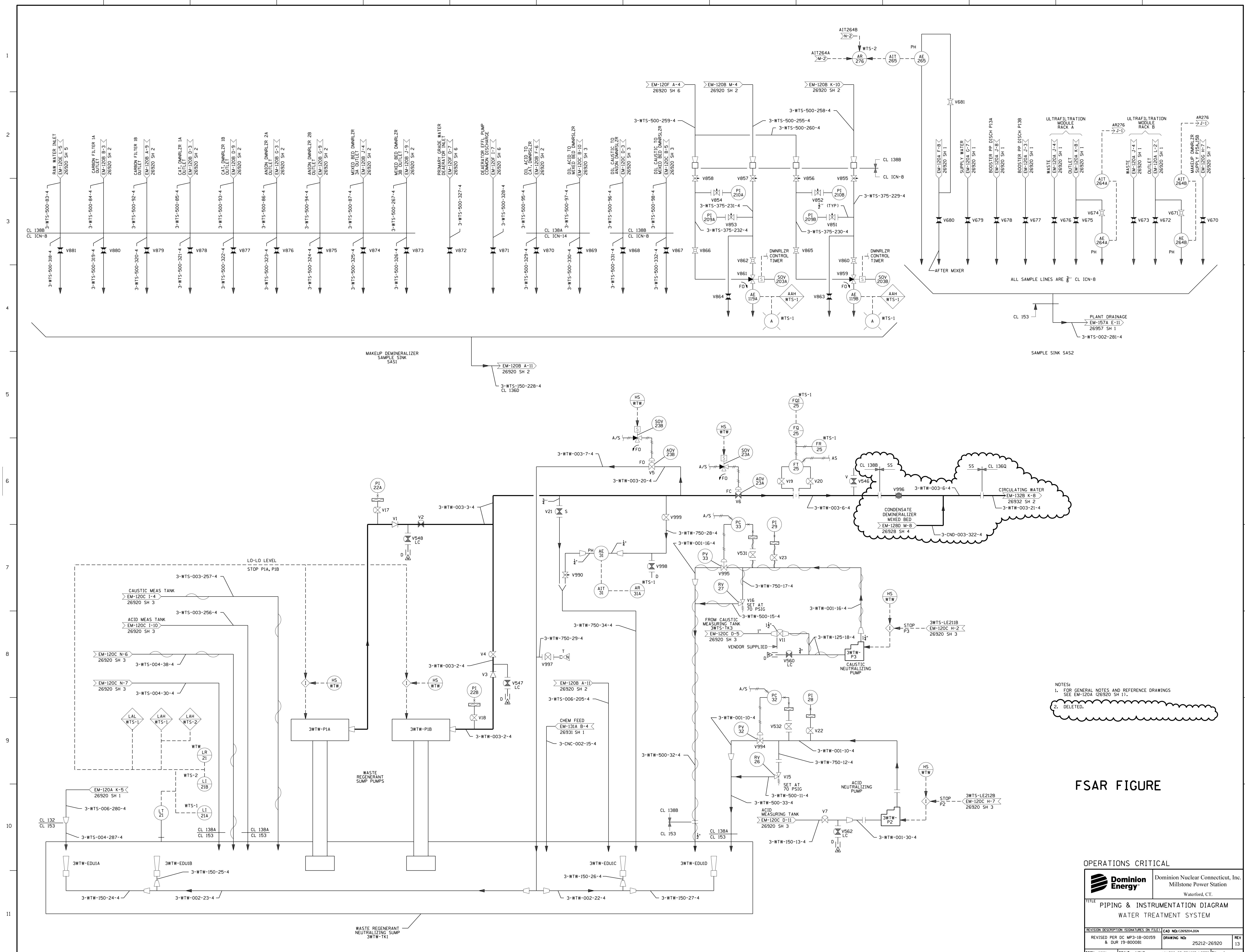
FSAR FIGURE
 OPERATIONS CRITICAL

Dominion Energy
 Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
WATER TREATMENT SYSTEM

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: 1269203.DGN
 REVISED PER DC MP3-18-00128 AND DUR 19-800207 DRAWING NO: 25212-26920 REV 17

DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 3

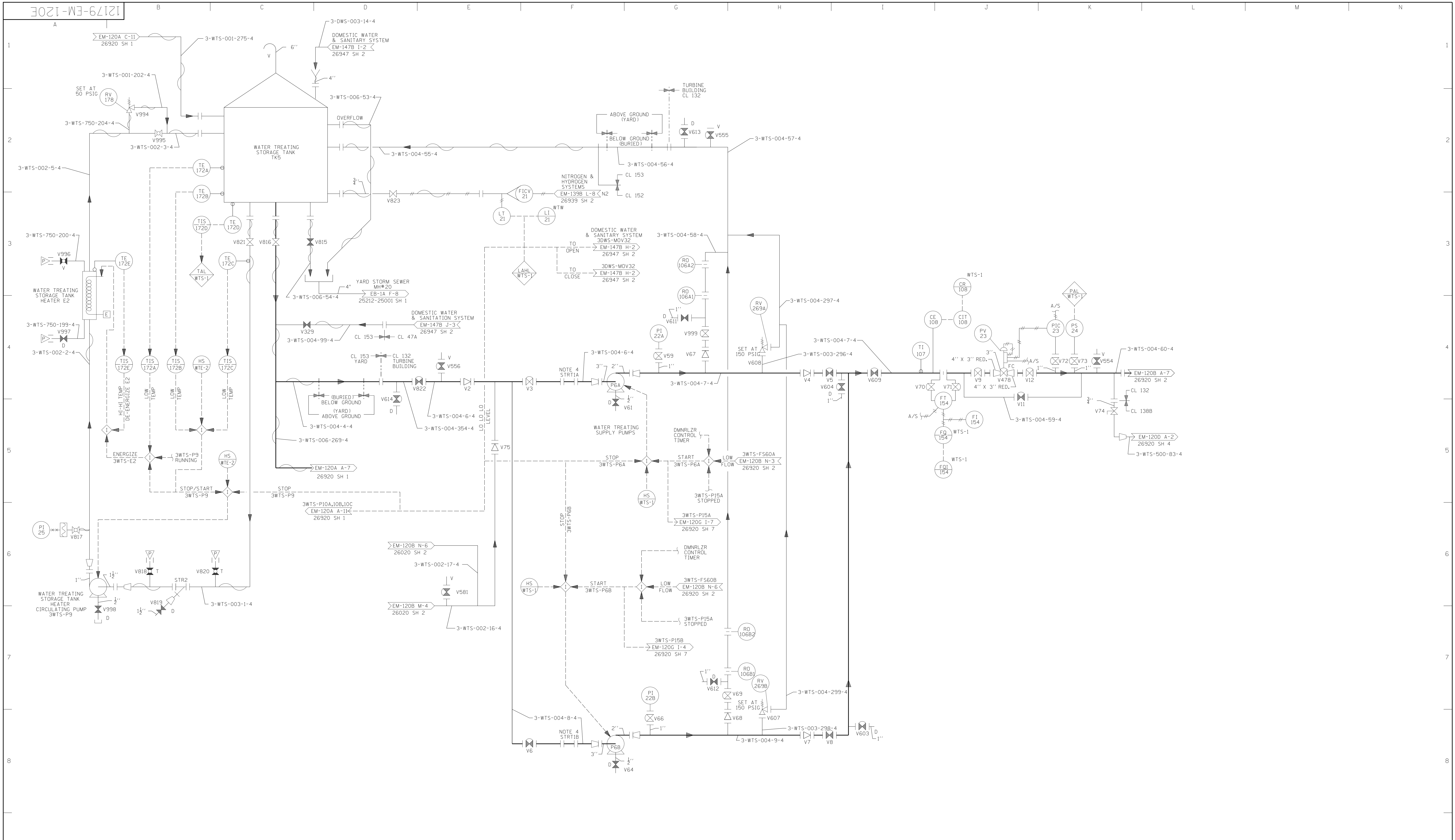


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-120A (26920 SH 1).
 2. DELETED.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM WATER TREATMENT SYSTEM			
REVISION DESCRIPTION REVISED PER DC MP3-18-00159 & DUR 19-000081	SIGNATURES ON FILE DRAWING NO: 25212-26920	CAD NO: C26920A.DGN	REV 13
DSGN MKN	SCALE: NONE	UNLESS OTHERWISE NOTED SH 4	



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-120A (26920 SH 1)

QA CAT.II
FSAR FIGURE OPERATIONS CRITICAL
 NON Q_oA_o

CAD
 NOTES:
 MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CDR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

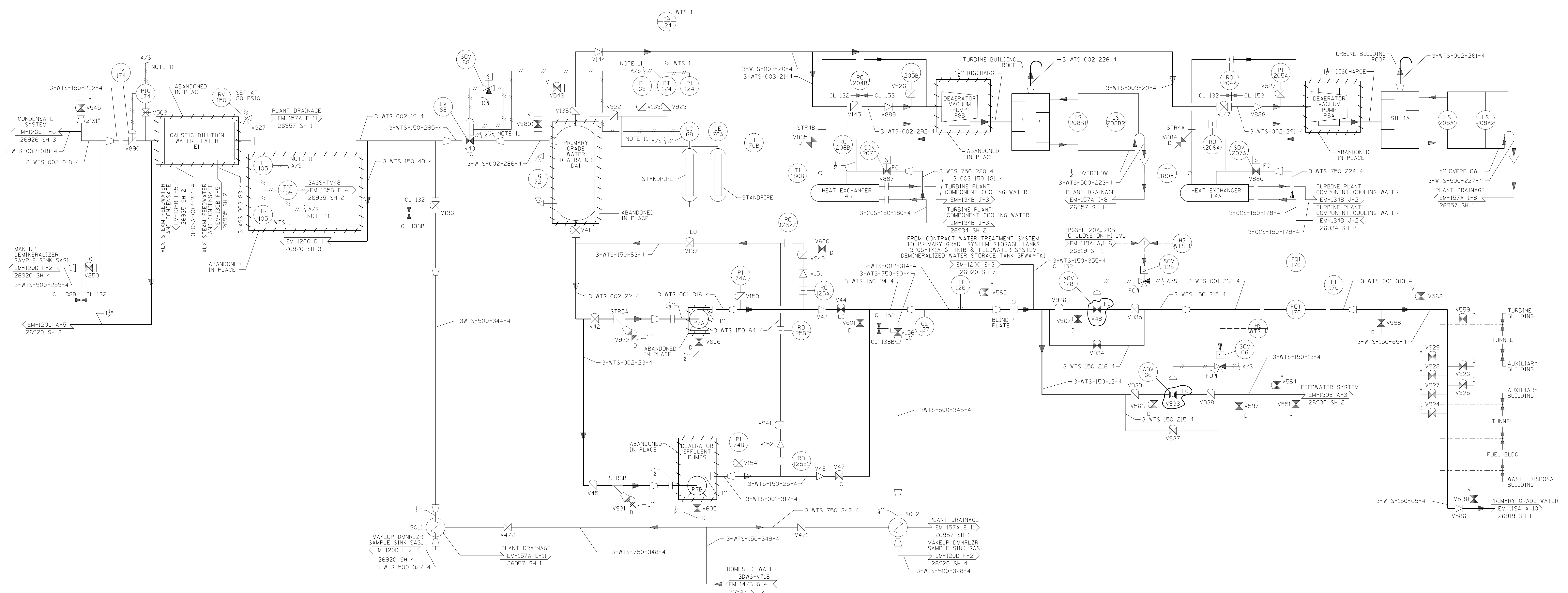
NO.	DATE	REVISIONS	BY	CHK	CDR	APP.
N/A	9	3-31-10	INCORP. DCN DM3-00-0025-10	EAL	RFL	DLW MP
N/A	8	2-14-00	INCORP. DCN DM3-00-0264-98	DMT	LEJ	AJS TWL
N/A	7	7-28-98	INCORP. DCN DM3-00-0682-98	KF	RJK	RFL RFL
N/A	6	11-26-97	INCORP. DCN DM3-00-1317-97	AC	CSJ	AJS PAM
N/A	5	12-5-96	INCORP. DCN DM3-S-820-95	KF	RJK	AJS PAM
N/A	4	3-27-96	INCORP. DCN DM3-S-113-94 PER DCR-M3-S-184-96	PAM	RJK	AJS LM LW

Dominion Dominion Nuclear Connecticut, Inc. Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 WATER TREATMENT SYSTEM

SCALE: NONE
 MICROFILM DATE: NONE
 DWG. NO.: 25212-26920 SH.5

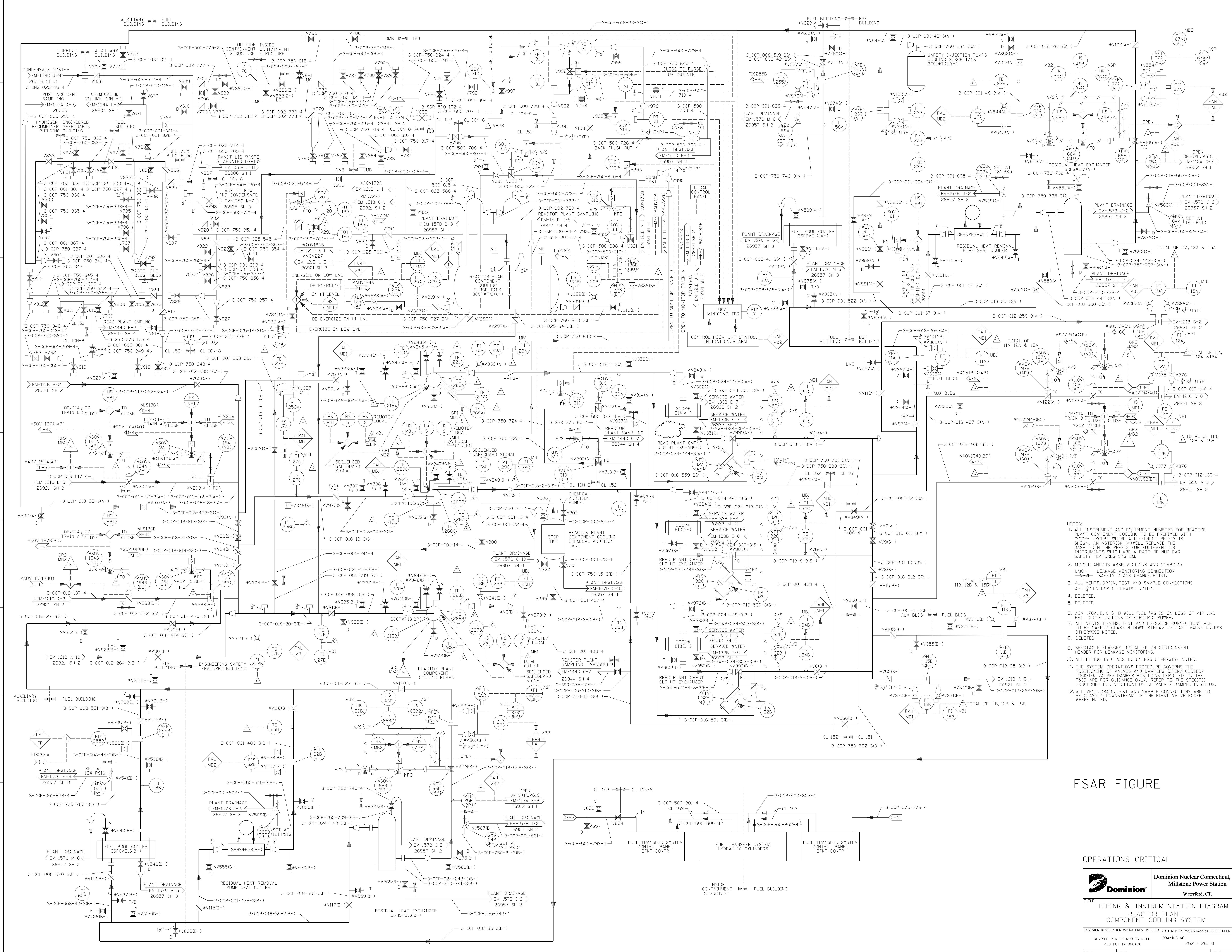
STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-120A (26920 SH 1)

FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM WATER TREATMENT SYSTEM			
REVISION DESCRIPTION 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-120A (26920 SH 1)	SIGNATURES ON FILE	CAD NO: 25212-26920	REV 11
DESIGNED BY: DSN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 6	REV 11

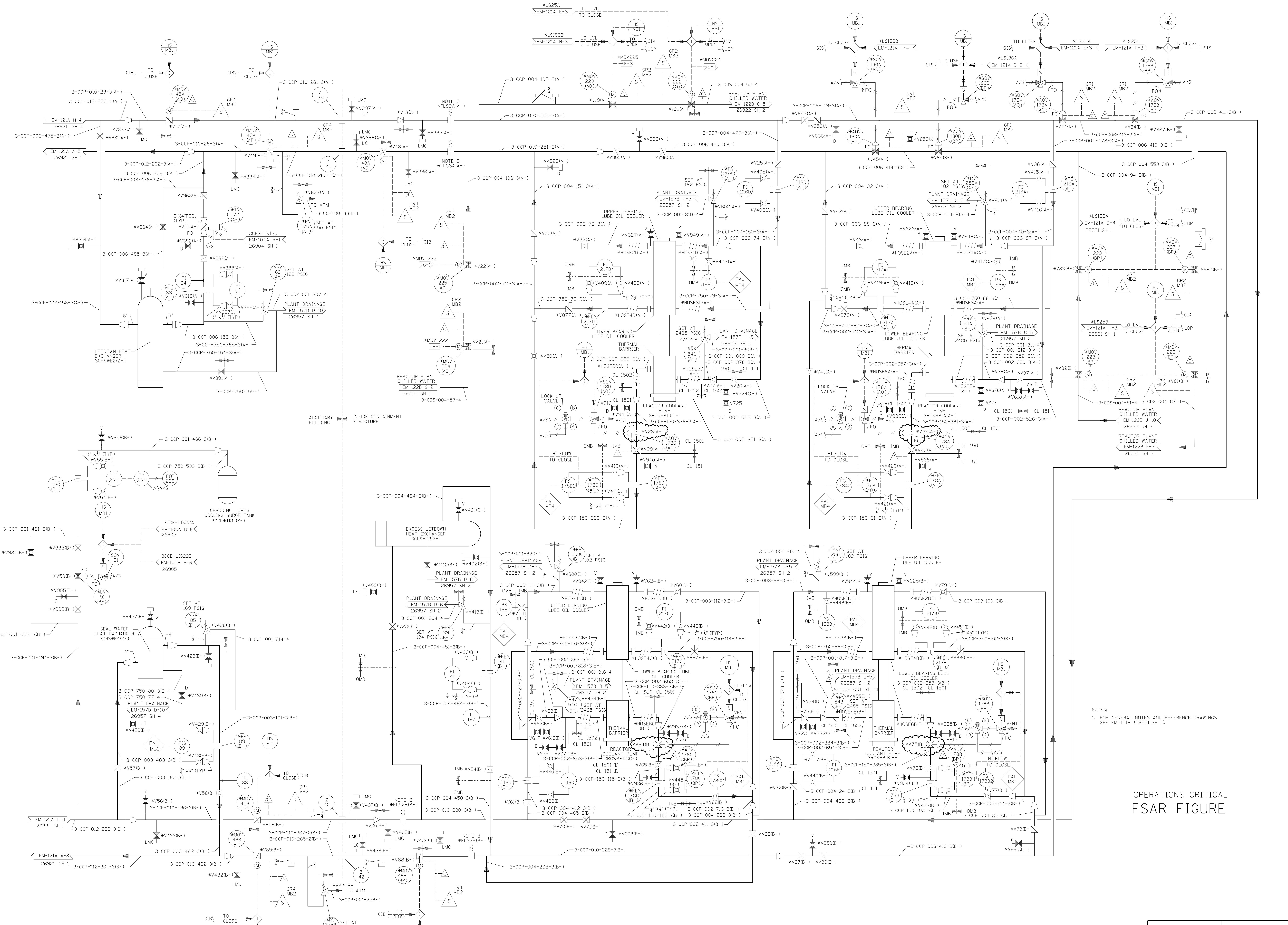


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR PLANT COMPONENT COOLING TO BE PREFIXED WITH "3CCP" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 LMC: LEAKAGE MONITORING CONNECTION
 SAFETY CLASS CHANGE POINT.
 3. ALL VENTS, DRAIN, TEST AND SAMPLE CONNECTIONS ARE 3 UNLESS OTHERWISE NOTED.
 4. DELETED.
 5. DELETED.
 6. ADV 178A, B, C & D WILL FAIL "AS IS" ON LOSS OF AIR AND FAIL CLOSE ON LOSS OF ELECTRIC POWER.
 7. ALL VENTS, DRAINS, TEST AND PRESSURE CONNECTIONS ARE TO BE SAFETY CLASS 4 DOWN STREAM OF LAST VALVE UNLESS OTHERWISE NOTED.
 8. DELETED.
 9. SPECTACLE FLANGES INSTALLED ON CONTAINMENT HEADER FOR LEAKAGE MONITORING.
 10. ALL PIPING IS CLASS 151 UNLESS OTHERWISE NOTED.
 11. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/LOCKED & VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITIONING.
 12. ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE TO BE CLASS 4 DOWNSTREAM OF THE FIRST VALVE EXCEPT WHERE NOTED.

FSAR FIGURE

OPERATIONS CRITICAL

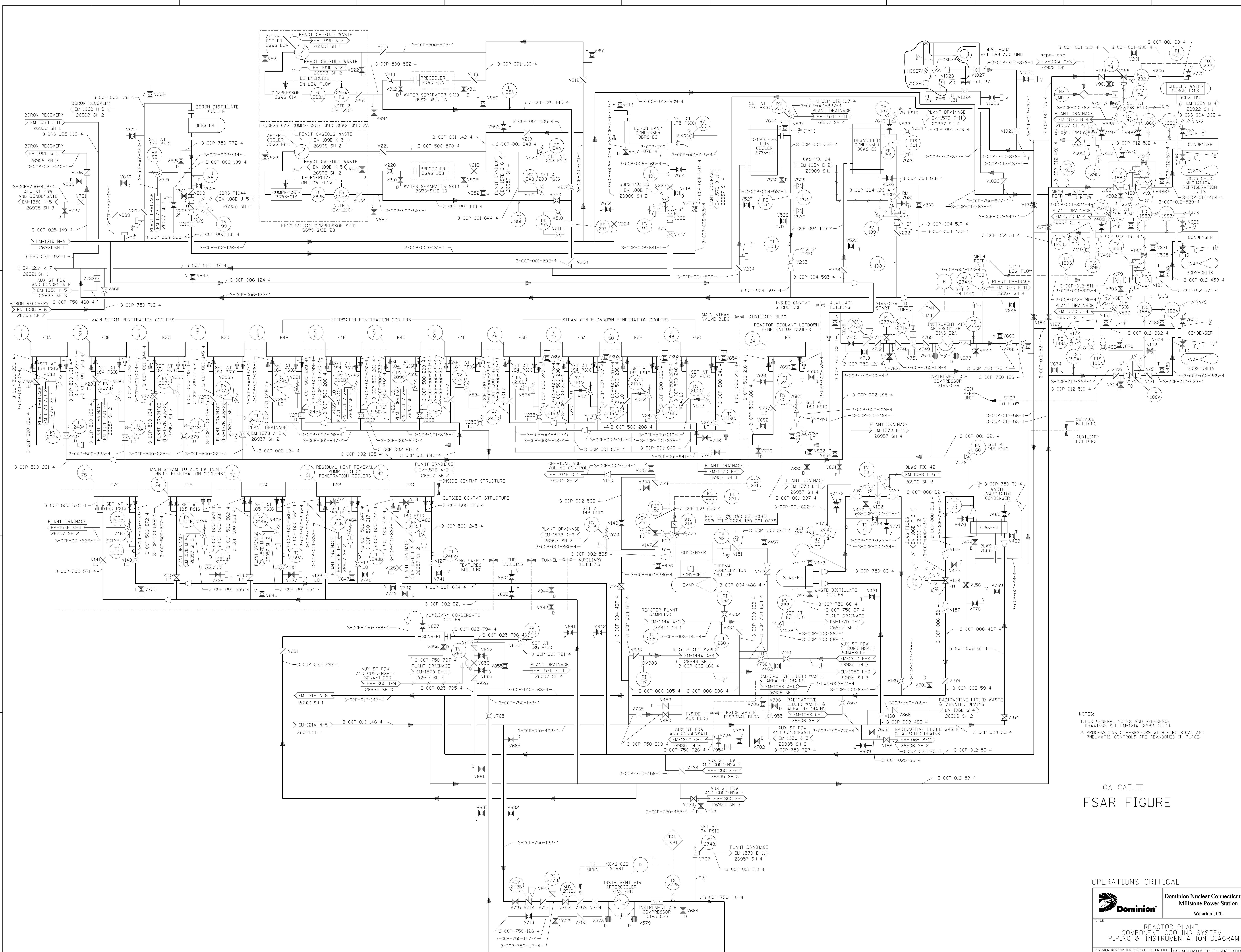
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM REACTOR PLANT COMPONENT COOLING SYSTEM			
REVISION DESCRIPTION: ISSUES/NOTES ON FILE: CAD NO: E17-000327-mp001-0269211.DGN		REVISED PER DC MP3-16-01044 AND DUR 17-000486 DRAWING NO: 25212-26921 REV 34	
DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 1			



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-121A (26921 SH 1)

**OPERATIONS CRITICAL
 FSAR FIGURE**

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM REACTOR PLANT COMPONENT COOLING SYSTEM			
REVISION DESCRIPTION 17-000023 17-000039	SIGNATURES ON FILE PROJECT: 200001P269212.DGN 25212-26921	DRAWING NO. 25212-26921	REV 21
DSN DWG SCALE: NONE UNLESS OTHERWISE NOTED SH 2			

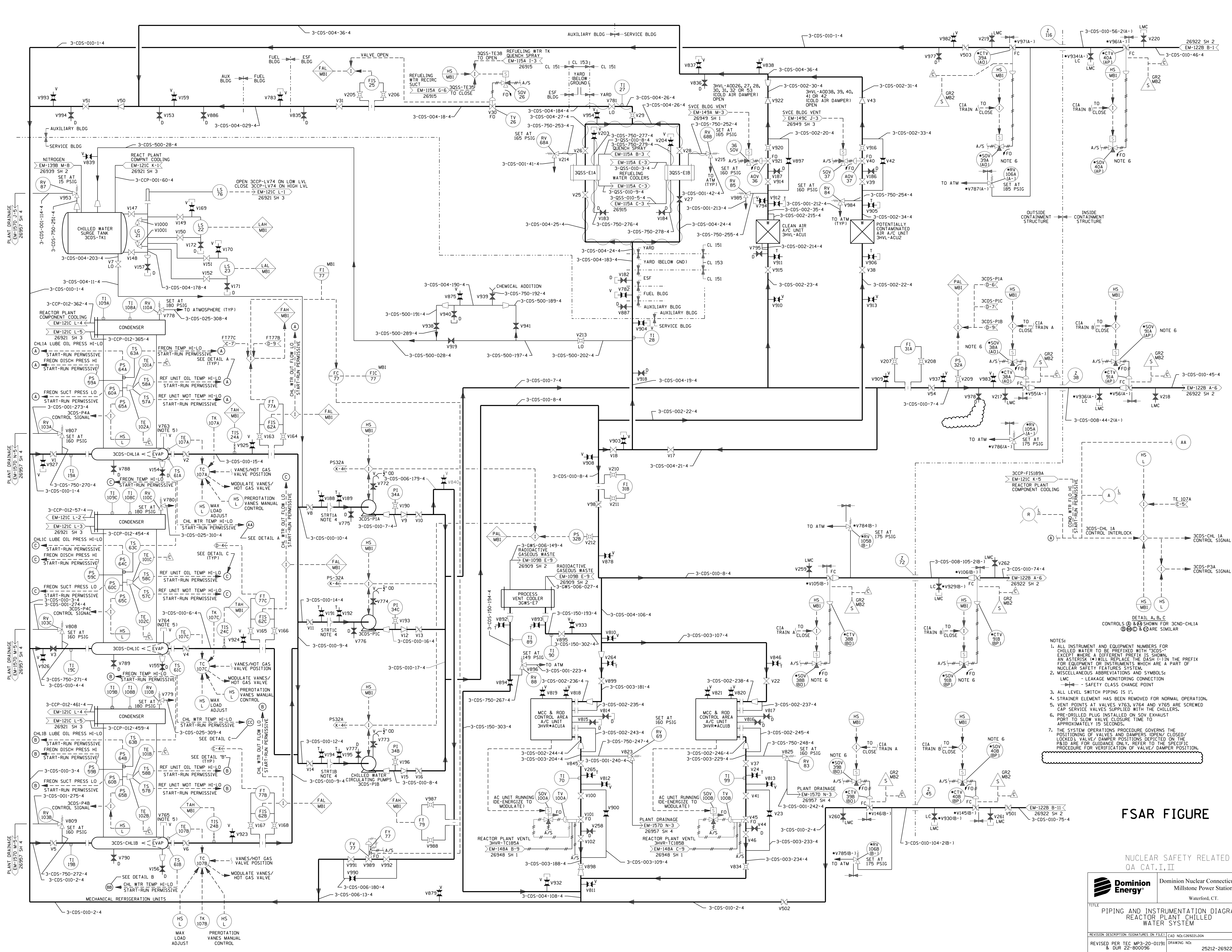


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-121A C-2031 SH 11.
 2. PROCESS GAS COMPRESSORS WITH ELECTRICAL AND PNEUMATIC CONTROLS ARE ABANDONED IN PLACE.

QA CAT. II
 FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE REACTOR PLANT COMPONENT COOLING SYSTEM PIPING & INSTRUMENTATION DIAGRAM			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER DCN DM3-00-0141-11 PER DUR 12-800317		CAD NO: D05NPEC FOR FILE VERIFICATION DRAWING NO: 25212-26921 REV 36	
DSM EAL	SCALE NONE	UNLESS OTHERWISE NOTED SH 3	

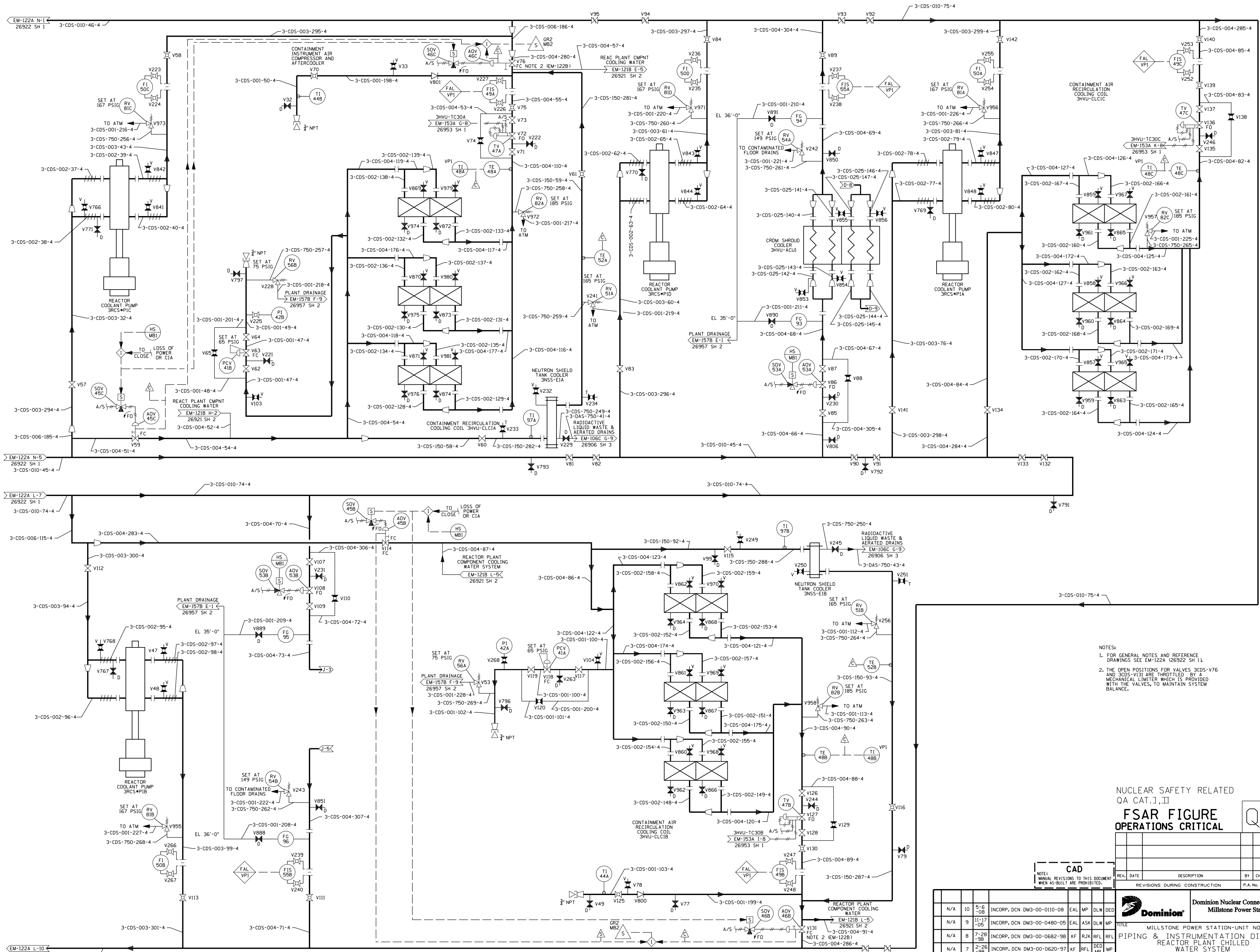


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHILLED WATER TO BE PREFIXED WITH "3-CDS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 LMC - LEAKAGE MONITORING CONNECTION
 - SAFETY CLASS CHANGE POINT
 3. ALL LEVEL SWITCH PIPING IS "I".
 4. STRAINER ELEMENT HAS BEEN REMOVED FOR NORMAL OPERATION.
 5. VENT POINTS AT VALVES V763, V764 AND V765 ARE SCREWED CAP SERVICE VALVES SUPPLIED WITH THE CHILLERS.
 6. PRE-DRILLED PLUG INSTALLED ON SOV EXHAUST PORT TO SLOW VALVE CLOSURE TIME TO APPROXIMATELY 15 SECONDS.
 7. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/LOCKED/ VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

FSAR FIGURE

NUCLEAR SAFETY RELATED
QA CAT. I, II

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
	TITLE PIPING AND INSTRUMENTATION DIAGRAM REACTOR PLANT CHILLED WATER SYSTEM	
REVISION DESCRIPTION SIGNATURES ON FILE	CAD NO: 269221.DGN	REV 22
REVISED PER TEC MP3-20-01191 & DUR 22-800096	DRAWING NO: 25212-26922	REV 22
DSGN EAL	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-122A (26922 SH 1)
 2. THE OPEN POSITIONS FOR VALVES 3CDS-V76 AND 3CDS-V131 ARE THROTTLED BY A MECHANICAL LIMITER WHICH IS PROVIDED WITH THE VALVES, TO MAINTAIN SYSTEM BALANCE.

NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	10-5-08	INCORP. DCN DM3-00-0110-08	EAL	MP	DLW	DED
N/A	11-17-08	INCORP. DCN DM3-00-0480-05	EAL	ASK	DLW	MP
N/A	7-28-08	INCORP. DCN DM3-00-0682-98	KF	RJK	RFL	RFL
N/A	2-26-08	INCORP. DCN DM3-00-0620-97	KF	RFL	DED	MP
86-10	6-7-91	AS BUILT PER DCR-M3-S-886-90	CSJ	SRW	OWW	SJC
N/A	4-25-90	AS BUILT PER DCR-M3-S-085-90	RFW	ASK	REB	REB
4	1-8-87	INCORPORATED E&DCR N-ME-03584	SOS	RNB	MFS	DAS

Dominion Millstone Nuclear Power Station, Inc. Millstone

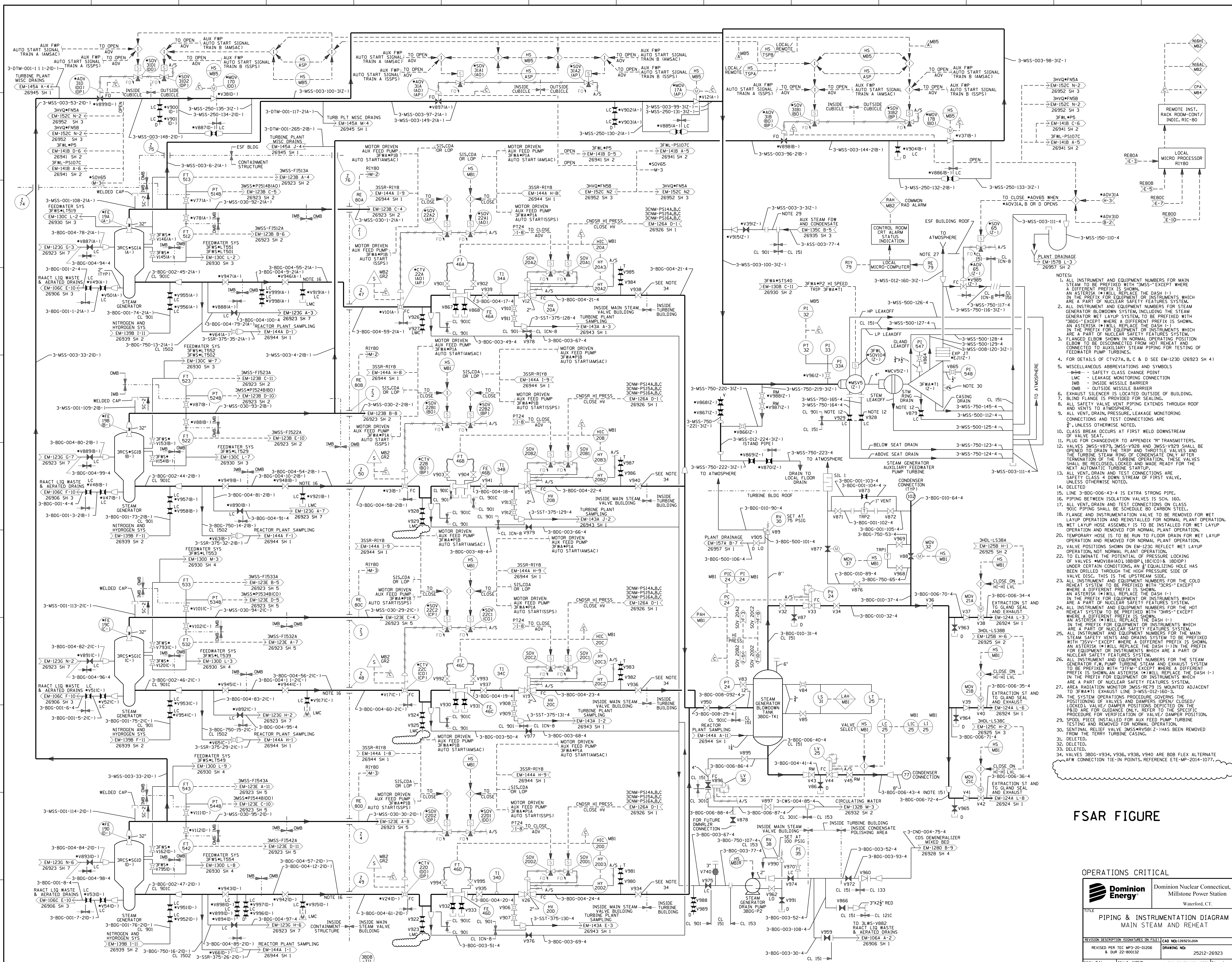
TITLE: **MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM REACTOR PLANT CHILLED WATER SYSTEM**

BY: BEB/RTL, CHD, CEM/WD, APP: RNB/DEK, APP: RWA

DATE: 1-27-82, DATE: 2-19-82, DATE: 3-9-82

SCALE: NONE, MICROFILM DATE: 71-156, DWG. NO.: 25212-26922 SH 2, REV: 10

STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.



FSAR FIGURE

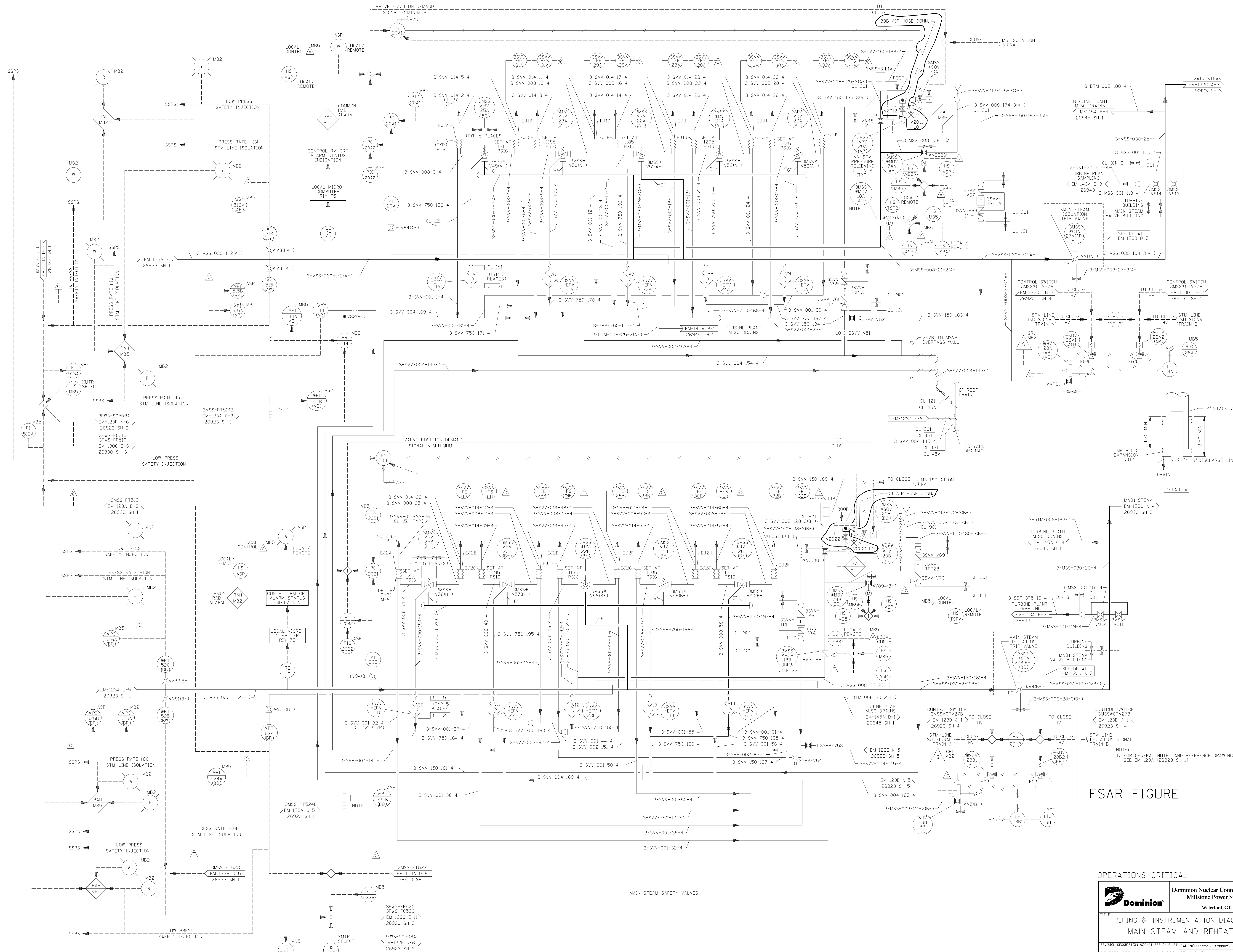
OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
MAIN STEAM AND REHEAT

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 226923L00N
REVISED PER TEC MP-20-01206 & OUR 22-00132 DRAWING NO: 25212-26923 REV 63

DSGN EAL SCALE NONE UNLESS OTHERWISE NOTED SH 1



FSAR FIGURE

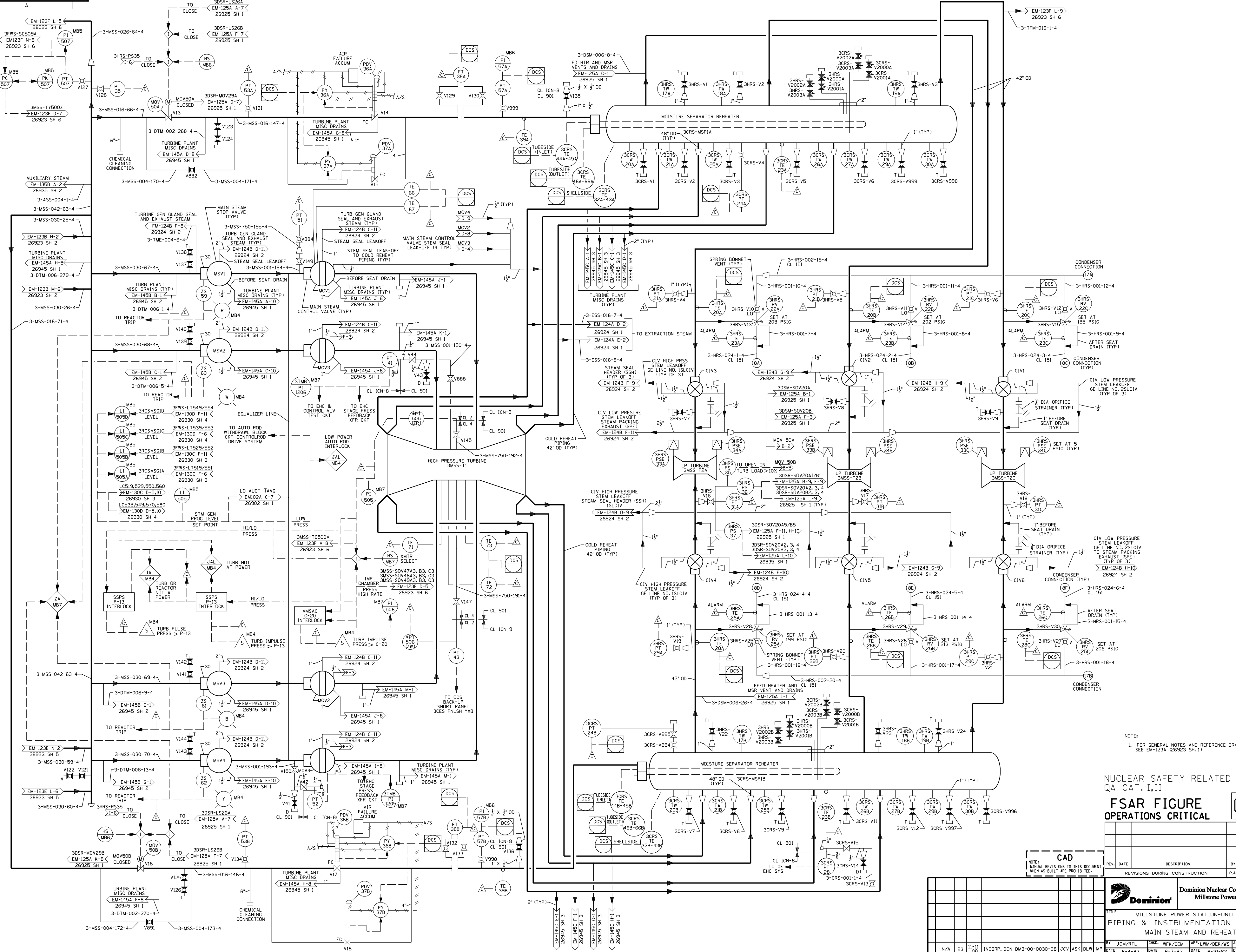
OPERATIONS CRITICAL

Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE: PIPING & INSTRUMENTATION DIAGRAM
 MAIN STEAM AND REHEAT

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: E:\ms32\mnp001\c26932.dgn
 REVISED PER DC MP3-14-01028 DRAWING NO: 25212-26923 REV 26
 & DUR 14-800545

OSDN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 2



NOTE:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-123A (26923 SH. 1)

**NUCLEAR SAFETY RELATED
QA CAT. I, II**

**FSAR FIGURE
OPERATIONS CRITICAL**

Q.A.

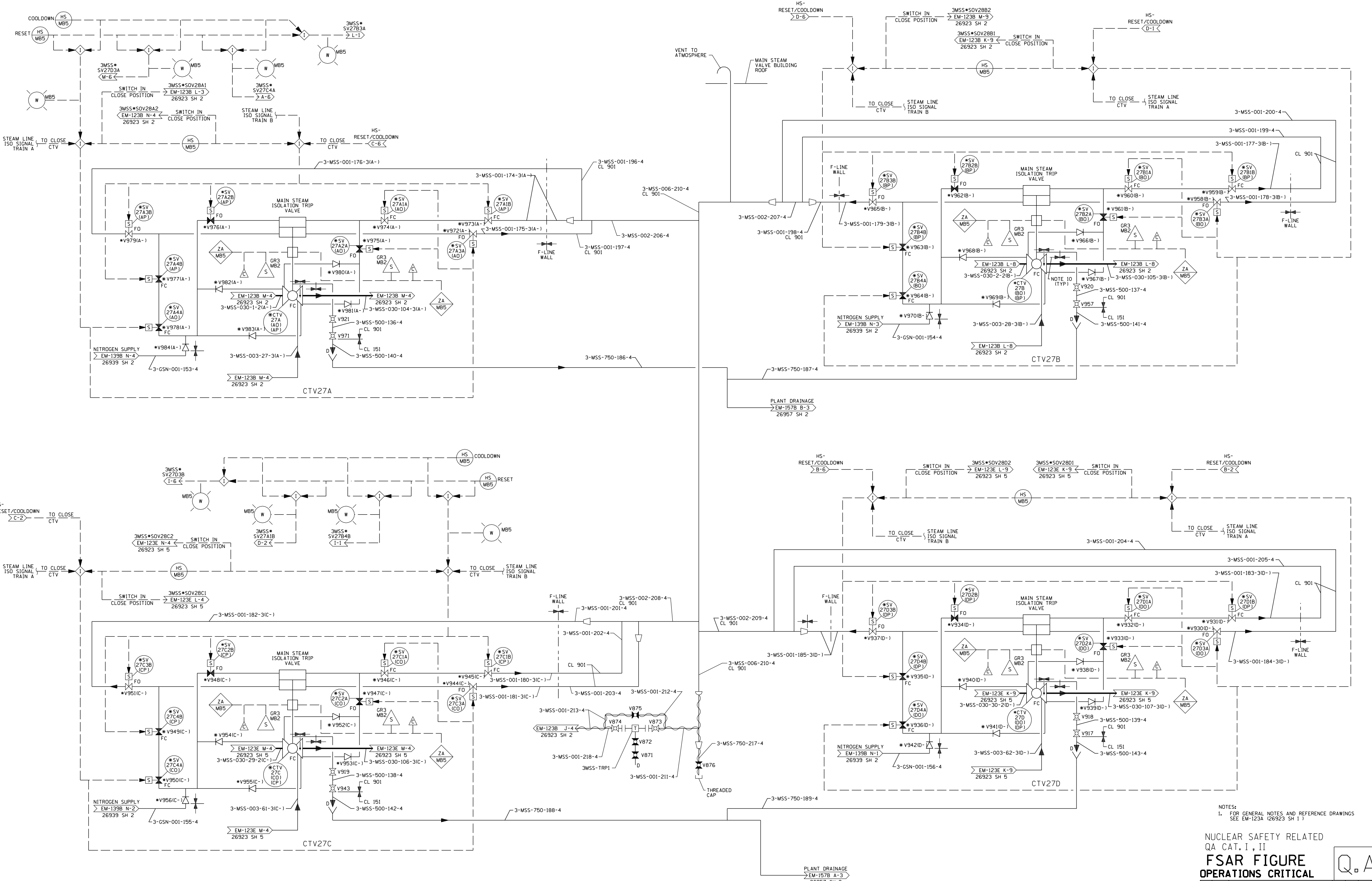
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
MAIN STEAM AND REHEAT

NO.	DATE	REVISIONS	BY	CHK	CORR	APP
N/A	23	11-11-08	INCORP. DCN DM3-00-0030-08	JCV	ASA	DLW
N/A	22	5-12-07	INCORP. DCN DM3-00-0005-07	DWJ	RFL	WBZ
N/A	21	4-16-07	INCORP. DCN DM3-00-0494-05	EAL	MP	WBZ

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-123A (26923 SH 1)

NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

CAD		REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.								
		REVISIONS DURING CONSTRUCTION						P.A. No.

REV.	NO.	DATE	DESCRIPTION	BY	CHK	CORR	APP.
N/A	14	8-8-00	INCRP DCN DM3-00-0282-00	RJK	AR	DLW	RED/PFL
N/A	13	10-22-99	INCRP DCN DM3-00-0158-99	KF	RFL	AJS	MP
N/A	12	7-1-99	INCRP DCN DM3-00-0466-99	JSC	RFL	AJS	RWS
N/A	11	7-28-98	INCRP DCN DM3-00-0682-98	KF	RJK	RFL	RFL
N/A	10	11-26-97	INCRP DCN DM3-00-1317-97	AC	CSJ	AJS	PAM
N/A	9	3-30-95	INCRP DCN DM3-5-228-94 PER DCR-M3-5-269-95	PAM	TJY	LM	LW
8	1-30-89		AS BUILT PER DCR-M3-5-1415-88	PIB	SBR	JFL	

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

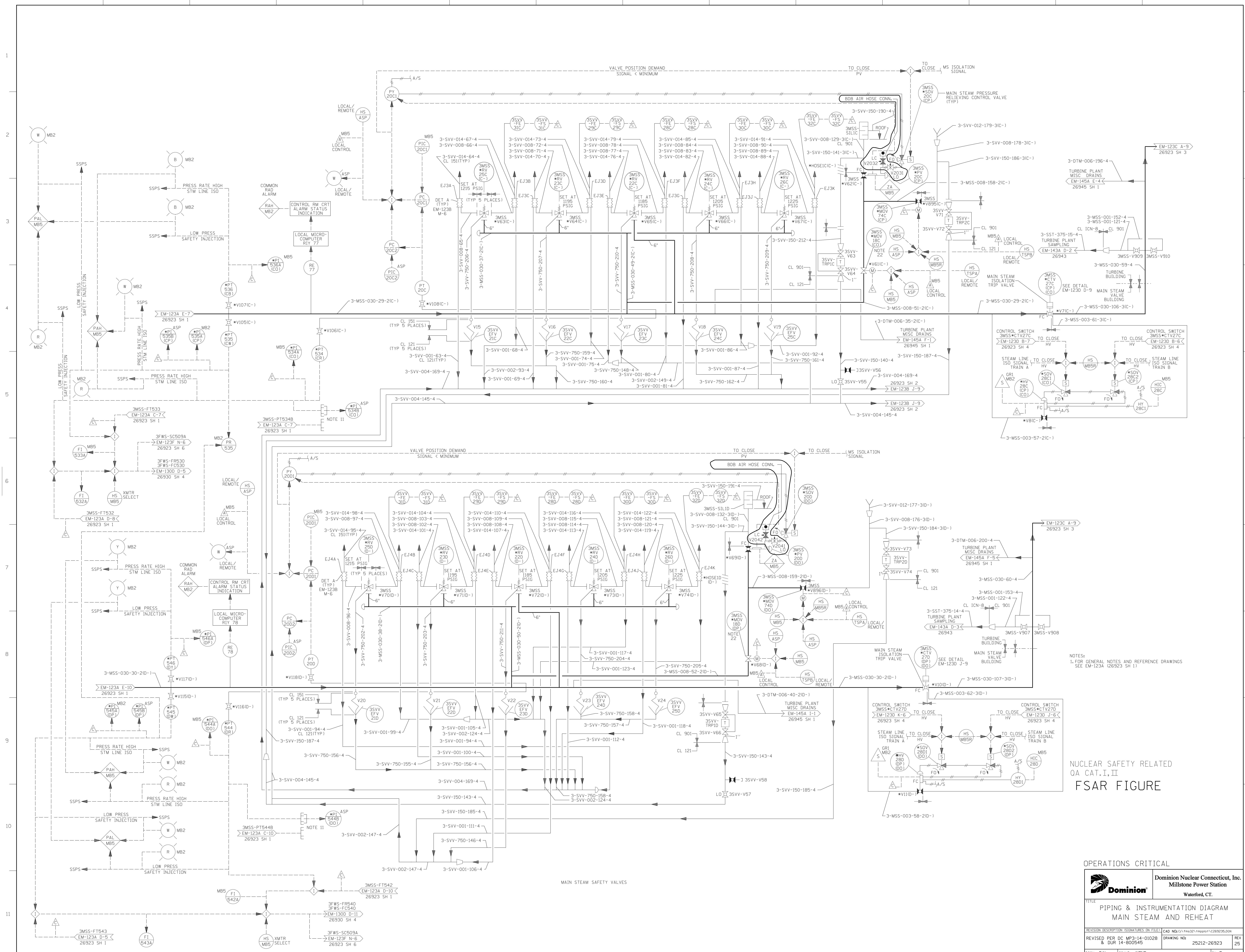
TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 MAIN STEAM AND REHEAT

BY: FJE/RTL
 DATE: 6/4/82
 SCALE: NONE
 MICROFILM DATE: 71-156

APP: LNM/DEK/WS
 DATE: 6/7/82
 MICROFILM DATE: 25212-26923 SH 4 OF 7

APP: GOB
 DATE: 6/10/82
 DATE: 6/10/82
 REV: 14

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

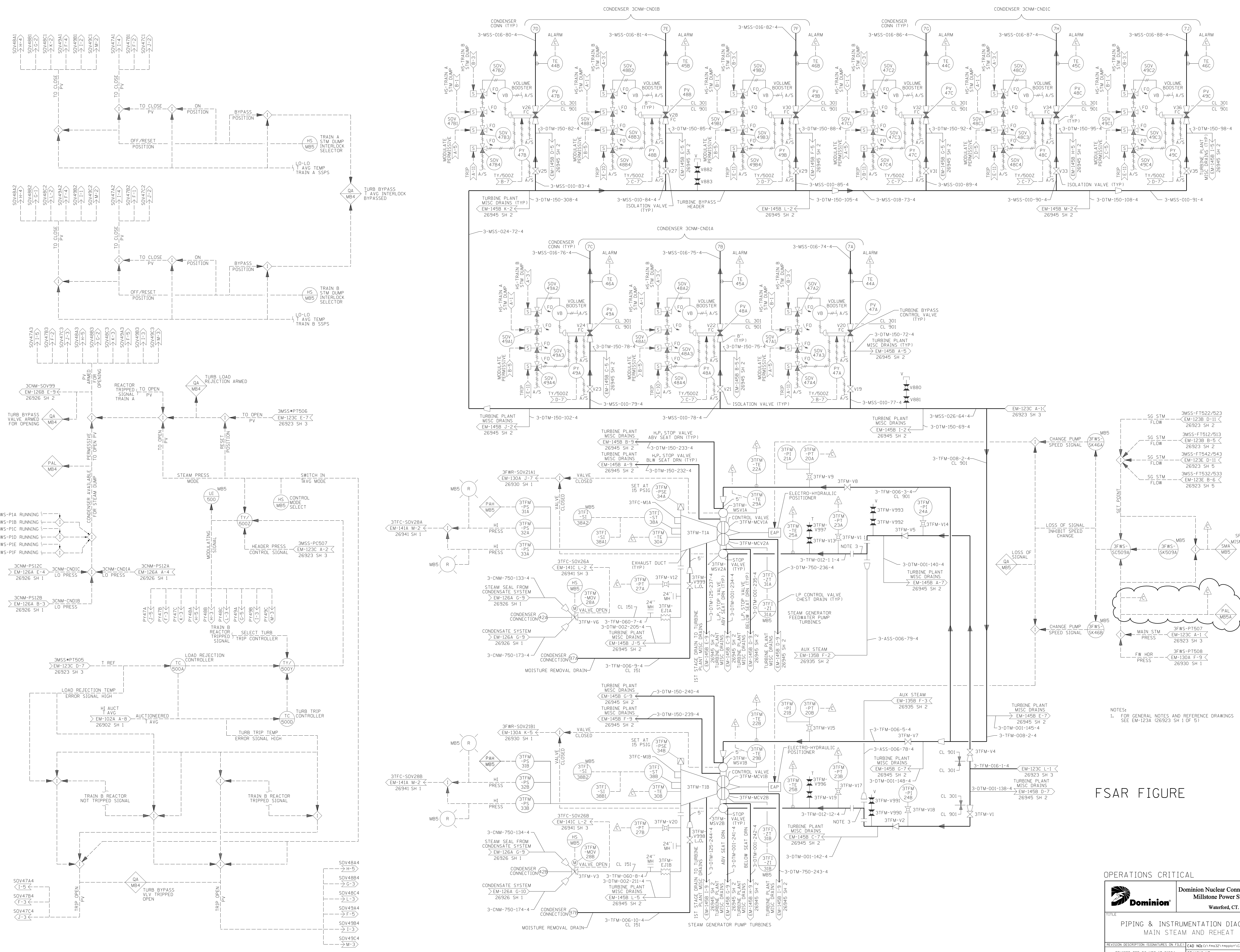


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-123A (26923 SH 1)

NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
		TITLE PIPING & INSTRUMENTATION DIAGRAM MAIN STEAM AND REHEAT	
REVISION DESCRIPTION REVISED PER DC MP3-14-01028 & DUR 14-800545	SIGNATURES ON FILE CAD NO: E:\ms32\mmp001\269235.dwg	DRAWING NO: 25212-26923	REV 25
DSGN EAL	SCALE: NONE	UNLESS OTHERWISE NOTED SH 5	



FSAR FIGURE

NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-123A (26923 SH 1 OF 5)

OPERATIONS CRITICAL

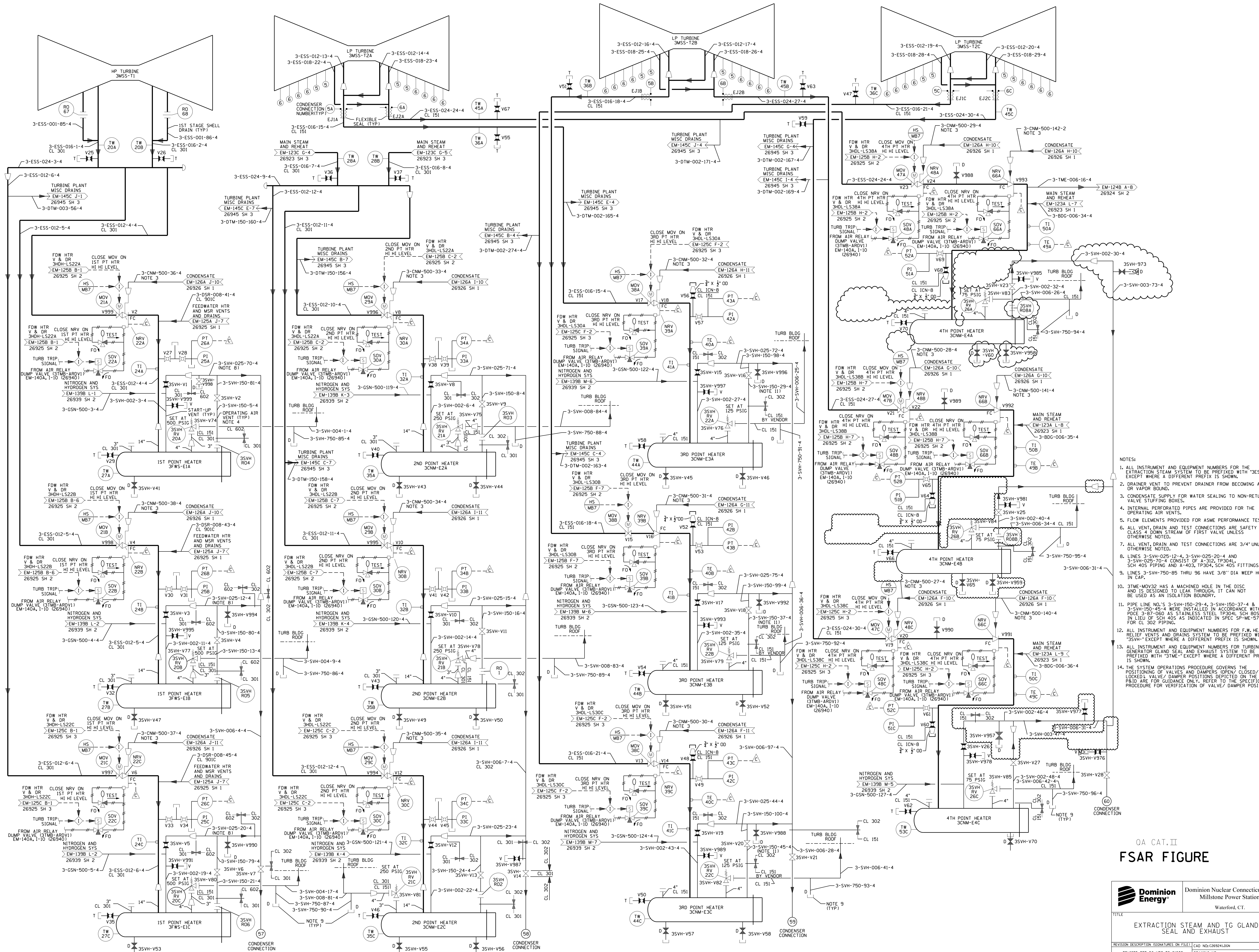
Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
MAIN STEAM AND REHEAT

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: E:\ms32\mnp001\c269236.dgn
 REVISED PER DC MP3-17-01034 & DCR 17-000466 DRAWING NO: 25212-26923 REV 10

DSGN J.S.J. SCALE: NONE UNLESS OTHERWISE NOTED SH 6

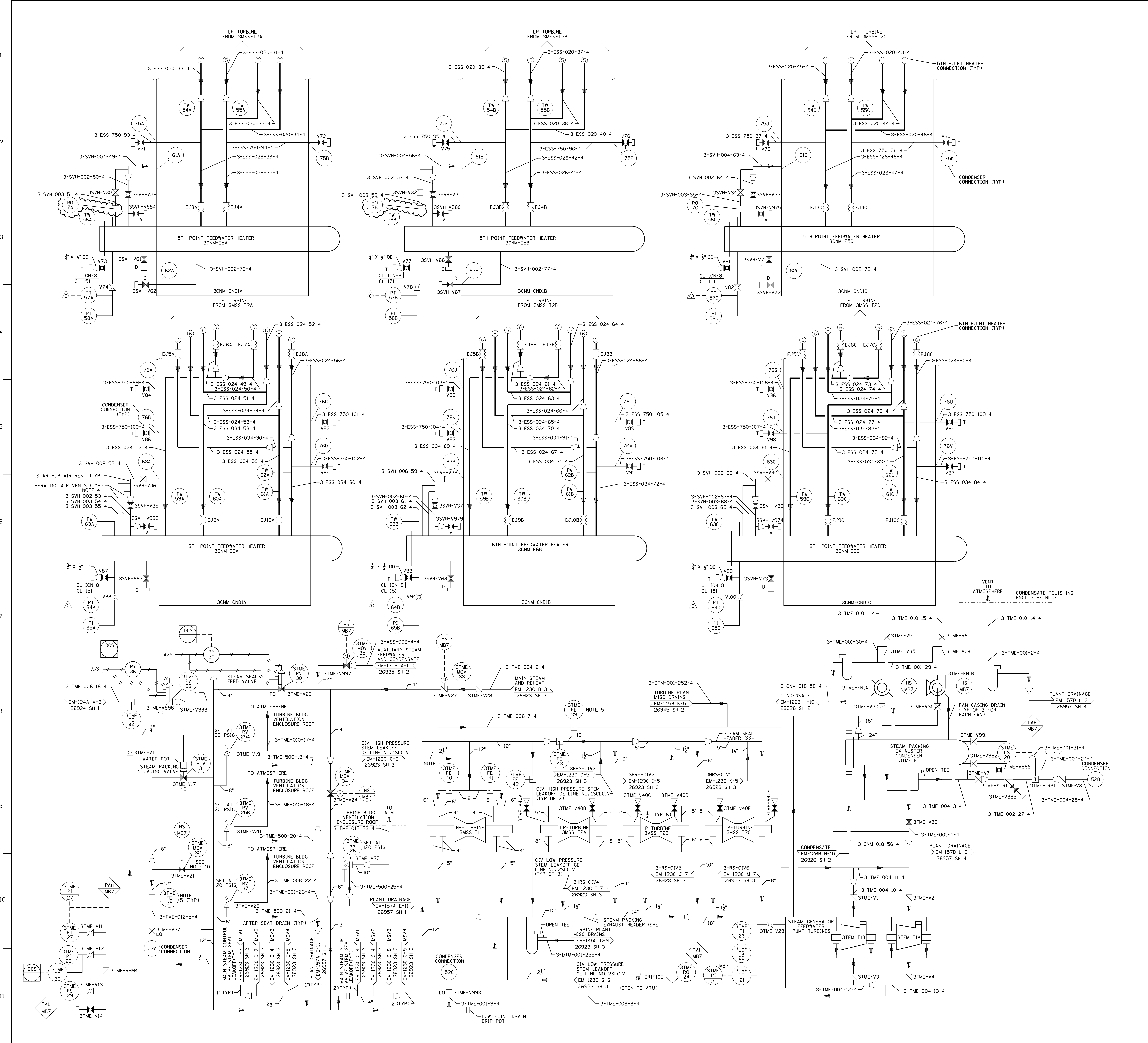
S&W DWG. NO.12179-EM-123F



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR THE EXTRACTION STEAM SYSTEM TO BE PREFIXED WITH "3ESS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. DRAINER VENT TO PREVENT DRAINER FROM BECOMING AIR DR VAPOR BOUND.
 3. CONDENSATE SUPPLY FOR WATER SEALING TO NON-RETURN VALVE STUFFING BOXES.
 4. INTERNAL PERFORATED PIPES ARE PROVIDED FOR THE OPERATING AIR VENTS.
 5. FLOW ELEMENTS PROVIDED FOR ASME PERFORMANCE TEST.
 6. ALL VENT, DRAIN AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 7. ALL VENT, DRAIN AND TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 8. LINES 3-SVH-025-12-4, 3-SVH-025-20-4 AND 3-SVH-025-70-4 CONSIST OF A-312, TP304, SCH 40S PIPING AND 4-403, TP304, SCH 40S FITTINGS.
 9. LINES 3-SVH-750-85 THRU 96 HAVE 3/8" DIA WEEP HOLE IN CAP.
 10. 3TME-MOV32 HAS A MACHINED HOLE IN THE DISC AND IS DESIGNED TO LEAK THROUGH. IT CAN NOT BE USED AS AN ISOLATION BOUNDARY.
 11. PIPE LINE NO.'S 3-SVH-150-29-4, 3-SVH-150-37-4 & 3-SVH-150-45-4 WERE INSTALLED IN ACCORDANCE WITH POCE 3-87-060 AS STAINLESS STEEL TP304 SCH 80S IN LIEU OF SCH 40S AS INDICATED IN SPEC SF-ME-52 FOR CL 302 PIPING.
 12. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR F.W. HEATER RELIEF VENTS AND DRAINS SYSTEM TO BE PREFIXED WITH "3SVH-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 13. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE GENERATOR GLAND SEAL AND EXHAUST SYSTEM TO BE PREFIXED WITH "3TME-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 14. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

QA CAT. II
FSAR FIGURE

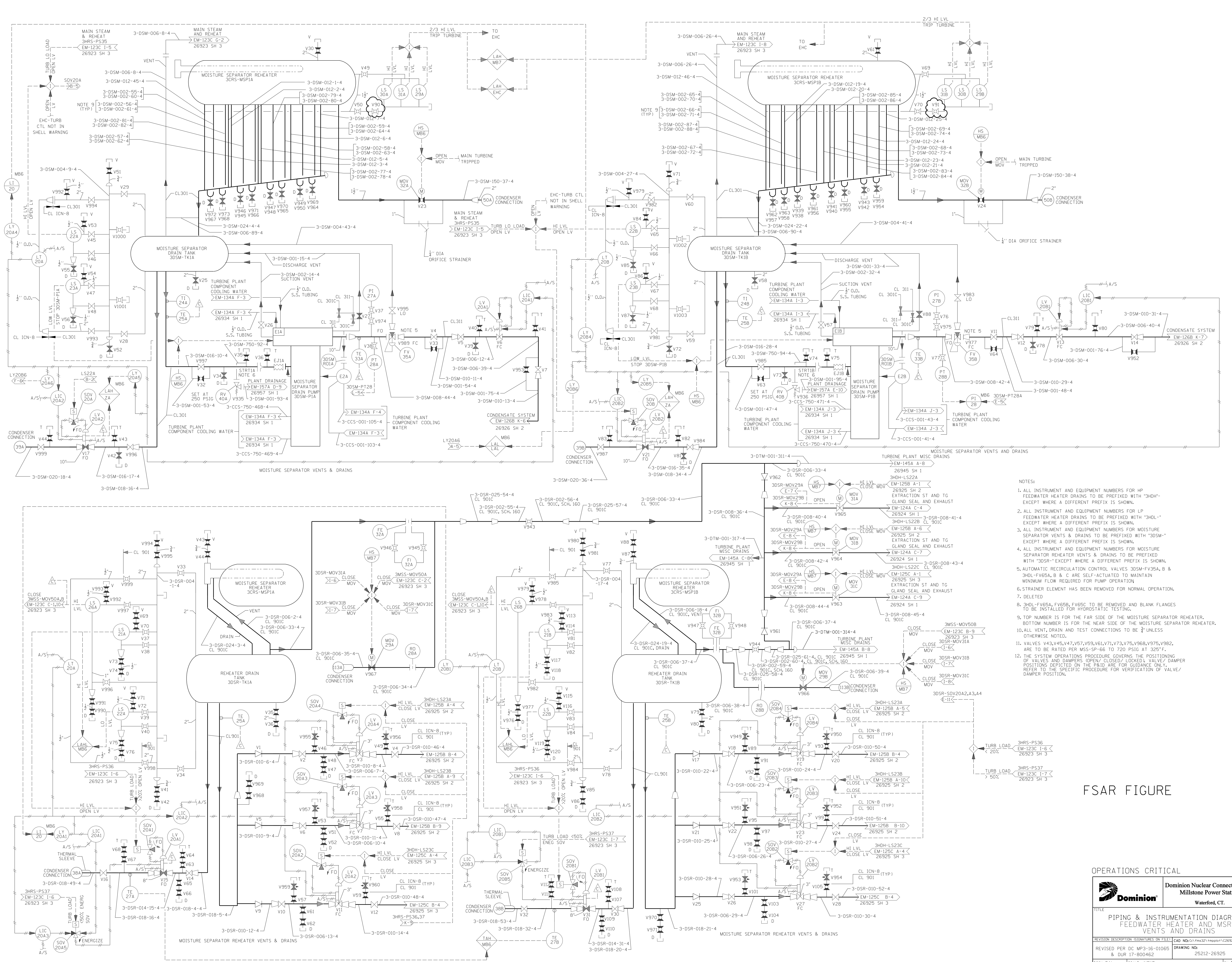
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE EXTRACTION STEAM AND TO GLAND SEAL AND EXHAUST			
REVISION DESCRIPTION DC MP3-18-0190 AND DUR 22-00126	SIGNATURES ON FILE CAD NO: 1269241.GDN DRAWING NO: 25212-26924	DATE 25/12/2024	REV 22
DSGN DWJ		SCALE: NONE UNLESS OTHERWISE NOTED SH 1	



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-1244 (26924 SHEET 1)

FSAR FIGURE

OPERATIONS CRITICAL	
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE: MILLSTONE POWER STATION UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM EXTRACTION STEAM AND TG GLAND SEAL AND EXHAUST	
REVISION DESCRIPTION	SIGNATURES ON FILE
DESIGN DWG	SCALE: NONE
UNLESS OTHERWISE NOTED	SH 2
REV 17	25212-26924



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR HP FEEDWATER HEATER DRAINS TO BE PREFIXED WITH "3HDH-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR LP FEEDWATER HEATER DRAINS TO BE PREFIXED WITH "3HDL-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR MOISTURE SEPARATOR VENTS & DRAINS TO BE PREFIXED WITH "3DSM-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 4. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR MOISTURE SEPARATOR REHEATER VENTS & DRAINS TO BE PREFIXED WITH "3DSR-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 5. AUTOMATIC RECIRCULATION CONTROL VALVES 3DSM-FV35A, B & 3HDH-FV65A, B & C ARE SELF-ACTUATED TO MAINTAIN MINIMUM FLOW REQUIRED FOR PUMP OPERATION.
 6. STRAINER ELEMENT HAS BEEN REMOVED FOR NORMAL OPERATION.
 7. DELETED.
 8. 3HDH-FV65A, FV65B, FV65C TO BE REMOVED AND BLANK FLANGES TO BE INSTALLED FOR HYDROSTATIC TESTING.
 9. TOP NUMBER IS FOR THE FAR SIDE OF THE MOISTURE SEPARATOR REHEATER, BOTTOM NUMBER IS FOR THE NEAR SIDE OF THE MOISTURE SEPARATOR REHEATER.
 10. ALL VENT, DRAIN AND TIE CONNECTIONS TO BE 3/2" UNLESS OTHERWISE NOTED.
 11. VALVES V43, V45, V47, V59, V61, V71, V73, V75, V68, V975, V982, ARE TO BE RATED PER MSS-SP-66 TO 720 PSIG AT 325°F.
 12. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN, CLOSE, LOCKED, VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

FSAR FIGURE

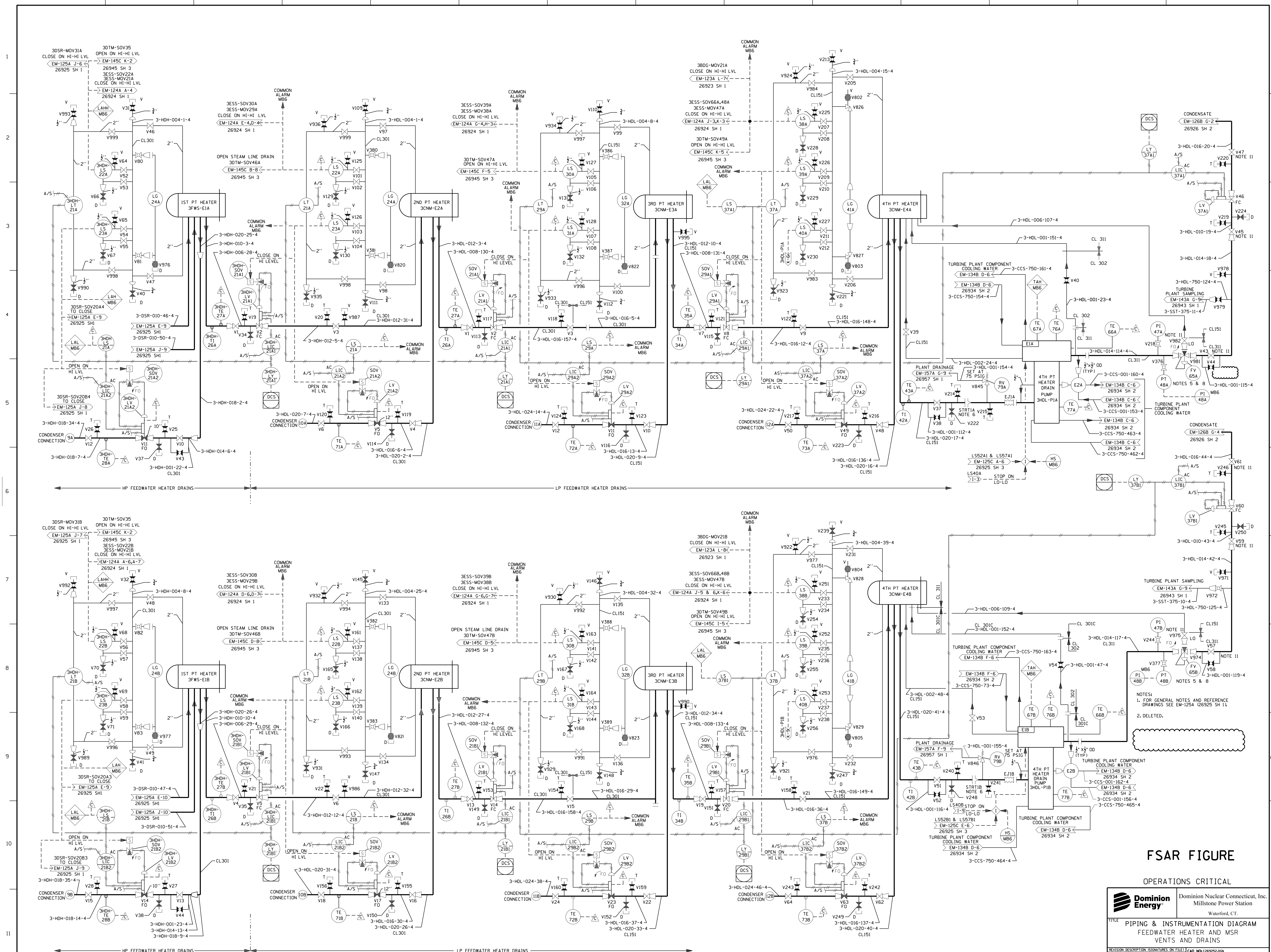
OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
FEEDWATER HEATER AND MSR
VENTS AND DRAINS

REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO:	REV
REVISED PER DC MP3-16-01065 & DWR 17-800462		25212-26925	35

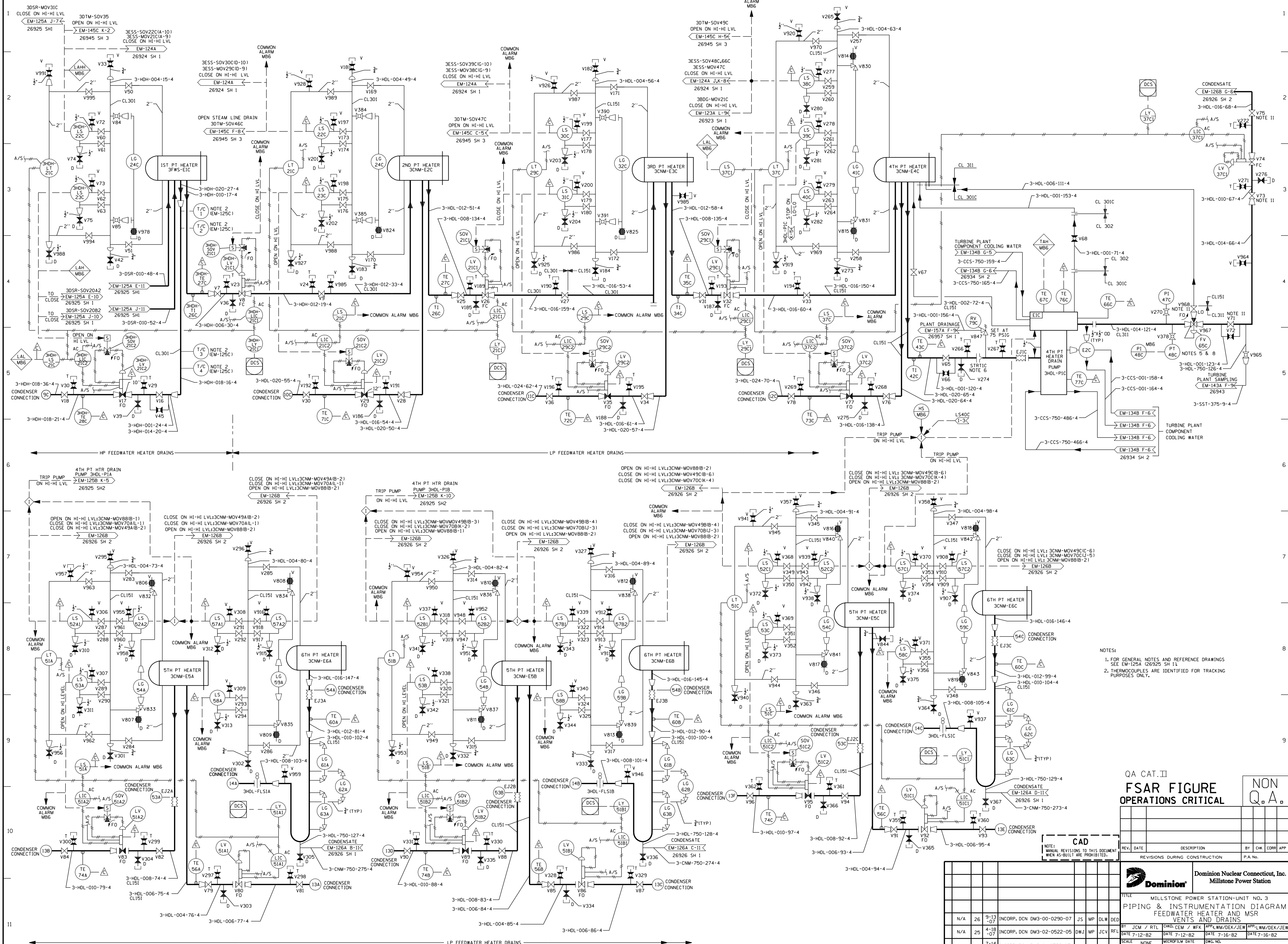
DSM EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 1



FSAR FIGURE

OPERATIONS CRITICAL

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
	TITLE PIPING & INSTRUMENTATION DIAGRAM FEEDWATER HEATER AND MSR VENTS AND DRAINS	
REVISION DESCRIPTION REVISED PER EC MP3-20-0103 AND DUR 20-000239	DRAWING NO. 2512-26925	REV 29
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 2



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-125A (26925 SH 1)
 2. THERMOCOUPLES ARE IDENTIFIED FOR TRACKING PURPOSES ONLY.

QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

CAD

REV. DATE	DESCRIPTION	BY	CHK	CORR	APP

DESIGN: SHERMAN, FORTINE

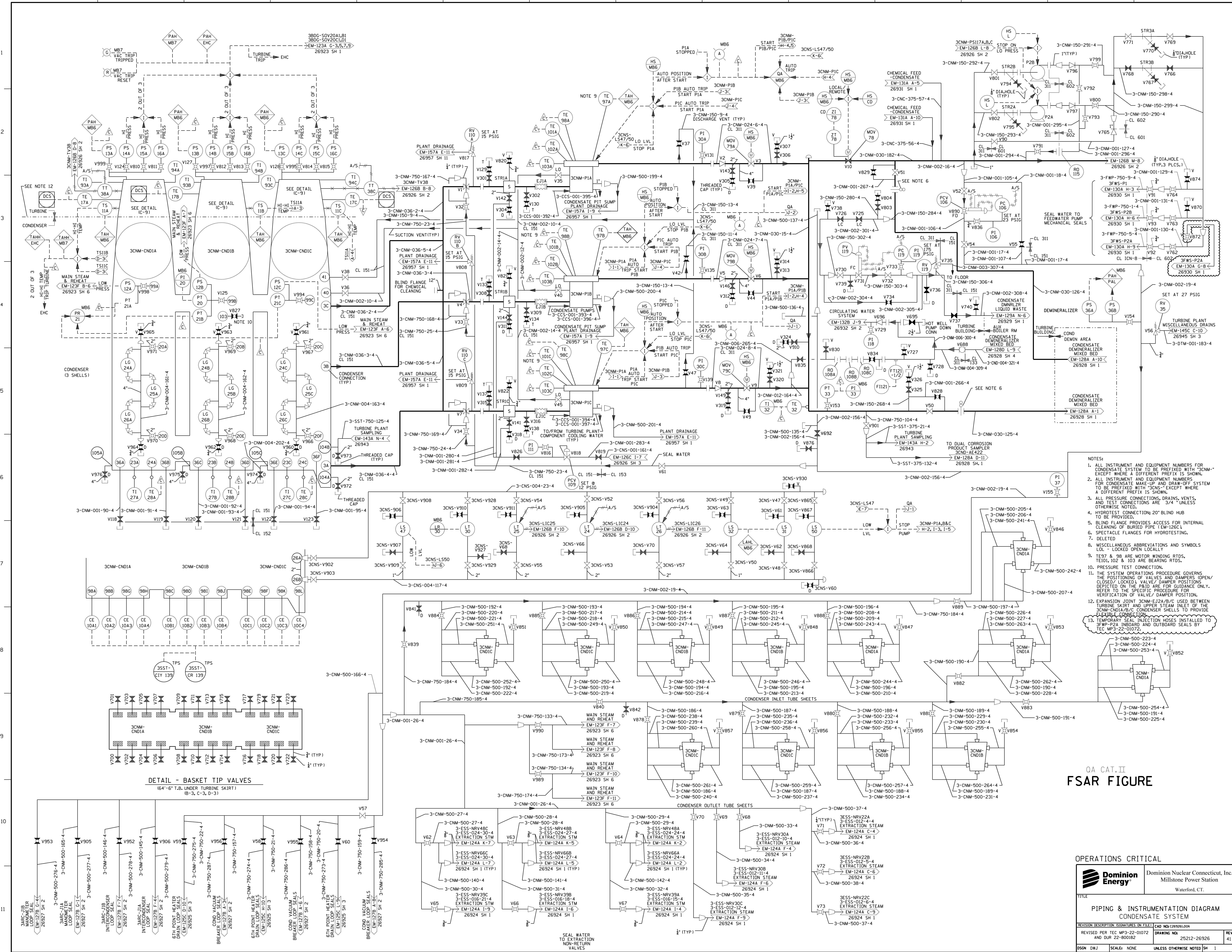
NON Q.A.

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 FEEDWATER HEATER AND MSR
 VENTS AND DRAINS

BY: JCM / RTL
 DATE: 7-12-82
 SCALE: NONE
 MICROFILM DATE: 7-16-82
 DWG. NO.: 2512-26925 SH 3

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONDENSATE SYSTEM TO BE PREFIXED WITH "3CNM" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONDENSATE MAKE-UP AND DRAW-OFF SYSTEM TO BE PREFIXED WITH "3CNS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. ALL PRESSURE CONNECTIONS, DRAINS, VENTS, AND TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 4. HYDROTEST CONNECTION; 20" BLIND HUB TO BE PROVIDED.
 5. BLIND FLANGE PROVIDES ACCESS FOR INTERNAL CLEANING OF BURIED PIPE (EM-126C).
 6. SPECTACLE FLANGES FOR HYDROTESTING.
 7. DELETED.
 8. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - LOL - LOCKED OPEN LOCALLY
 - TS97 & 98 ARE MOTOR WINDING RTDS.
 - TE101, 102 & 103 ARE BEARING RTDS.
 9. PRESSURE TEST CONNECTION.
 10. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE DAMPER POSITION.
 11. EXPANSION JOINT 3CNM-EJ2A/B/C USED BETWEEN TURBINE SKIRT AND UPPER STEAM INLET OF THE 3CNM-CNDIA/B/C CONDENSER SHELLS TO PROVIDE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE DAMPER POSITION.
 12. TEMPORARY SEAL INJECTION ROSES INSTALLED TO 3-FWP-P2A INBOARD AND OUTBOARD SEALS BY TEC MP3-22-01072.

DETAIL - BASKET TIP VALVES
(64"-6" T.B. UNDER TURBINE SKIRT)
(B-3, C-3, D-3)

QA CAT. II
FSAR FIGURE

OPERATIONS CRITICAL

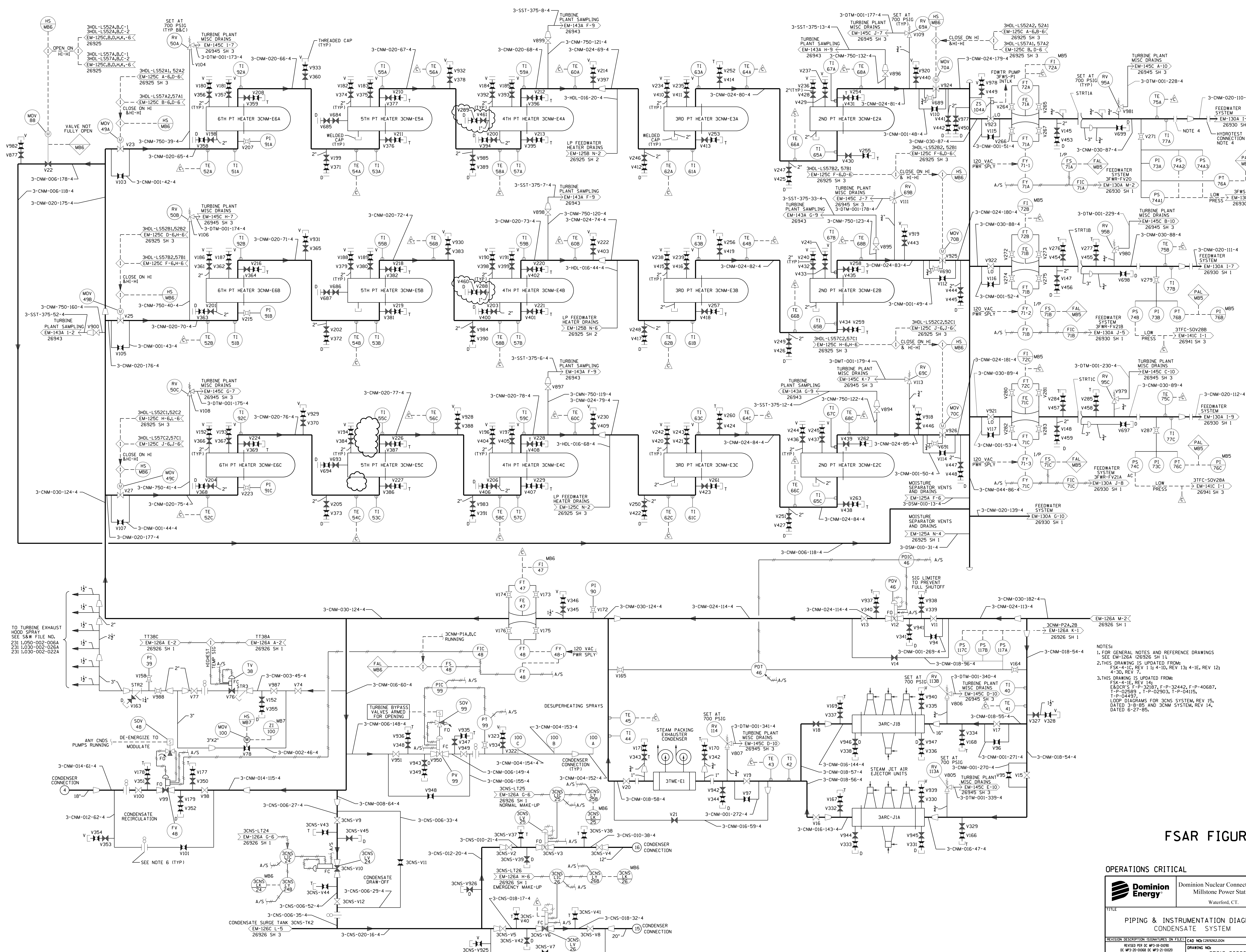
Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE: PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE SYSTEM

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO. C2626100N

REVISED PER TEC MP3-22-01072 AND DUR 22-00182 DRAWING NO: 25212-26926 REV 41

DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 1



- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-126A (26926 SH 1)
 2. THIS DRAWING IS UPDATED FROM: FSK-4-11, REV 14; EDCR'S F-P-32187, F-P-32442, F-P-40687, T-P-02589, T-P-02903, T-P-04115, T-P-04497
 3. THIS DRAWING IS UPDATED FROM: LOOP DIAGRAMS FOR 3CNS SYSTEM, REV 15, DATED 2-8-95; AND 3CNM SYSTEM, REV 14, DATED 6-27-95.

FSAR FIGURE

OPERATIONS CRITICAL

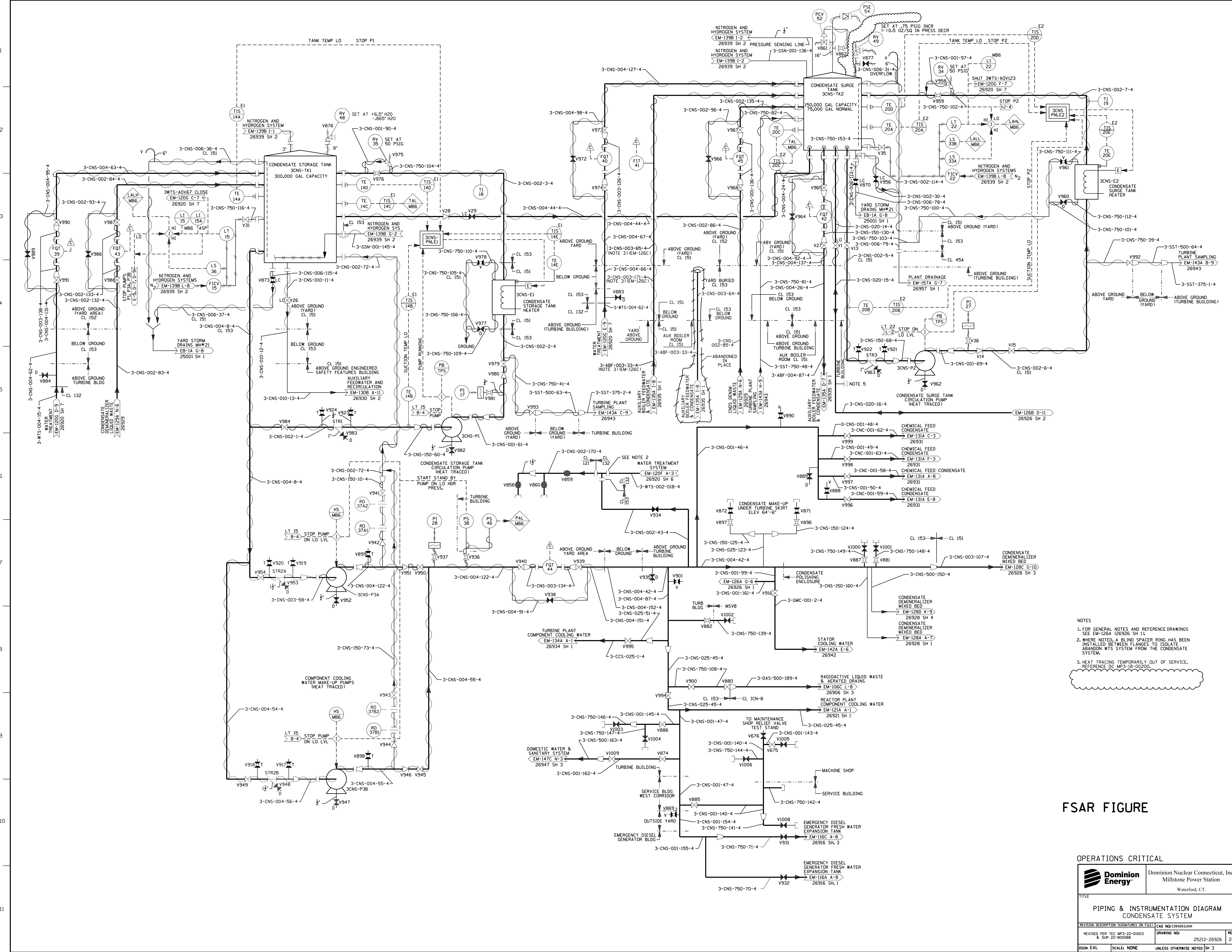
Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE: **PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE SYSTEM**

REVISION DESCRIPTION: SIGNATURES ON FILE | CAD NO: C26926.Z04

DC W-30-0106 DC W-31-0100 | DRAWING NO: 25212-26926 | REV 48

DC W-30-0106 DC W-31-0100 AND DFR 22-80026 | SCALE: NONE | UNLESS OTHERWISE NOTED SH 2



- NOTES
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-126A 26926 SH 1.
 - WHERE NOTED, A BLIND SPACER RING HAS BEEN INSTALLED BETWEEN FLANGES TO ISOLATE ABANDONED WTS SYSTEM FROM THE CONDENSATE SYSTEM.
 - HEAT TRACING TEMPORARILY OUT OF SERVICE. REFERENCE DC MP3-18-00200.

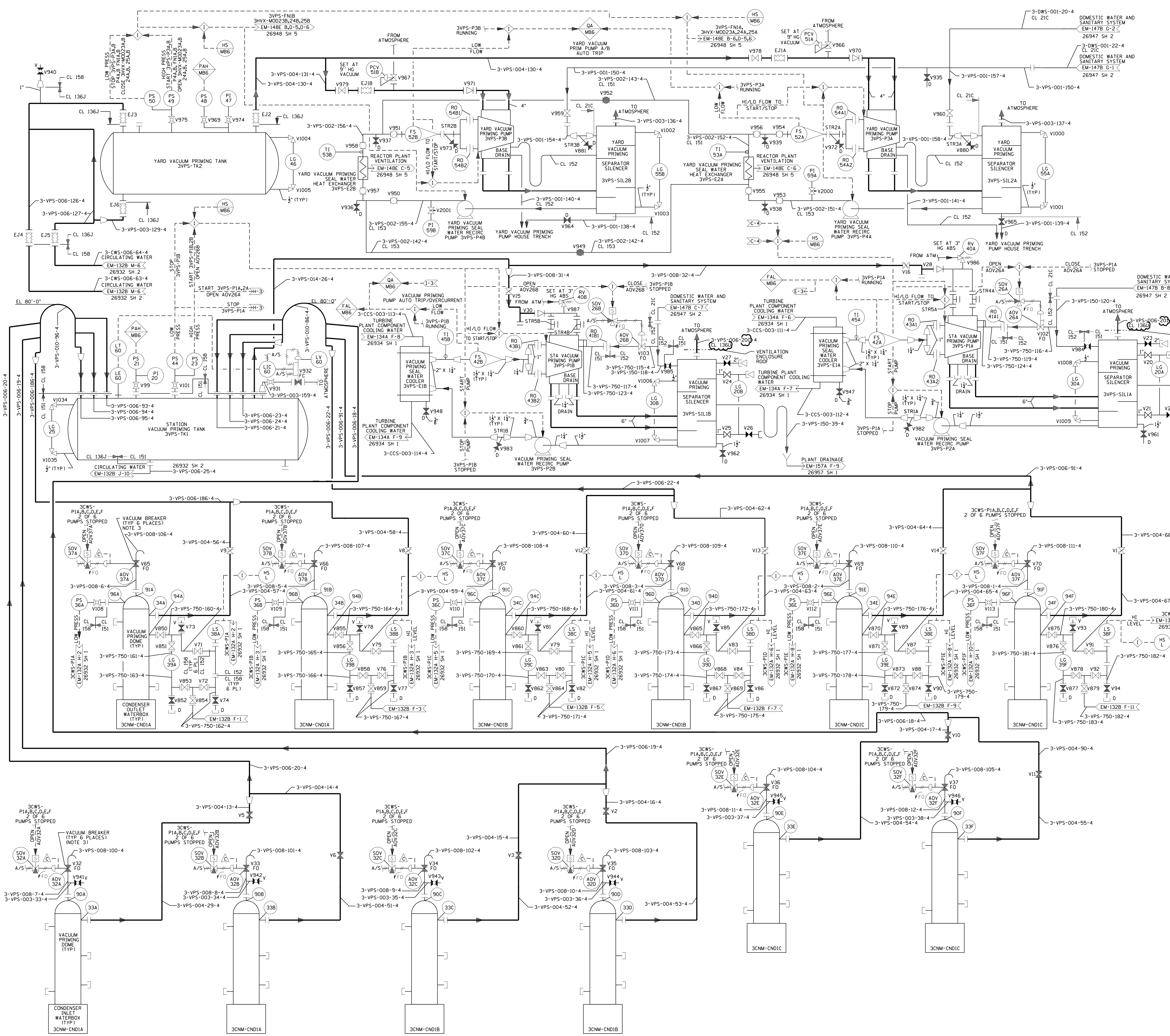
FSAR FIGURE

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
**PIPING & INSTRUMENTATION DIAGRAM
CONDENSATE SYSTEM**

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 628263.DWG
REVISED PER TEC MP3-22-01003 DRAWING NO: 25212-26926 REV 28
& DUR 22-800008
DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 3

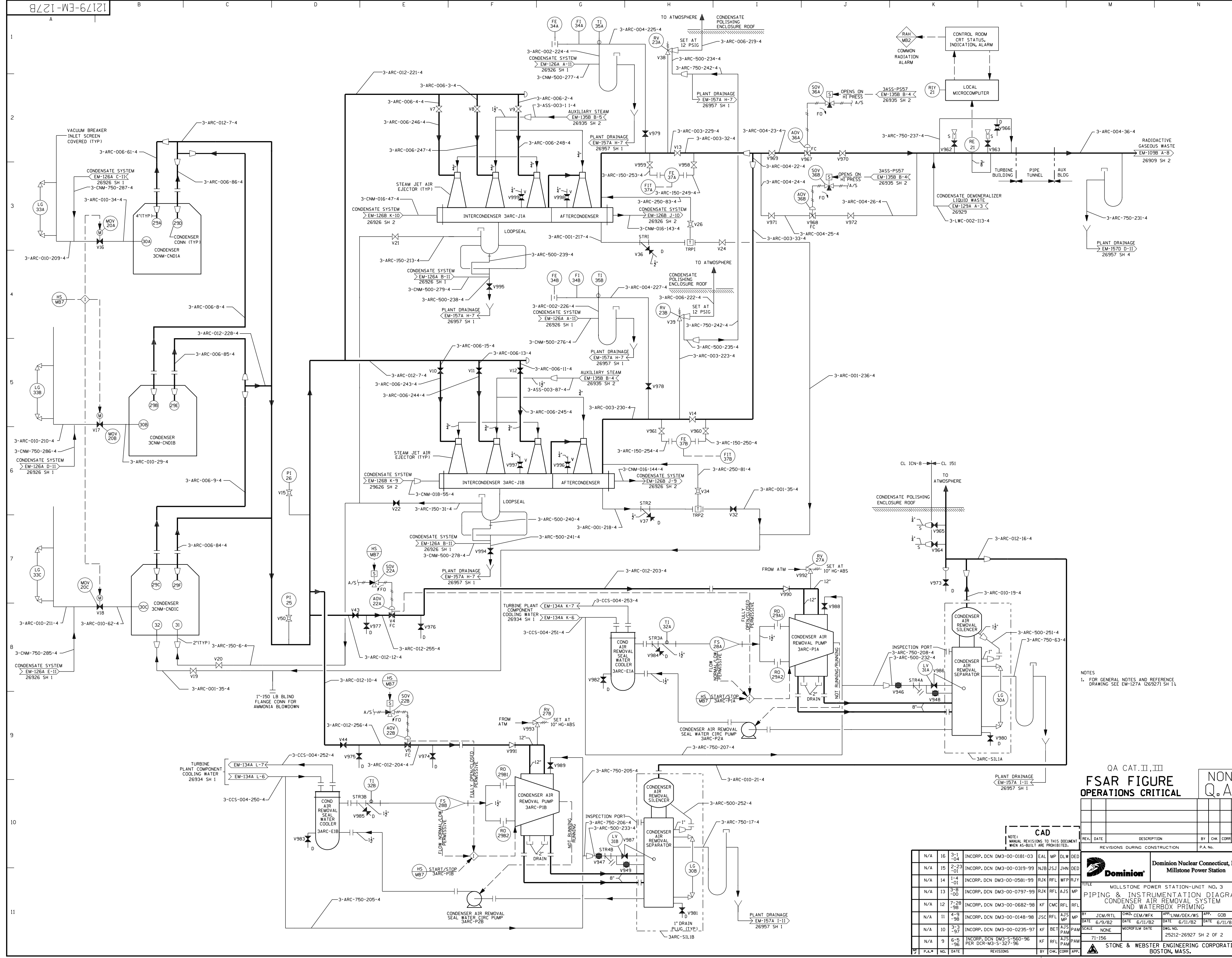


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR VACUUM PRIMING SYSTEM TO BE PREFIXED WITH "3VPS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENTATION AND EQUIPMENT NUMBERS FOR CONDENSER AIR REMOVAL SYSTEM TO BE PREFIXED WITH "SARC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. LOSS OF AIR: FAIL OPEN.
 4. LOSS OF POWER: FAIL OPEN.
 5. ALL LEVEL SWITCH PIPING IS 3/4".
 6. DELETED.
 7. ALL PIPING IS CL 151 UNLESS OTHERWISE NOTED.
 8. ALL VENT, DRAIN AND PRESSURE CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 9. SEAL WATER MAKEUP VALVES ARE LOCATED INSIDE 3VPS-SIL2A & 2B.
 10. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSE/LOCKED). VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING AND INSTRUMENTATION DIAGRAM CONDENSER AIR REMOVAL SYSTEM AND WATERBOX PRIMING			
REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 1269271.00N	DRAWING NO: 25212-26927	REV 26	REVISION PER DC MP3-18-01102 & DUR 19-800113
DSGN EAL	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1	S&W DWG. NO.12179-EM-127A



NOTES
 1. FOR GENERAL NOTES AND REFERENCE DRAWING SEE EM-127A (26927) SH 1.1

QA CAT. II, III
FSAR FIGURE
OPERATIONS CRITICAL

NON
 Q. A.

CAD						
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	16	3-1-04	INCORP. DCN DM3-00-0181-03	EAL	DLW	DED
N/A	15	2-23-01	INCORP. DCN DM3-00-0319-99	NJB	JSJ	JHN
N/A	14	1-4-01	INCORP. DCN DM3-00-0581-99	RJK	RFL	WFP
N/A	13	3-8-00	INCORP. DCN DM3-00-0797-99	RJK	RFL	AJS
N/A	12	7-28-98	INCORP. DCN DM3-00-0682-98	KF	CWC	RFL
N/A	11	4-8-98	INCORP. DCN DM3-00-0148-98	JSC	RFL	AJS
N/A	10	3-3-97	INCORP. DCN DM3-00-0235-97	KF	BE1	AJS
N/A	9	6-5-96	INCORP. DCN DM3-5-560-96 PER DCR-M3-S-327-96	KF	RFL	AJS

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
17	P.A.*	NL	DATE	REVISIONS	BY	CHK, CORR, APP.

APP.	DATE	APP.	DATE
EM-157A W/S	6/11/82	EM-157A W/S	6/11/82
EM-157A W/S	6/11/82	EM-157A W/S	6/11/82
EM-157A W/S	6/11/82	EM-157A W/S	6/11/82

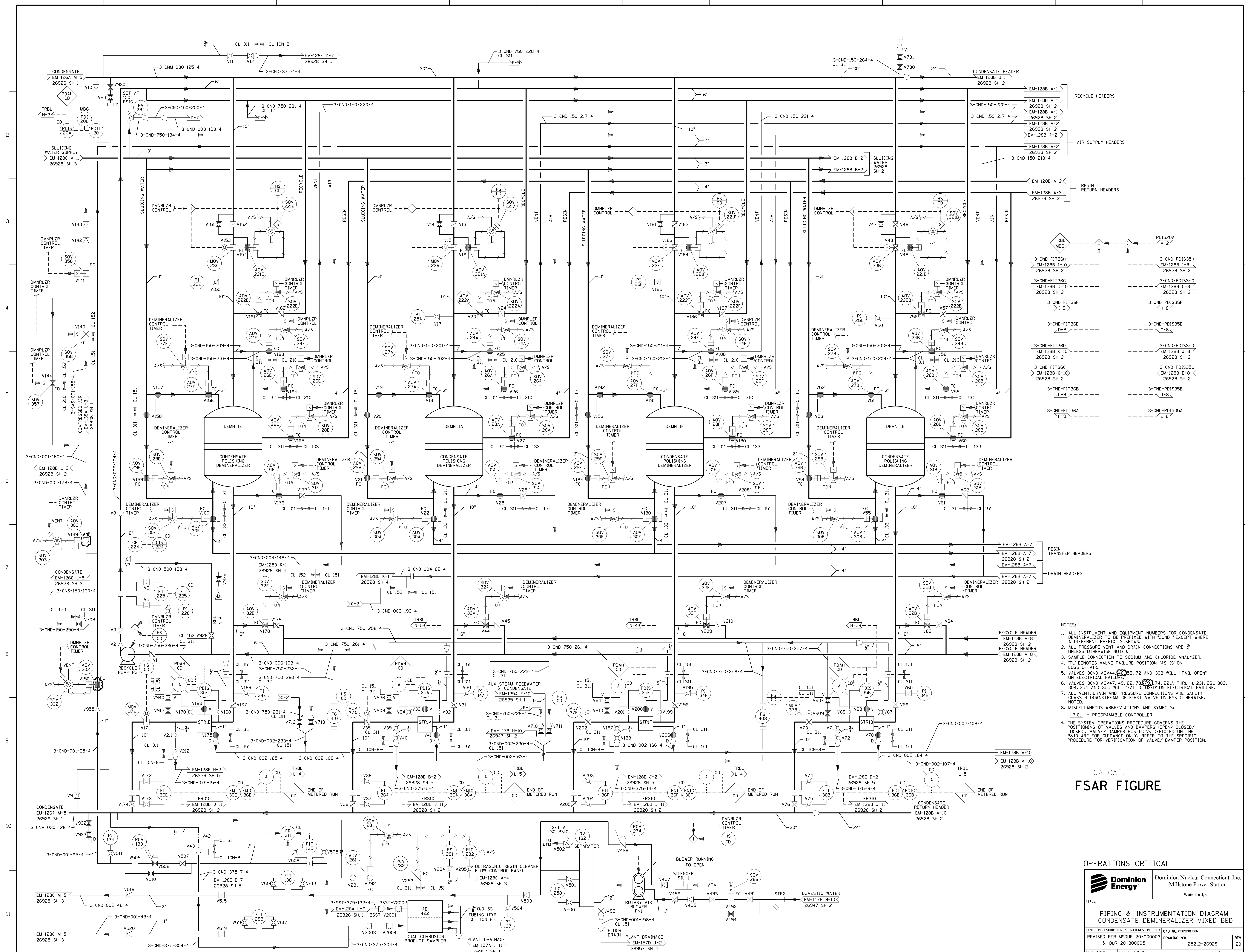
STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

S&W DWG. NO. 12179-EM-127B

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE
 MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 CONDENSER AIR REMOVAL SYSTEM
 AND WATERBOX PRIMING

DRW: CEM/WFK
 APP: LNM/DEK/W/S
 APP: GOB
 DATE: 6/9/82
 DATE: 6/11/82
 DATE: 6/11/82
 SCALE: NONE
 MICROFILM DATE: 71-156
 DWG. NO.: 25212-26927 SH 2 OF 2

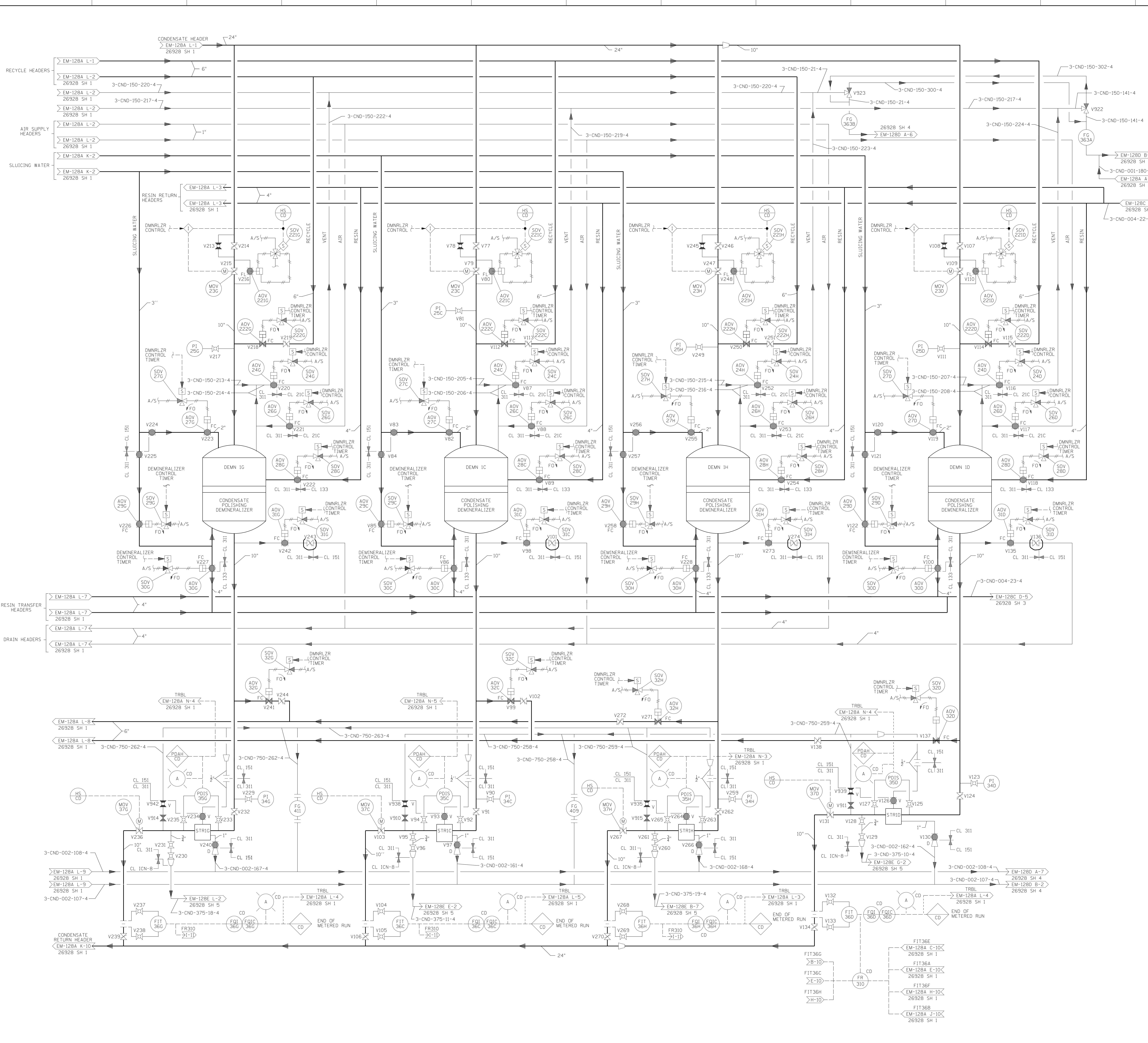


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONDENSATE DEMINERALIZER TO BE PREFIXED WITH "3CND" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL PRESSURE VENT AND DRAIN CONNECTIONS ARE 3" UNLESS OTHERWISE NOTED.
 3. SAMPLE CONNECTION TO SODIUM AND CHLORIDE ANALYZER.
 4. "F" DENOTES VALVE FAILURE POSITION "AS IS" ON LOSS OF AIR.
 5. VALVES 3CND-AV44, 445, 459, 72 AND 303 WILL "FAIL OPEN" ON ELECTRICAL FAILURE.
 6. VALVES 3CND-AV47, 49, 62, 76, 77, 74, 221A THRU H, 231, 261, 302, 304, 354 AND 355 WILL "FAIL CLOSED" ON ELECTRICAL FAILURE.
 7. ALL VENT, DRAIN AND PRESSURE CONNECTIONS ARE SAFETY CLASS 4 DOWNSTREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 8. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 [P.C.] - PROGRAMMABLE CONTROLLER
 9. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOADED). VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

QA CAT. II
FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM CONDENSATE DEMINERALIZER-MIXED BED			
REVISION DESCRIPTION & DUR. 20-800005	SIGNATURES ON FILE 25121-26928	CAD NO. 126928J04N	REV 20
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1	W.F. SHERMAN, P. FORTINE M.F. SHERMAN, P. FORTINE

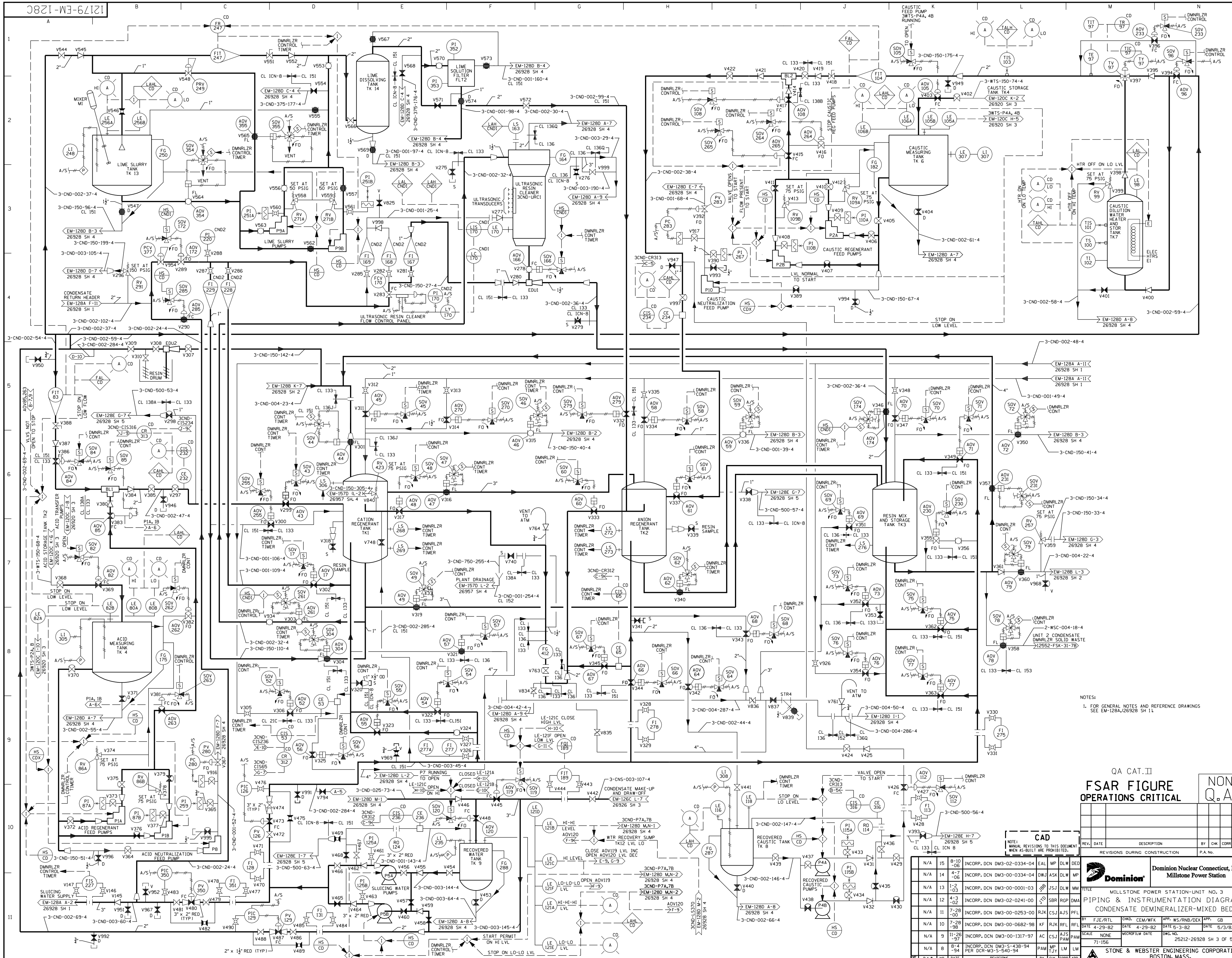


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-128A 126928 SH-11

QA CAT. II
 FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM CONDENSATE DEMINERALIZER-MIXED BED			
REVISION DESCRIPTION & DUR 15-800071	SIGNATURES ON FILE CAD NO: 15-000016 DRAWING NO: 25212-26928	REVISION NO: 11	REV 11
DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 2			



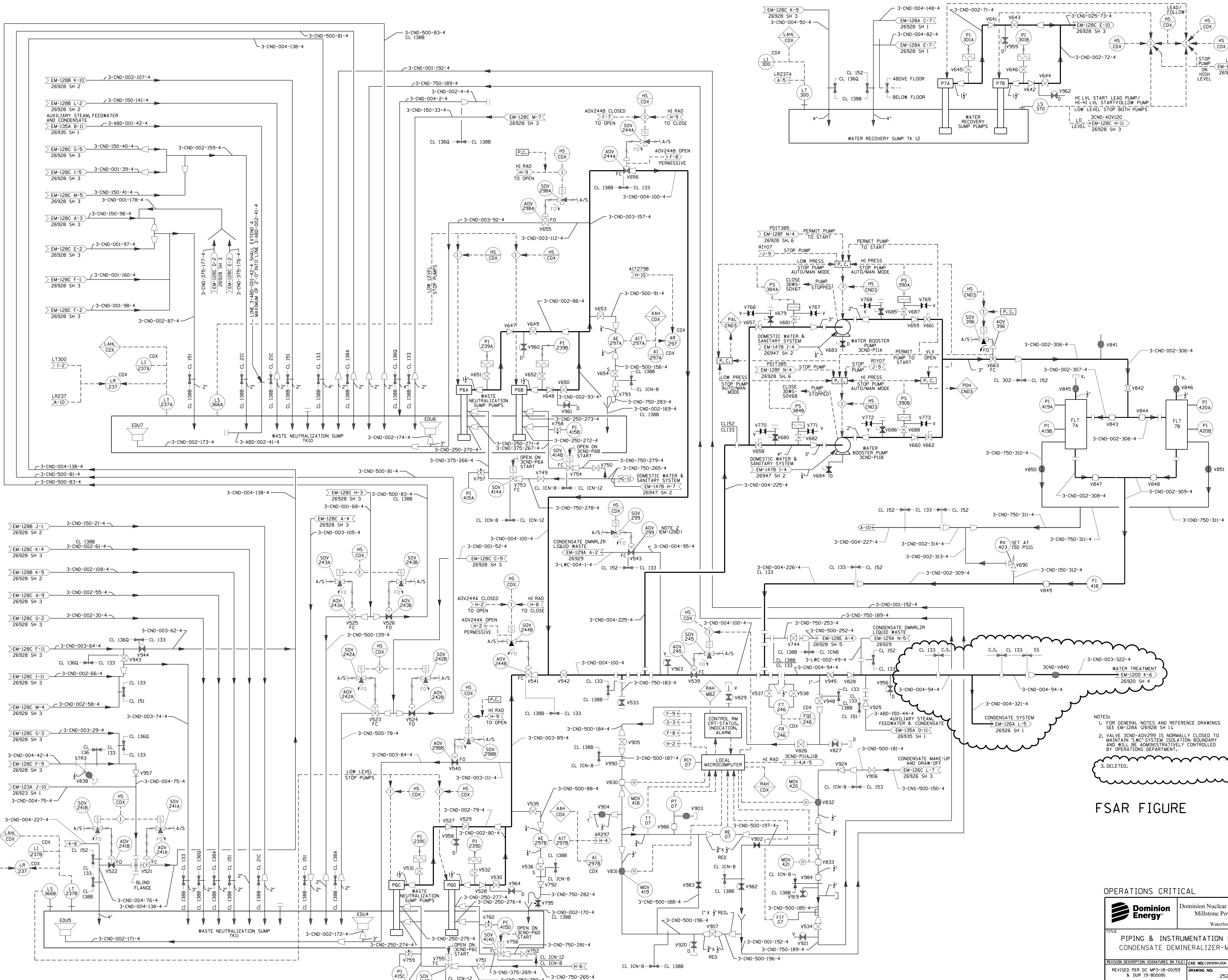
NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-128A/26928 SH 11

QA CAT. II
FSAR FIGURE OPERATIONS CRITICAL

NON	Q	A
-----	---	---

REV. NO.	DATE	DESCRIPTION	BY	CHK	APP
1	8-10-06	INCORP. DCN DM3-02-0334-04	EAL	MP	DW
2	4-7-06	INCORP. DCN DM3-00-0334-04	DJU	ASK	DW
3	1-2-03	INCORP. DCN DM3-00-0001-03	USJ	DLW	MM
4	4-3-02	INCORP. DCN DM3-02-0241-00	SBR	RGP	DMA
5	7-28-00	INCORP. DCN DM3-00-0253-00	RJK	ASJ	PFL
6	4-29-82	DATE 4-29-82	DATE 4-29-82	DATE 5-3-82	DATE 5/3/82
7	11-26-97	INCORP. DCN DM3-00-0682-98	CF	ASJ	PAM
8	8-4-94	INCORP. DCN DM3-00-1317-97	AC	ASJ	PAM
9	7-15-96	INCORP. DCN DM3-5-438-94	PAM	MP	TJ
10	8-4-94	PER DCR-M3-5-540-94	PAM	MP	TJ

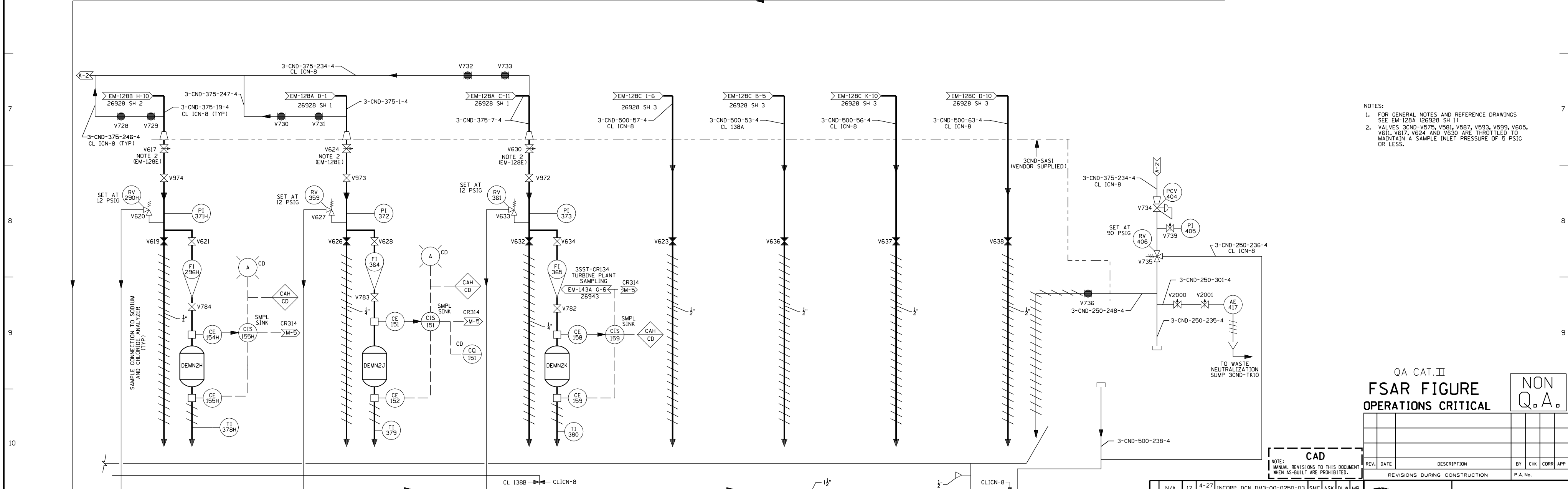
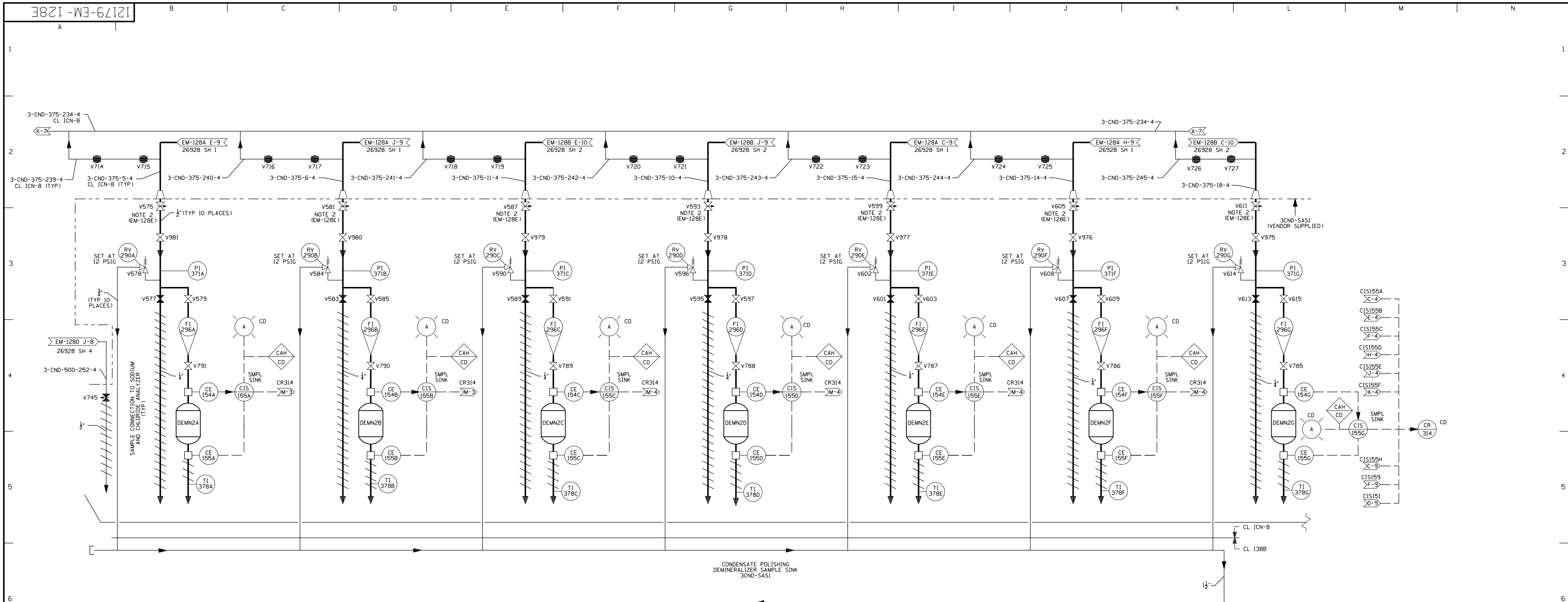
STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-128A (26928 SH 11)
 2. VALVE 3CND-ADV299 IS NORMALLY CLOSED TO MAINTAIN "LWC" SYSTEM ISOLATION BOUNDARY AND WILL BE ADMINISTRATIVELY CONTROLLED BY OPERATIONS DEPARTMENT.
 3. DELETED.

FSAR FIGURE

OPERATIONS CRITICAL	
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE PIPING & INSTRUMENTATION DIAGRAM CONDENSATE DEMINERALIZER-MIXED BED	
REVISION DESCRIPTION (SIGNATURES ON FILE)	CAD NO: 126928A.DGN
REVISED PER DC MP-3-18-00159 & DUR 19-000801	DRAWING NO: 25212-26928
DSGN MKN	SCALE: NONE UNLESS OTHERWISE NOTED SH 4
	REV 27



- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-128A (26928 SH 1)
 - VALVES 3CND-V575, V581, V587, V593, V599, V605, V611, V617, V624 AND V630 ARE THROTTLED TO MAINTAIN A SAMPLE INLET PRESSURE OF 5 PSIG OR LESS.

QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

NON
 Q.A.

NO.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

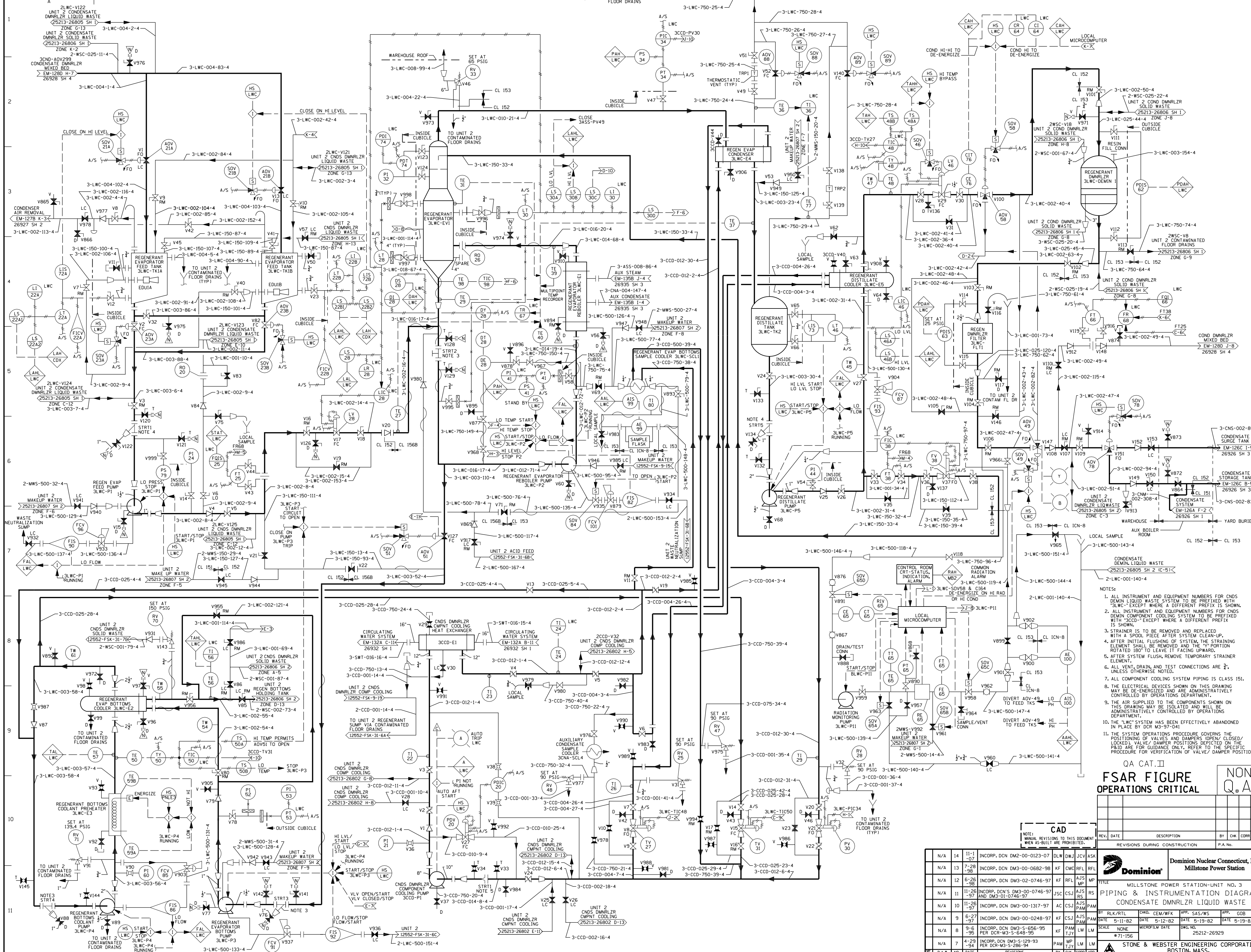
N/A	NO.	DATE	REVISIONS	BY	CHK	CORR	APP
N/A	12	4-27-06	INCRP. DCN DM3-00-0250-03	SMC	ASK	DLW	MP
N/A	11	4-10-01	INCRP. DCN DM3-00-0066-00	RFL	RJK	DLW	MP
N/A	10	7-13-00	INCRP. DCN DM3-5-0609-96	RJK	AR	AJS	RFL
N/A	9	7-29-98	INCRP. DCN DM3-00-0682-98	KF	CMC	RFL	RFL
N/A	8	1-17-96	INCRP. DCN DM3-5-905-95 PER DCR-M3-5-029-96	PAM	BET	TJY	LM
N/A	7	2-21-95	INCRP. DCN DM3-5-261-93 PER DCR-M3-5-156-95	PAM	MP	TJY	LM
N/A	6	12-13-93	INCRP. DCN DM3-5-491-93 PER DCR-M3-5-2588-93	KF	PAM	MP	MP
N/A	5	5-30-90	AS-BUILT PER DCR-M3-5-472-90	RFW	ASK	REB	REB

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 CONDENSATE DEMINERALIZER-MIXED BED

BY: FJE/RTL
 DATE: 4-29-82
 SCALE: NONE
 MICROFILM DATE: 71-156
 Dwg. No.: 25212-26928 SH 5 OF 5

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



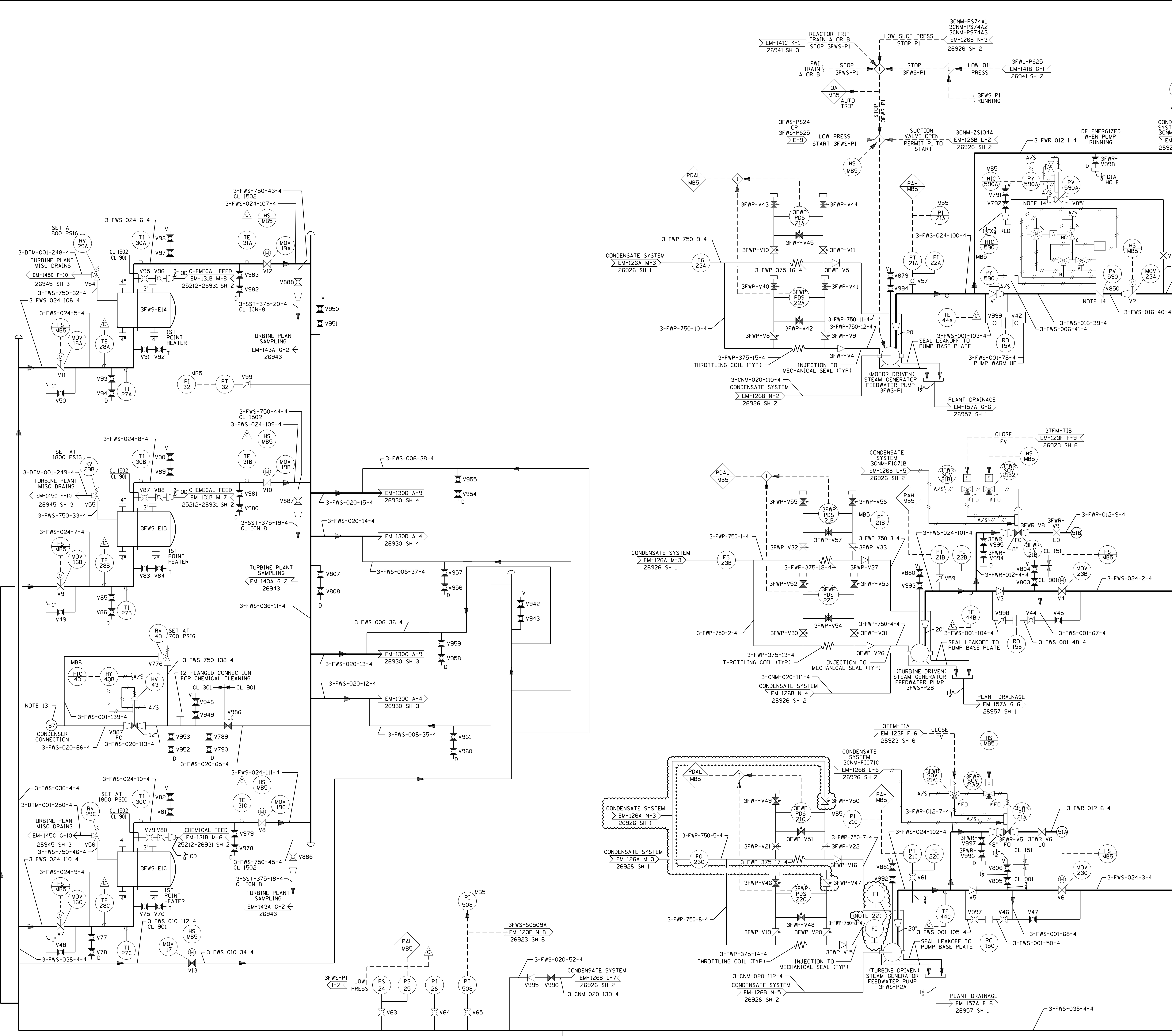
- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CNDS DEMIN LIQUID WASTE SYSTEM TO BE PREFIXED WITH "3LWC-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CNDS DEMIN COMPONENT COOLING SYSTEM TO BE PREFIXED WITH "3CCD-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. STRAINER IS TO BE REMOVED AND REPLACED WITH A SPOOL PIECE AFTER SYSTEM CLEAN-UP.
 4. AFTER INITIAL FLUSHING OF SYSTEM, THE STRAINING ELEMENT SHALL BE REMOVED AND THE "Y" PORTION ROTATED 180° TO LEAVE IT FACING UPWARD.
 5. AFTER SYSTEM FLUSH, REMOVE TEMPORARY STRAINER ELEMENT.
 6. ALL VENT, DRAIN, AND TEST CONNECTIONS ARE $\frac{1}{2}$, UNLESS OTHERWISE NOTED.
 7. ALL COMPONENT COOLING SYSTEM PIPING IS CLASS 151.
 8. THE ELECTRICAL DEVICES SHOWN ON THIS DRAWING MAY BE DE-ENERGIZED AND ARE ADMINISTRATIVELY CONTROLLED BY OPERATIONS DEPARTMENT.
 9. THE AIR SUPPLIED TO THE COMPONENTS SHOWN ON THIS DRAWING MAY BE ISOLATED AND WILL BE ADMINISTRATIVELY CONTROLLED BY OPERATIONS DEPARTMENT.
 10. THE "LWC" SYSTEM HAS BEEN EFFECTIVELY ABANDONED IN PLACE BY DCR M3-97-041.
 11. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

FSAR CAT. II
OPERATIONS CRITICAL

NON	QA
-----	----

REVISIONS DURING CONSTRUCTION	P.A. No.				
REV. DATE	DESCRIPTION	BY	CHK	CORR	APP

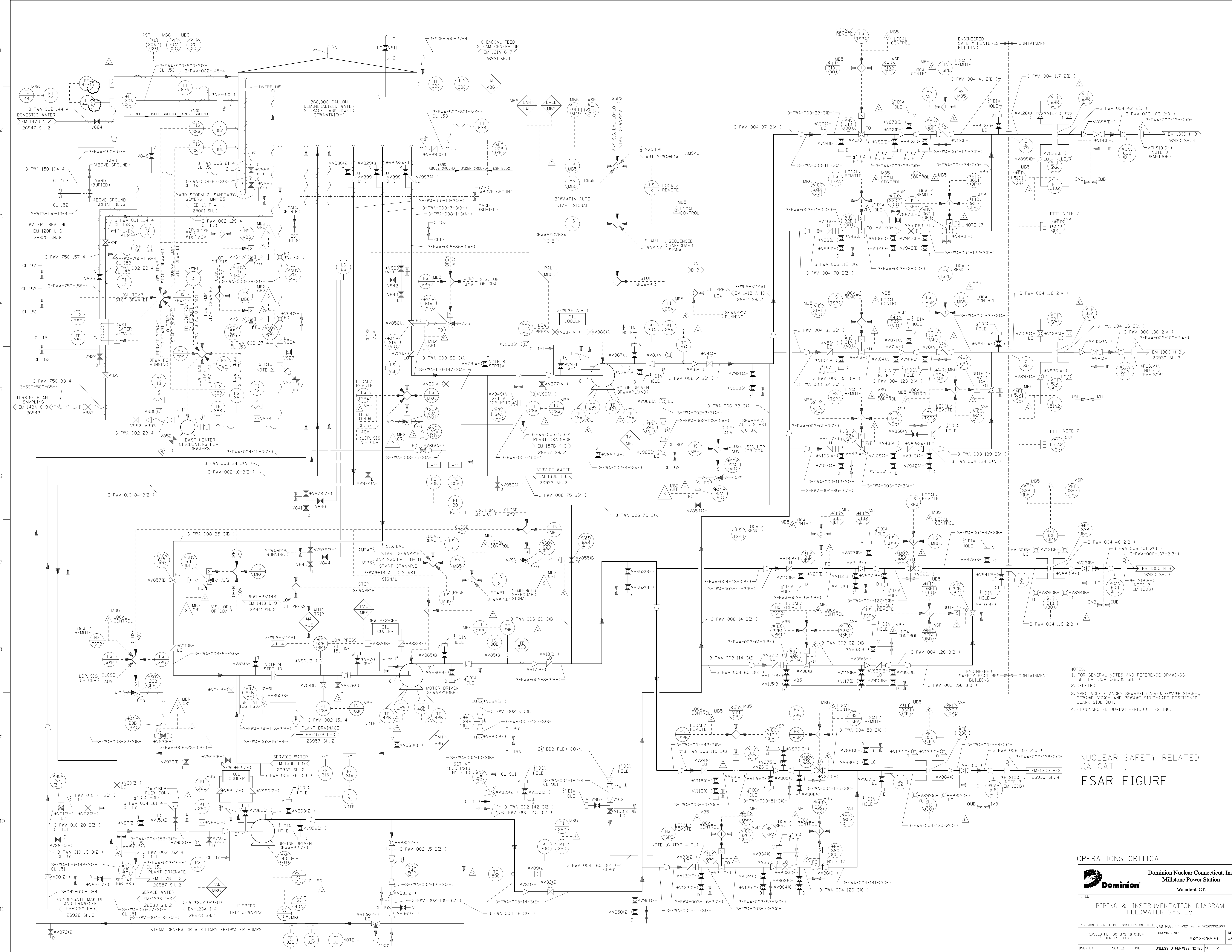
N/A	14	11-1-07	INCRP. DCM DM2-00-0123-07	DLW	DWJ	JCV	ASK
N/A	13	7-28-98	INCRP. DCM DM3-00-0682-98	KF	CMG	RFL	RFK
N/A	12	6-26-98	INCRP. DCM DM3-02-0746-97	RF	BJL	AJS	MP
N/A	11	11-26-97	INCRP. DCM DM3-00-0746-97	JSC	CSJ	AJS	RS
N/A	10	11-26-97	INCRP. DCM DM3-00-1317-97	AC	CSJ	AJS	PAM
N/A	9	6-27-96	INCRP. DCM DM3-0-0248-97	KF	CSJ	AJS	PAM
N/A	8	9-6-96	INCRP. DCM DM3-5-656-95	KF	PAM	JM	LM
N/A	7	4-29-94	INCRP. DCM DM3-5-129-93	KF	PAM	JM	LM
N/A	6	1-11-93	INCRP. DCM DM3-5-286-94	KF	PAM	JM	LM



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FEEDWATER SYSTEM TO BE PREFIXED WITH "3FWS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. EM-130A, EM-130C AND EM-130D AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FEEDWATER PUMP RECIRCULATION TO BE PREFIXED WITH "3FWR-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. EM-130A AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FEEDWATER PUMP SEAL AND LEAK-OFF SYSTEM TO BE PREFIXED WITH "3FWP-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. EM-130A AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 4. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY FEEDWATER AND RECIRCULATION SYSTEM TO BE PREFIXED WITH "3FWA-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. EM-130B AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 5. DELETED
 6. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 HE - HIGH ENERGY PIPING LIMIT
 --- - HYDRAULIC LINE
 --- - SAFETY CLASS CHANGE POINT
 OMB - OUTSIDE MISSILE BARRIER
 IMB - INSIDE MISSILE BARRIER
 () ETC. - CONDENSER MANUFACTURER'S CONNECTION
 7. PLUG FOR CHANGE OVER TO APPENDIX "R" TRANSMITTER.
 8. ALL PRESSURE, TEST, VENT AND DRAIN CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 9. STRAINER ELEMENT HAS BEEN REMOVED FOR NORMAL OPERATION.
 10. RELIEF VALVE SET TO PREVENT OVER PRESSURE OF SYSTEM VALVES IN THE EVENT OF TURBINE OVER SPEED.
 11. FEEDWATER PIPING IS SC-3 UP TO F-LINE WALL INSIDE THE MAIN STEAM VALVE BUILDING.
 12. DELETED
 13. NOZZLE INTERNAL TO CONDENSER INCLUDING 3FWS-RO48.
 14. VALVE FAILS "AS" IS ON LOSS OF AIR BY USE OF AIR LOCK-UP VALVES.
 15. ALL VENTS AND DRAINS ARE SAFETY CLASS 4 DOWN STREAM OF THE FIRST VALVE, EXCEPT WHERE NOTED.
 16. GRAYLOCK CONNECTIONS PROVIDED FOR EQUIPMENT ACCESSIBILITY.
 17. WHEN THE TERRY TURBINE PUMP IS NOT RUNNING, VALVES 3FWR-V25A, B, C, D WILL NOT FAIL OPEN. IF PRESSURE IS 1200 PSI OR GREATER, INSTALLED CAPS (CL 901) ARE TO BE DRILLED-OUT WITH A 1/2" DIA. HOLE. A SOCKET WELDED BY THREADED COUPLING MAY BE INSTALLED IN PLACE OF A THREADED CAP FOR THE CLOSURE OF A SINGLE GLOBE VALVE VENT OR DRAIN WHERE THE SECOND GLOBE VALVE WAS REMOVED FOR SEISMIC LOADING REASONS. PLUGS SHALL NOT BE INSTALLED IN THE COUPLINGS. THE COUPLING SHALL COMPLY TO THE APPLICABLE PIPE CLASS OF THE VENT OR DRAIN ASSEMBLY.
 18. THE SYSTEM OPERATIONS PROCEDURE COVERS THE POSITIONING OF VALVES AND DAMPERS OPEN/ CLOSED/ LOCKED/ VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 19. STRAINER ELEMENT HAS BEEN REMOVED AND STRAINER BODY REMOVED FOR NORMAL OPERATION.
 20. ALL PIPING IS CLASS 901 UNLESS OTHERWISE NOTED.
 21. TEMPORARY FLOW INDICATOR INSTALLED TO MONITOR 3FWS-P22A SEAL INJECTION FLOW IN ACCORDANCE WITH TEC MP3-22-01072.

FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM FEEDWATER SYSTEM			
REVISION DESCRIPTION REVISED PER TEC MP3-22-0072 AND DUR 22-80082	SIGNATURES ON FILE CAD NO: 126901.000	DRAWING NO: 25212-26930	REV 37
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 1	



- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-130A (26930 SH. 1)
 - DELETED
 - SPECIAL FLANGES 3FWA*FLS1(A)-1, 3FWA*FLS1(B)-1, 3FWA*FLS1(C)-1 AND 3FWA*FLS1(D)-1 ARE POSITIONED BLANK SIDE OUT.
 - FI CONNECTED DURING PERIODIC TESTING.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE

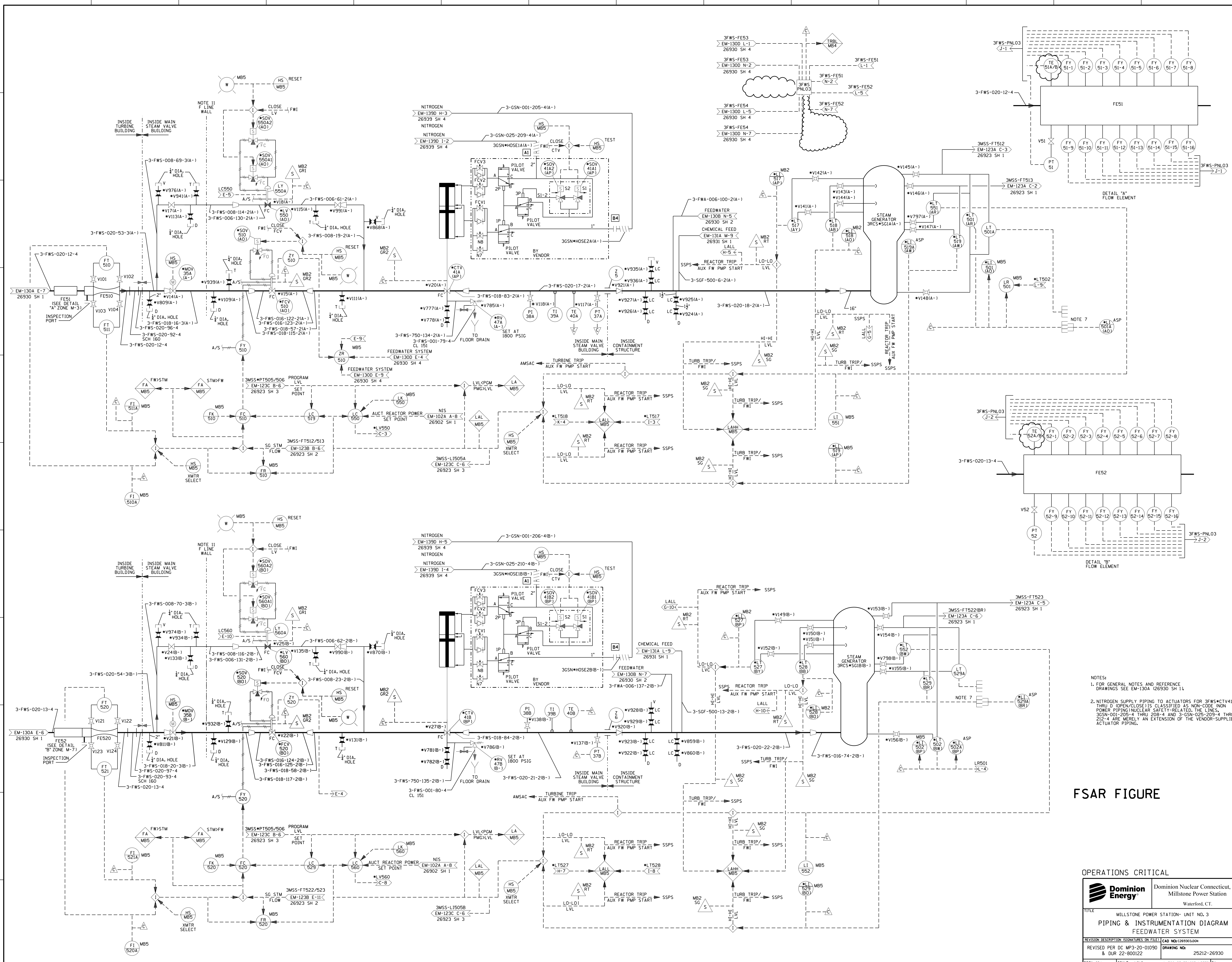
OPERATIONS CRITICAL

Dominion Nuclear Contract, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
FEEDWATER SYSTEM

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: E17ms321mp00112629302.00N
REVISED PER DC MP-16-0154 & DUR 17-800381 DRAWING NO: 25212-26930 REV 49

DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 2



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-130A (26930 SH 1)
 2. NITROGEN SUPPLY PIPING TO ACTUATORS FOR 3FWS*CTV41A THRU D (OPEN/CLOSE) IS CLASSIFIED AS NON-CODE INON POWER PIPING (NUCLEAR SAFETY RELATED). THE LINES 3G5N-001-205-4 THRU 208-4 AND 3-G5N-025-209-4 THRU 212-4 ARE MERELY AN EXTENSION OF THE VENDOR-SUPPLIED ACTUATOR PIPING.

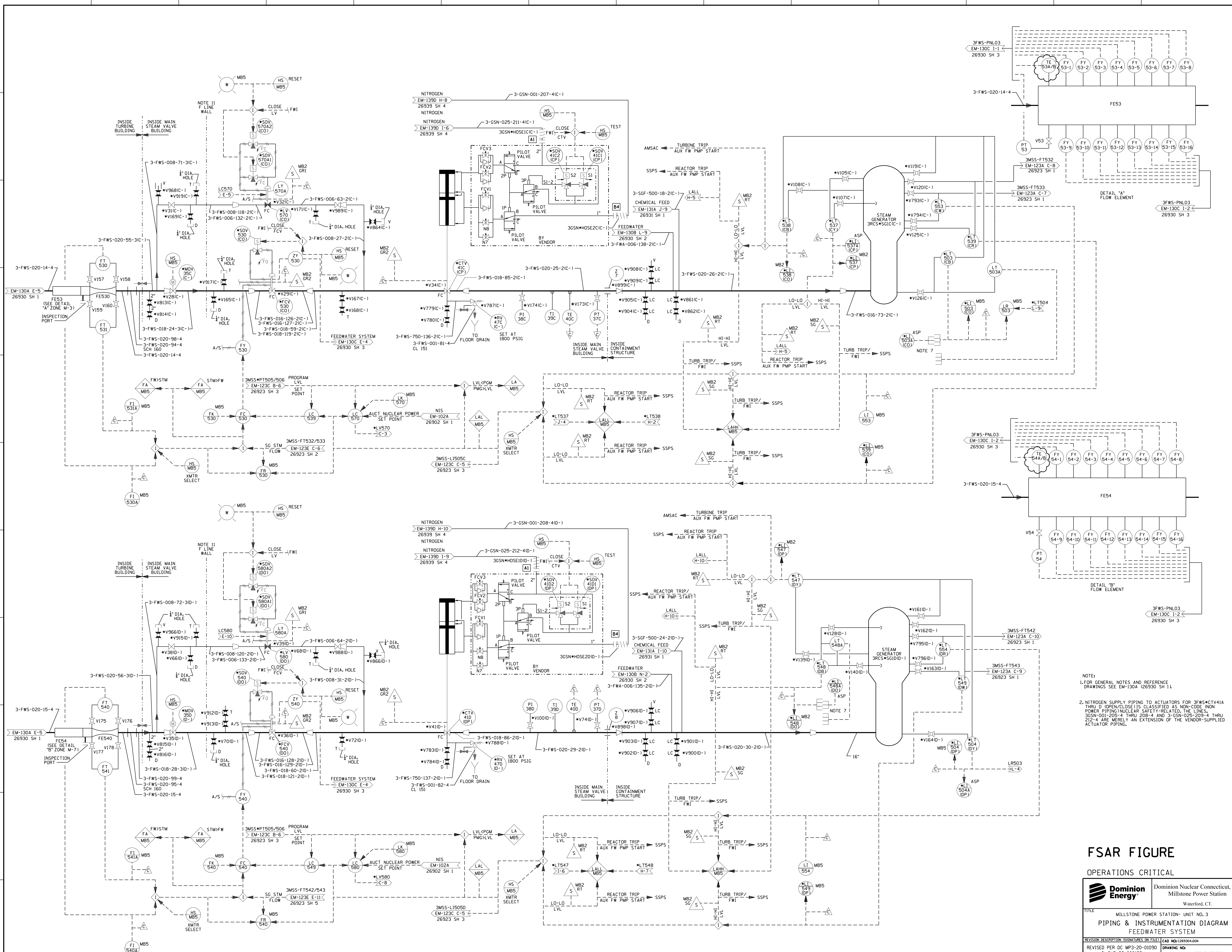
FSAR FIGURE

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE: MILLSTONE POWER STATION- UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 FEEDWATER SYSTEM

REVISION DESCRIPTION SIGNATURES ON FILE | CAD NO: 126930J004
 REVISED PER DC MP3-20-01090 | DRAWING NO: 25.212-26930 | REV 2B
 & DUR 22-800122 | SCALE: NONE | UNLESS OTHERWISE NOTED | SH 3



NOTE:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-130A (26930 SH 11)
 2. NITROGEN SUPPLY PIPING TO ACTUATORS FOR 3FWS*CV1A1A THRU D (OPEN/CLOSE) IS CLASSIFIED AS NON-CODE (NON POWER PIPING) NUCLEAR SAFETY RELATED. THE LINES, 3G5N-001-205-4 THRU 208-4 AND 3-G5N-025-209-4 THRU 212-4 ARE MERELY AN EXTENSION OF THE VENDOR-SUPPLIED ACTUATOR PIPING.

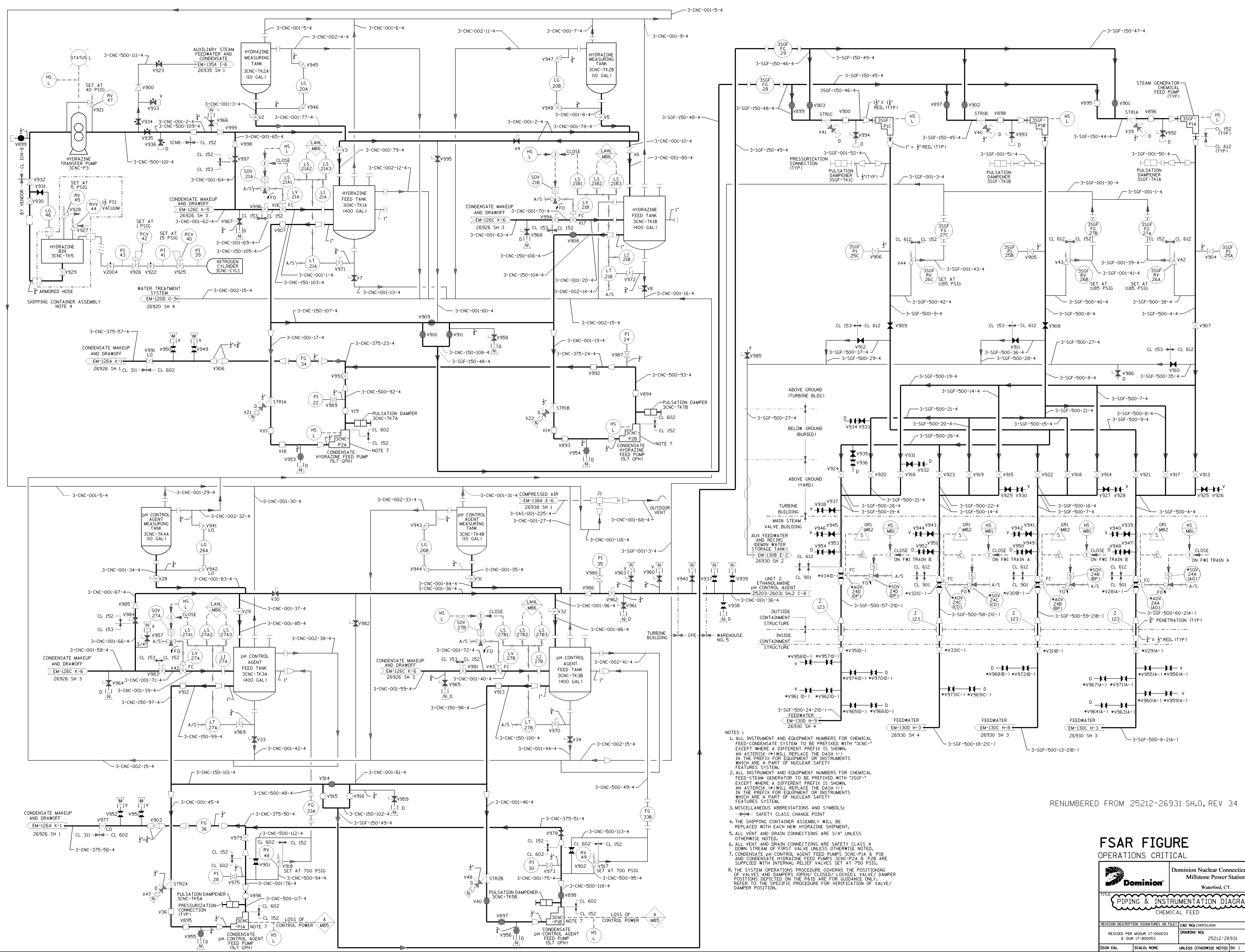
FSAR FIGURE
OPERATIONS CRITICAL

Domion Energy Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE: MILLSTONE POWER STATION- UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
FEEDWATER SYSTEM

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 26930A-004
 REVISION PER DC MP3-20-01090 & DUR 22-800122 DRAWING NO: 25212-26930 REV 29

DSGN JCV SCALE: NONE UNLESS OTHERWISE NOTED SH 4

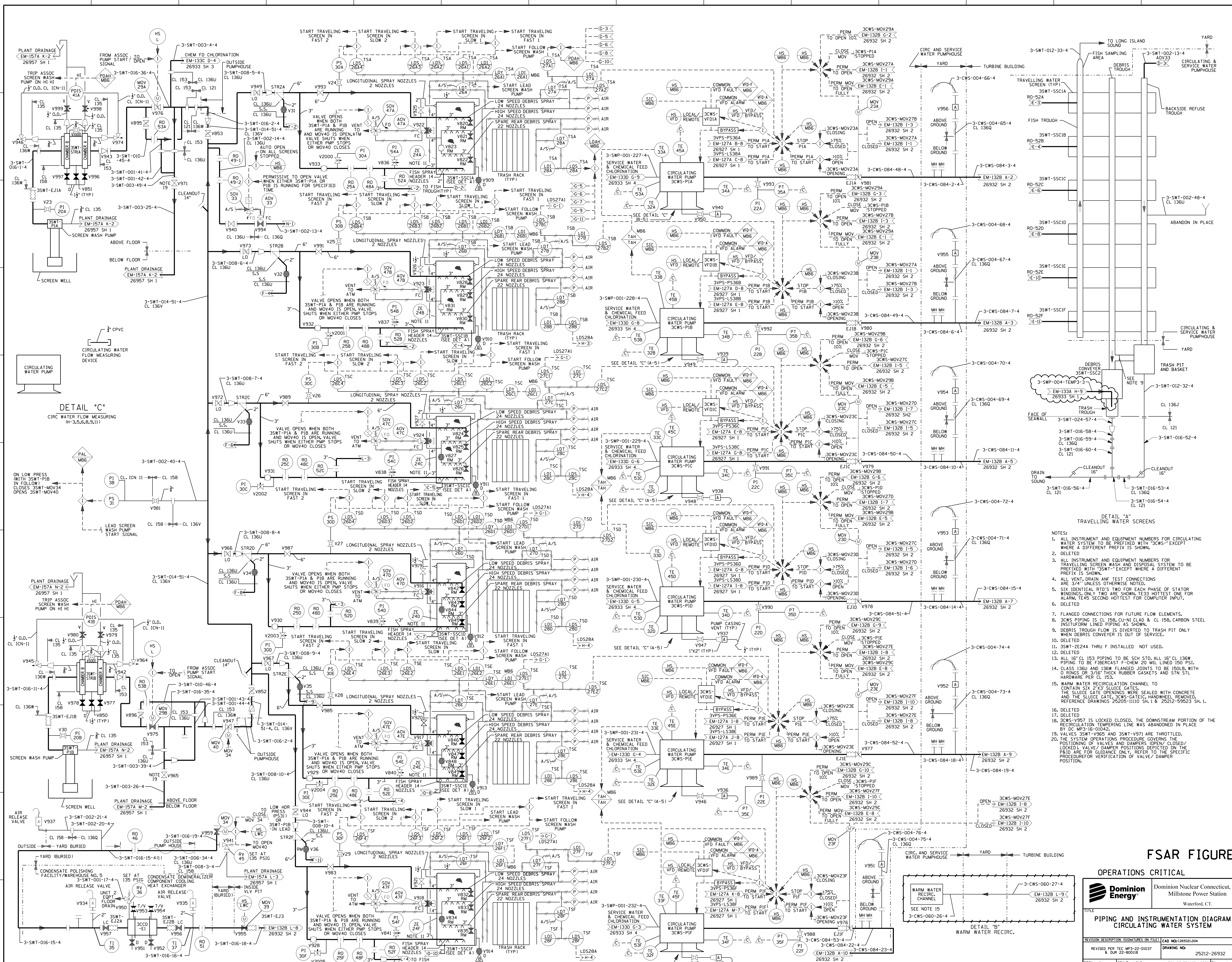


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHEMICAL FEED-CONDENSATE SYSTEM TO BE PREFIXED WITH "3CNC-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHEMICAL FEED-STEAM GENERATOR TO BE PREFIXED WITH "3SGF-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - SAFETY CLASS CHANGE POINT
 4. THE SHIPPING CONTAINER ASSEMBLY WILL BE REPLACED WITH EACH NEW HYDRAZINE SHIPMENT.
 5. ALL VENT AND DRAIN CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 6. ALL VENT AND DRAIN CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE UNLESS OTHERWISE NOTED.
 7. CONDENSATE pH CONTROL AGENT FEED PUMPS 3CNC-P1A & P1B AND CONDENSATE HYDRAZINE FEED PUMPS 3CNC-P2A & P2B ARE SUPPLIED WITH INTERNAL RELIEF VALVES SET AT 750 PSIG.
 8. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

RENUMBERED FROM 25212-26931 SH.0, REV 34

FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM CHEMICAL FEED			
REVISION DESCRIPTION (SIGNATURES ON FILE)	CAD NO. C26931.DGN	DRAWING NO.	REV
REVISED PER MSOUR 17-00003 & DUR 17-800053		25212-26931	2
DSGN EAL	SCALE NONE	UNLESS OTHERWISE NOTED SH 1	



DETAIL "C"
CIRC WATER FLOW MEASURING
(H=3.5,5.8,9.11)

DETAIL "A"
TRAVELLING WATER SCREENS

- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CIRCULATING WATER SYSTEM TO BE PREFIXED WITH "3-CWS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. DELETED
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TRAVELLING SCREEN WASH AND DISPOSAL SYSTEM TO BE PREFIXED WITH "3SWT" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 4. ALL VENT, DRAIN AND TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 5. SIX IDENTICAL RTDS TWO FOR EACH PHASE OF STATOR WINDINGS; ONLY TWO ARE SHOWN. TE33 HOTTEST ONE FOR ALARM; TE45 SECOND HOTTEST FOR COMPUTER INPUT.
 6. DELETED
 7. FLANGED CONNECTIONS FOR FUTURE FLOW ELEMENTS.
 8. 3-CWS PIPING IS CL 158, CU-NI CLAD & CL 158, CARBON STEEL INSTALLED IN LINED PIPING AS SHOWN.
 9. DEBRIS TROUGH FLOW IS DIVERTED TO TRASH PIT ONLY WHEN DEBRIS CONVEYER IS OUT OF SERVICE.
 10. DELETED
 11. 3SWT-2E24A THRU F INSTALLED NOT USED.
 12. DELETED
 13. ALL 16" CL 153 PIPING TO BE SCH 50D. ALL 16" CL 136W PIPING TO BE FIBERCAST F-CHEM 20 MIL LINED 150 PSI.
 14. CLASS 136U AND 136W FLANGED JOINTS TO BE ISOUL WITH O-RINGS OR 3/16" THICK RUBBER GASKETS AND STN SLT HARDWARE PER CL 153.
 15. WARM WATER RECIRCULATION CHANNEL TO CONTAIN SIX 2"x3" SLUICE GATES. THE SLUICE GATE OPENINGS WERE SEALED WITH CONCRETE AND THE SLUICE GATE, 3-CWS-GATE1C, HANDWHEEL REMOVED. REFERENCE DRAWINGS 25205-1110 SH.1 & 25212-59523 SH.1.
 16. DELETED
 17. DELETED
 18. 3-CWS-V957 IS LOCKED CLOSED. THE DOWNSTREAM PORTION OF THE INSTRUMENT TEMPERING LINE WAS ABANDONED IN PLACE BY DC MP3-16-01042.
 19. VALVES 3SWT-V955 AND 3SWT-V971 ARE THROTTLED.
 20. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/LOCKED VALVE DAMPER POSITIONS DEPicted ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

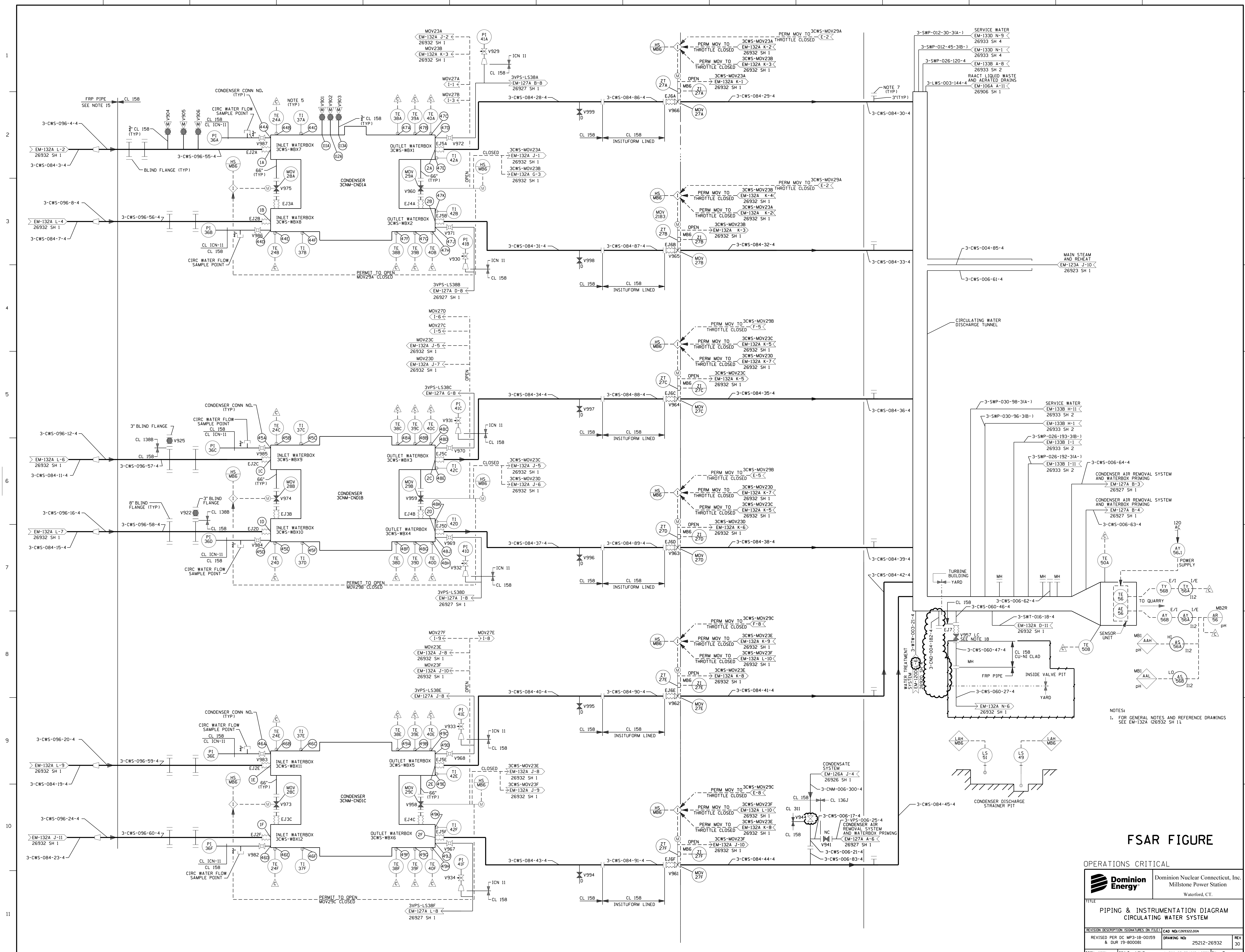
FSAR FIGURE

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Milestone Power Station
Waterford, CT.

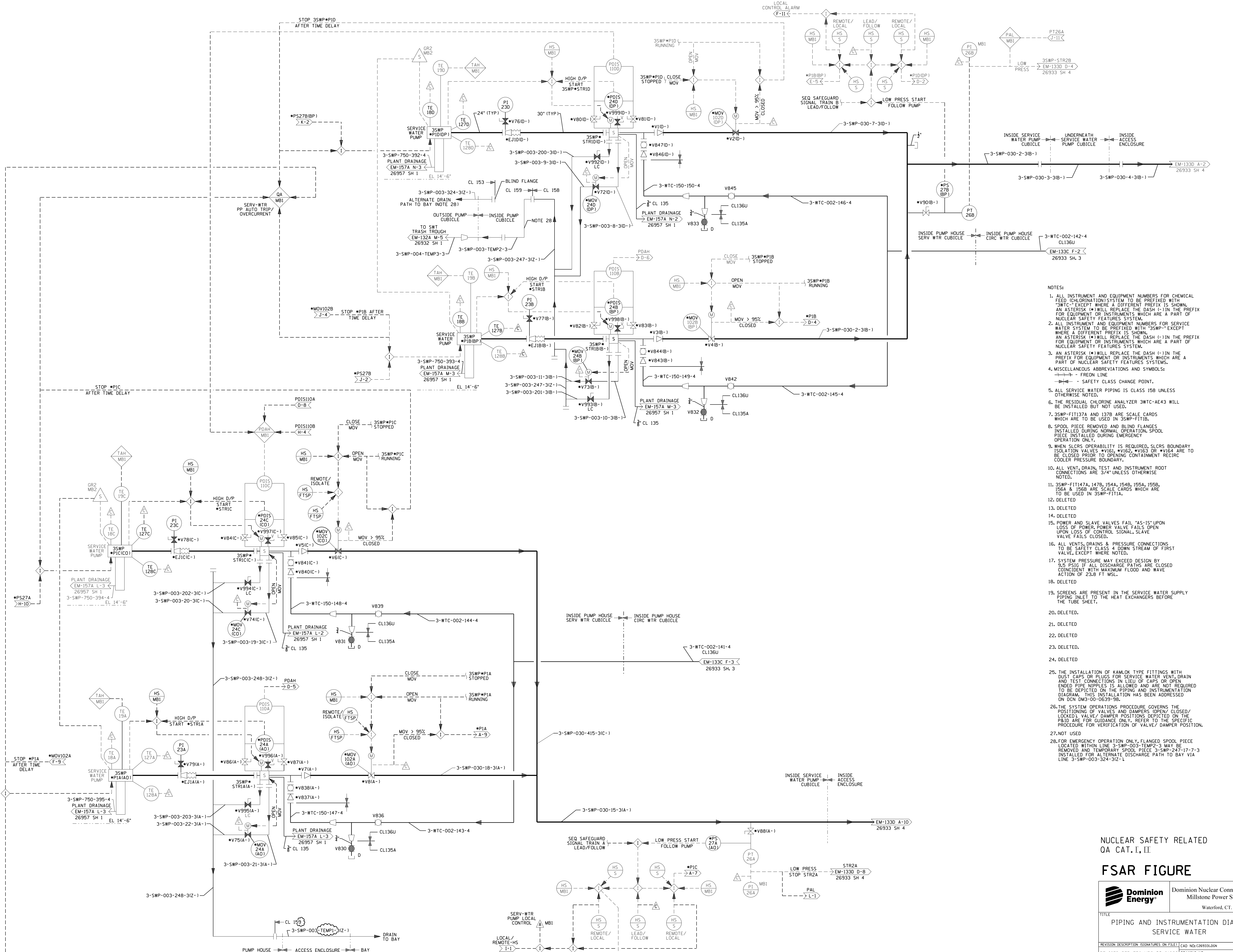
TITLE
**PIPING AND INSTRUMENTATION DIAGRAM
CIRCULATING WATER SYSTEM**

REVISION PER TEC MP3-22-01037 R 001 22-00018	DRAWING NO. 25212-26932	REV 57
---	----------------------------	-----------



FSAR FIGURE

OPERATIONS CRITICAL	
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE PIPING & INSTRUMENTATION DIAGRAM CIRCULATING WATER SYSTEM	
REVISION DESCRIPTION (SIGNATURES ON FILE)	CAD NO: C269322.DGN
REVISED PER DC MP3-18-00159 & DUR 19-00081	DRAWING NO: 25212-26932
DSGN MKN	SCALE: NONE UNLESS OTHERWISE NOTED SH 2
REV 30	



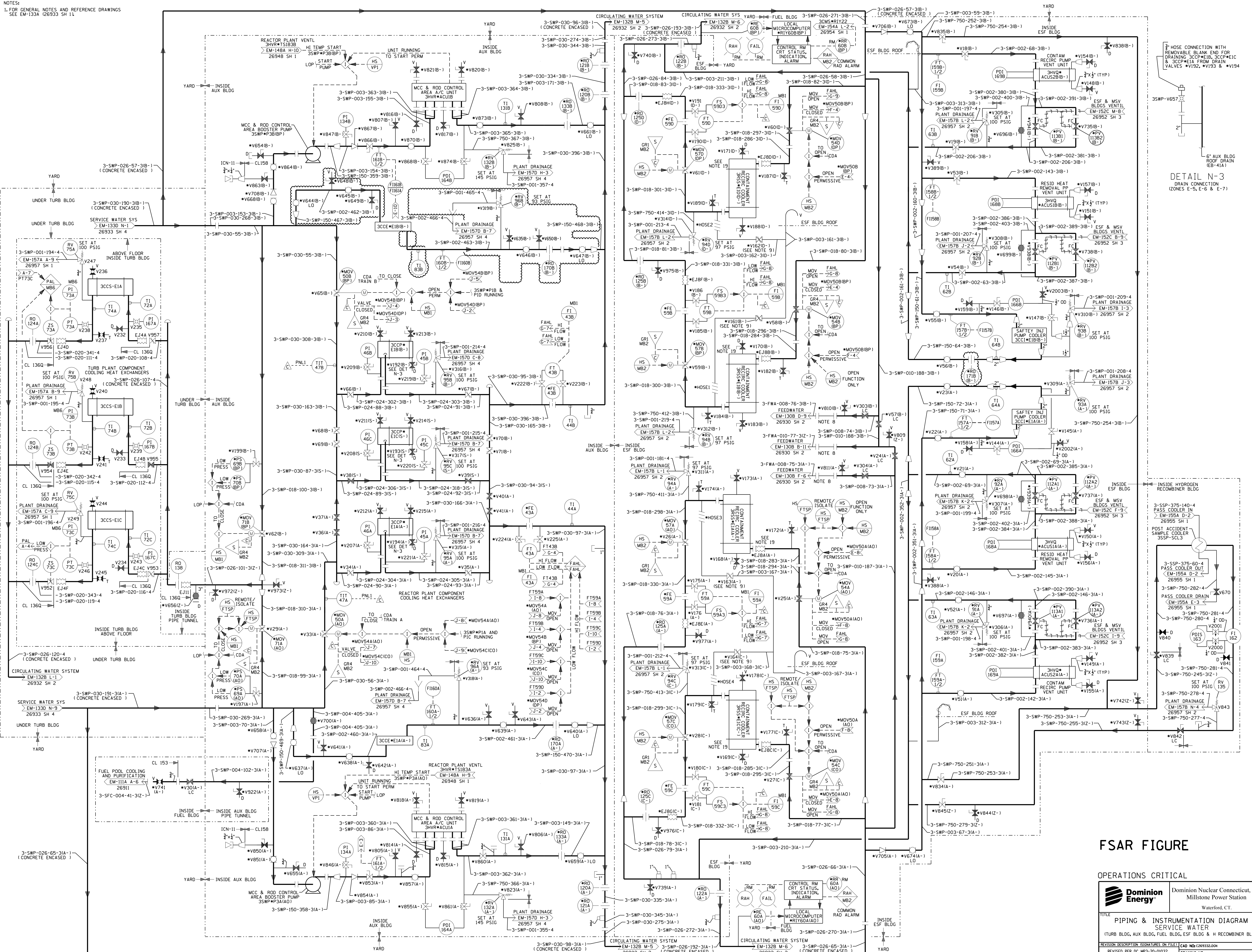
- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CHEMICAL FEED (CHLORINATION) SYSTEM TO BE PREFIXED WITH "SWTC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SERVICE WATER SYSTEM TO BE PREFIXED WITH "3SWP-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEMS.
 4. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - - FREON LINE
 - - SAFETY CLASS CHANGE POINT.
 5. ALL SERVICE WATER PIPING IS CLASS 15B UNLESS OTHERWISE NOTED.
 6. THE RESIDUAL CHLORINE ANALYZER SWTC-AE43 WILL BE INSTALLED BUT NOT USED.
 7. 3SWP-FIT137A AND 137B ARE SCALE CARDS WHICH ARE TO BE USED IN 3SWP-FIT1B.
 8. SPOOL PIECE REMOVED AND BLIND FLANGES INSTALLED DURING NORMAL OPERATION. SPOOL PIECE INSTALLED DURING EMERGENCY OPERATION ONLY.
 9. WHEN SLCRS OPERABILITY IS REQUIRED, SLCRS BOUNDARY ISOLATION VALVES *V161, *V162, *V163 OR *V164 ARE TO BE CLOSED PRIOR TO OPENING CONTAINMENT RECIRC COOLER PRESSURE BOUNDARY.
 10. ALL VENT, DRAIN, TEST AND INSTRUMENT ROOT CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 11. 3SWP-FIT147A, 147B, 154A, 154B, 155A, 155B, 156A & 156B ARE SCALE CARDS WHICH ARE TO BE USED IN 3SWP-FIT1A.
 12. DELETED
 13. DELETED
 14. DELETED
 15. POWER AND SLAVE VALVES FAIL "AS-IS" UPON LOSS OF POWER. POWER VALVE FAILS OPEN UPON LOSS OF CONTROL SIGNAL. SLAVE VALVE FAILS CLOSED.
 16. ALL VENTS, DRAINS & PRESSURE CONNECTIONS TO BE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE, EXCEPT WHERE NOTED.
 17. SYSTEM PRESSURE MAY EXCEED DESIGN BY 9.5 PSID IF ALL DISCHARGE PATHS ARE CLOSED COINCIDENT WITH MAXIMUM FLOOD AND WAVE ACTION OF 23.8 FT MSL.
 18. DELETED
 19. SCREENS ARE PRESENT IN THE SERVICE WATER SUPPLY PIPING INLET TO THE HEAT EXCHANGERS BEFORE THE TUBE SHEET.
 20. DELETED.
 21. DELETED
 22. DELETED
 23. DELETED.
 24. DELETED
 25. THE INSTALLATION OF KAMLOK TYPE FITTINGS WITH DUST CAPS OR PLUGS FOR SERVICE WATER VENT, DRAIN AND TEST CONNECTIONS IN LIEU OF CAPS OR OPEN ENDED PIPE NIPPLES IS ALLOWED AND ARE NOT REQUIRED TO BE DEPICTED ON THE PIPING AND INSTRUMENTATION DIAGRAM. THIS INSTALLATION HAS BEEN ADDRESSED ON DCN DM3-00-0639-98.
 26. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 27. NOT USED
 28. FOR EMERGENCY OPERATION ONLY, FLANGED SPOOL PIECE LOCATED WITHIN LINE 3-SWP-003-TEMP2-3 MAY BE REMOVED AND TEMPORARY SPOOL PIECE 3-SWP-247-17-7-3 INSTALLED FOR ALTERNATE DISCHARGE PATH TO BAY VIA LINE 3-SWP-003-324-31Z-1.

NUCLEAR SAFETY RELATED
QA CAT. I, II

FSAR FIGURE

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING AND INSTRUMENTATION DIAGRAM SERVICE WATER			
REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: C269331.DGN		DRAWING NO: 25212-26933 REV 48	
DSGN EAL		SCALE: NONE UNLESS OTHERWISE NOTED SH 1	

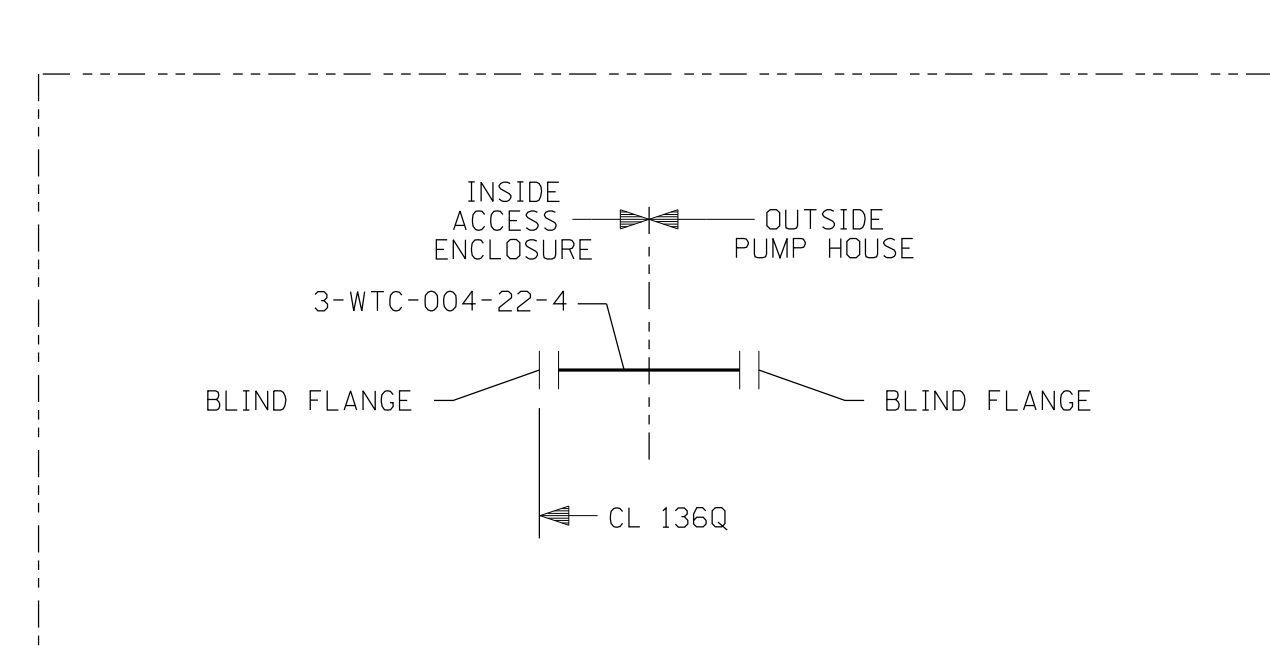
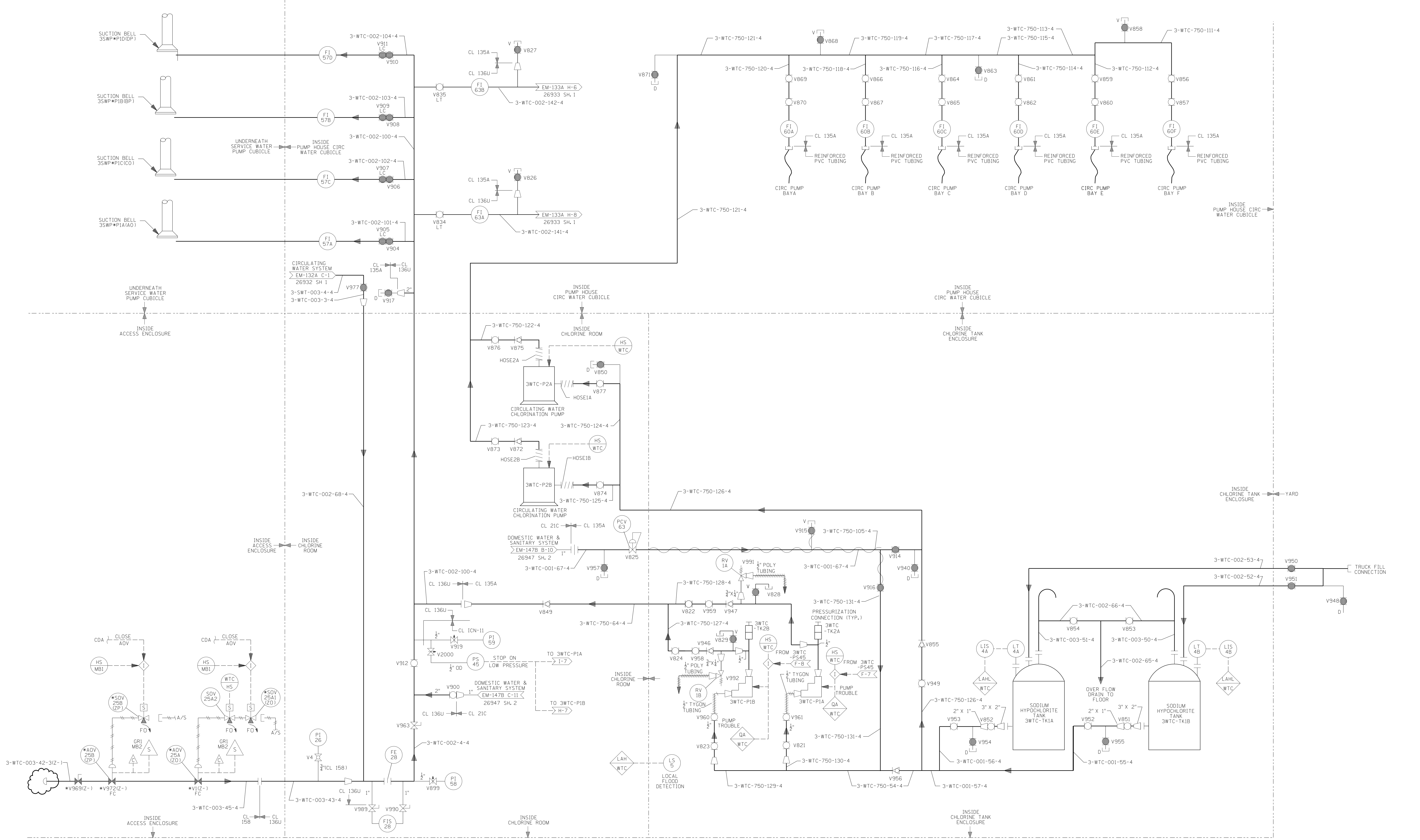
NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
SEE EM-1334 (26933 SH 1)



FSAR FIGURE

OPERATIONS CRITICAL

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
	TITLE PIPING & INSTRUMENTATION DIAGRAM SERVICE WATER (TURB BLDG, AUX BLDG, FUEL BLDG, ESF BLDG & H RECOMBINER BLDG)	
REVISION DESCRIPTION SIGNATURES ON FILE EM-1334-01010 & DR 22-80002E	CAD NO: 226933J004 DRAWING NO: 25212-26933	REV 95
DSGN DWJ SCALE NONE UNLESS OTHERWISE NOTED SH 2		



PIPING IN THIS AREA IS NOT USED FOR SYSTEM OPERATIONS. REMAINING PIPING IS RETIRED IN PLACE FROM ORIGINAL CHLORINATION SYSTEM

FSAR FIGURE

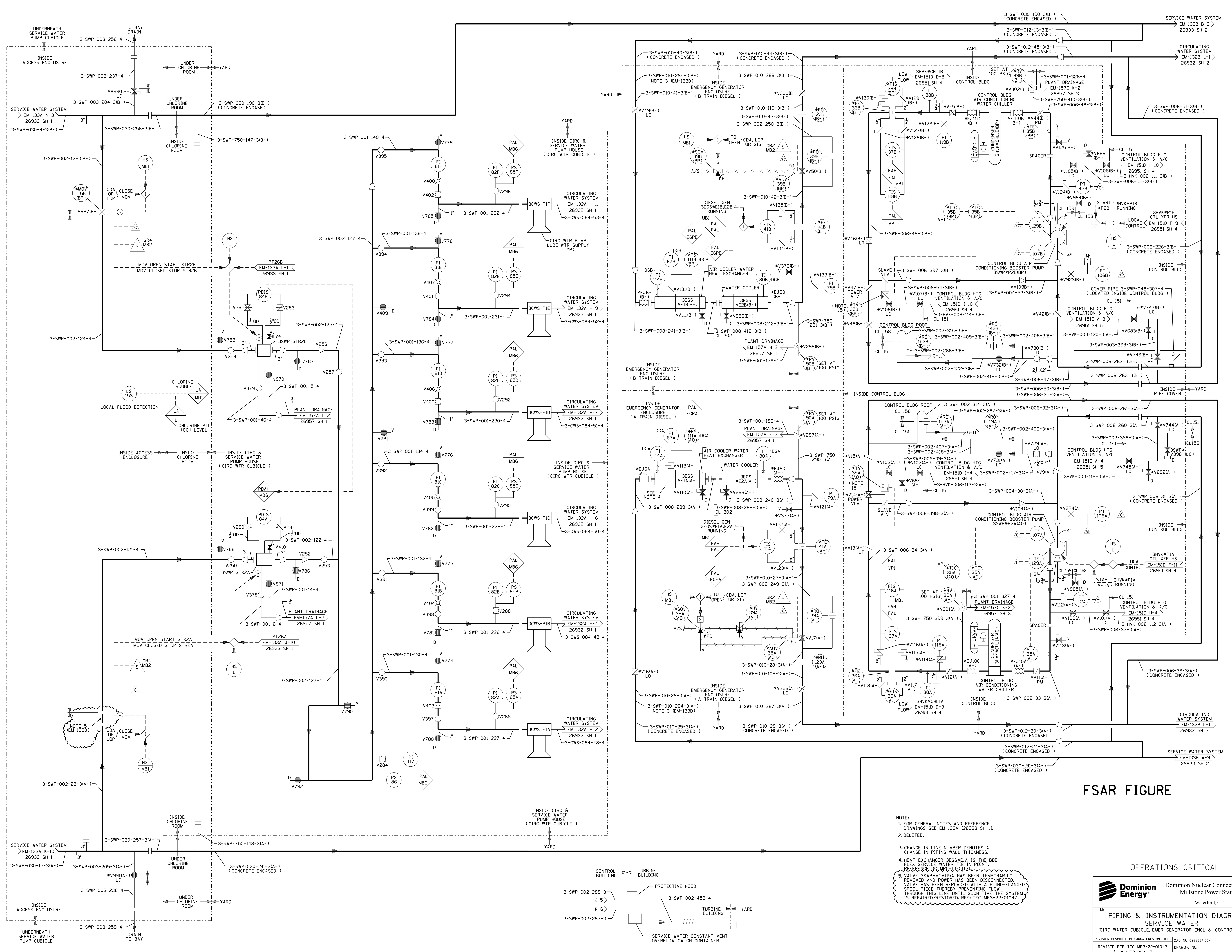
OPERATIONS CRITICAL

Dominion Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
SERVICE WATER

REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO:
REVISED PER DC MP3-17-01008 AND DCR 17-800460		25212-26933.DGN
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 3

REV 36

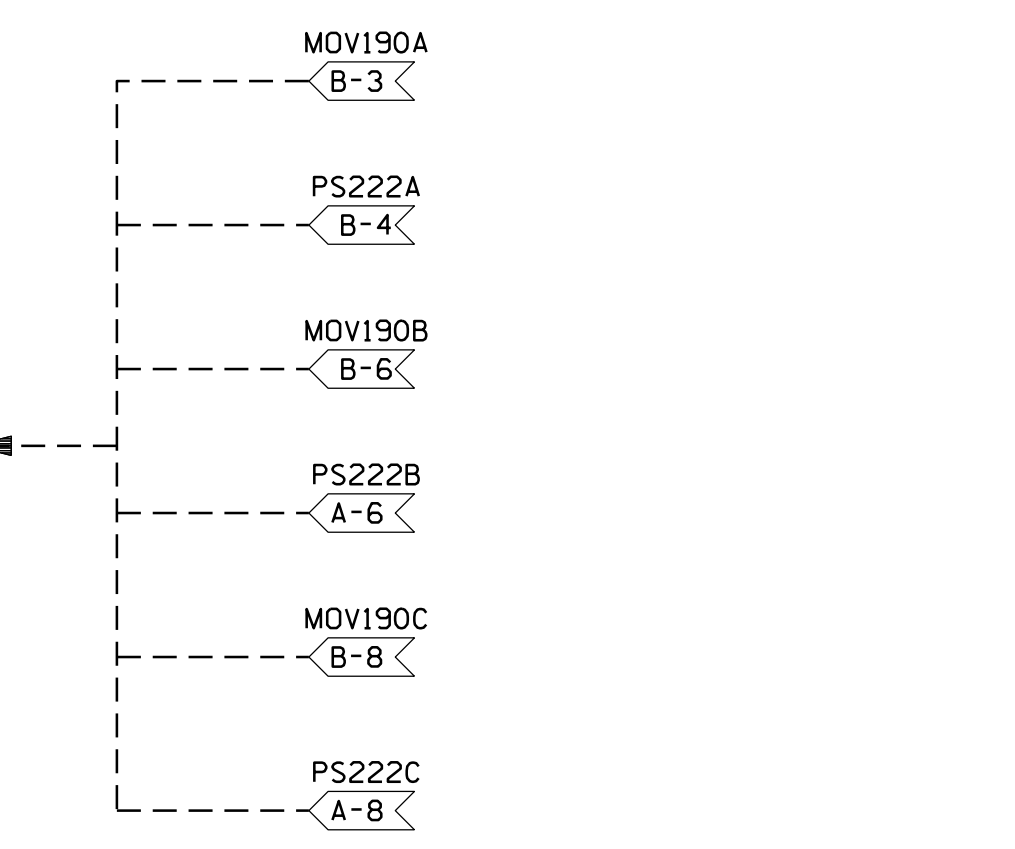
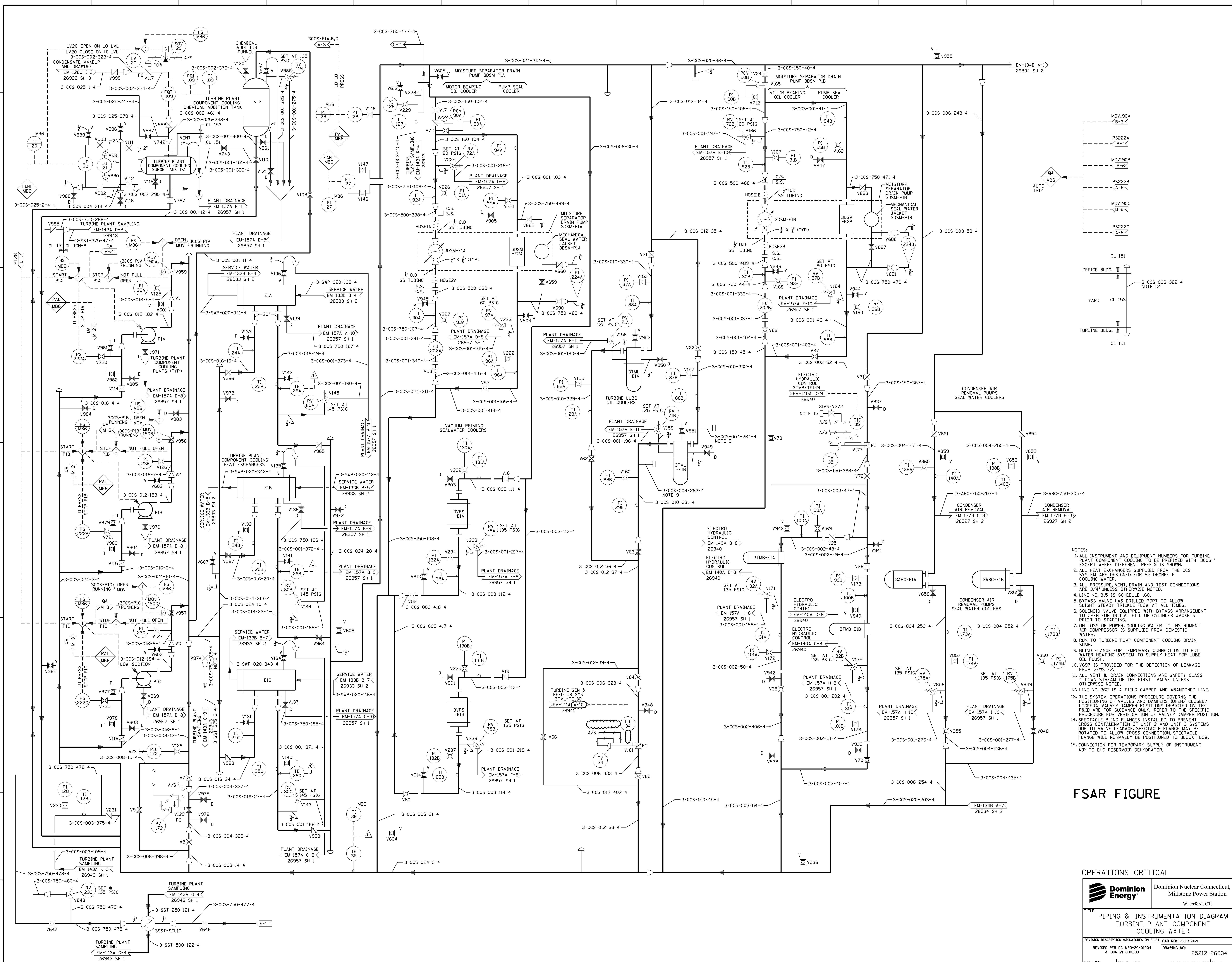


FSAR FIGURE

- NOTE:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-133A (26933 SH 1).
 - DELETED.
 - CHANGE IN LINE NUMBER DENOTES A CHANGE IN PIPING WALL THICKNESS.
 - HEAT EXCHANGER 3EGS#E1A IS THE BDB FLEX SERVICE WATER TIE-IN POINT. REFER TO EM-133A (26933 SH 1) FOR DETAILS.
 - VALVE 3SWP#MOV151A HAS BEEN TEMPORARILY REMOVED AND POWER HAS BEEN DISCONNECTED. VALVE HAS BEEN REPLACED WITH A BLIND-FLANGED SPOOL PIECE THEREBY PREVENTING FLOW THROUGH THIS LINE UNTIL SUCH TIME THE SYSTEM IS REPAIRED/RESTORED. REF: TEC MP3-22-01047.

OPERATIONS CRITICAL

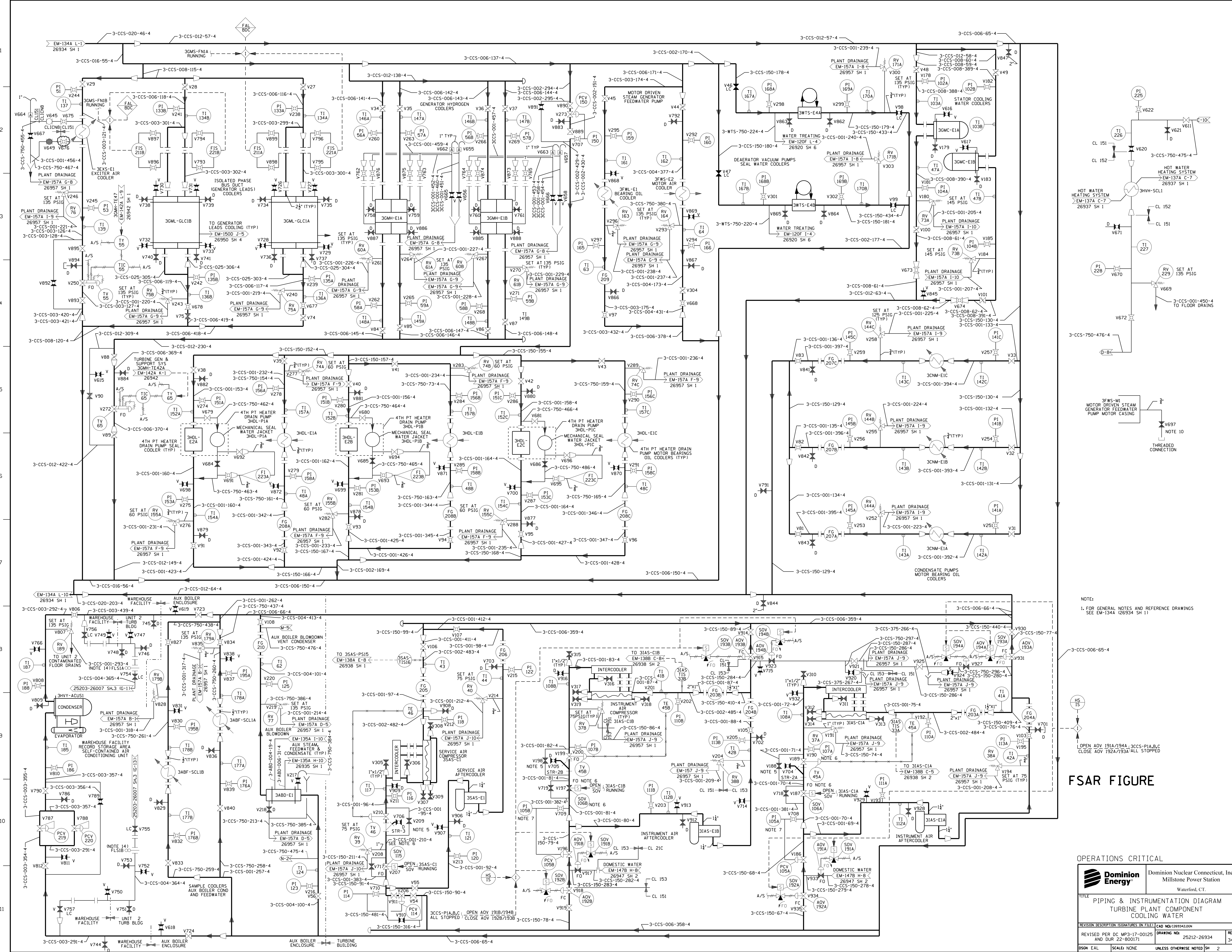
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
	TITLE PIPING & INSTRUMENTATION DIAGRAM SERVICE WATER (CIRC WATER CUBICLE, EMER GENERATOR ENCL & CONTROL BLDG)	
REVISION DESCRIPTION (SIGNATURES ON FILE) (CAD NO: 026933A.DGN)	REVISED PER TEC MP3-22-01047 & DUR 22-00137	DRAWING NO: 25212-26933
DESGN: EAL	SCALE: NONE	UNLESS OTHERWISE NOTED: SH 4



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE PLANT COMPONENT COOLING TO BE PREFIXED WITH "3CCS-" EXCEPT WHERE DIFFERENT PREFIX IS SHOWN.
 2. ALL HEAT EXCHANGERS SUPPLIED FROM THE CCS SYSTEM ARE DESIGNED FOR 95 DEGREE F COOLING WATER.
 3. ALL PRESSURE, VENT, DRAIN AND TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 4. LINE NO. 315 IS SCHEDULE 150.
 5. BYPASS VALVE HAS DRILLED PORT TO ALLOW SLIGHT STEADY TRICKLE FLOW AT ALL TIMES.
 6. SOLENOID VALVE EQUIPPED WITH BYPASS ARRANGEMENT TO OPEN FOR INITIAL FILL OF CYLINDER JACKETS PRIOR TO STARTING.
 7. ON LOSS OF POWER, COOLING WATER TO INSTRUMENT AIR COMPRESSOR IS SUPPLIED FROM DOMESTIC WATER.
 8. RUN TO TURBINE PUMP COMPONENT COOLING DRAIN SUMP.
 9. BLIND FLANGE FOR TEMPORARY CONNECTION TO HOT WATER HEATING SYSTEM TO SUPPLY HEAT FOR LUBE OIL FLUSH.
 10. V697 IS PROVIDED FOR THE DETECTION OF LEAKAGE FROM 3PWS-E2.
 11. ALL VENT & DRAIN CONNECTIONS ARE SAFETY CLASS 4 - DOWN STREAM OF THE FIRST VALVE UNLESS OTHERWISE NOTED.
 12. LINE NO. 362 IS A FIELD CAPPED AND ABANDONED LINE.
 13. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 14. SPECTACLE BLIND FLANGES INSTALLED TO PREVENT CROSS-CONTAMINATION OF UNIT 2 AND UNIT 3 SYSTEMS DUE TO VALVE LEAKAGE. SPECTACLE FLANGE MAY BE ROTATED TO ALLOW CROSS CONNECTION. SPECTACLE FLANGE WILL NORMALLY BE POSITIONED TO BLOCK FLOW.
 15. CONNECTION FOR TEMPORARY SUPPLY OF INSTRUMENT AIR TO EHC RESERVOIR DEHYDRATOR.

FSAR FIGURE

OPERATIONS CRITICAL	
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT COMPONENT COOLING WATER	
REVISION DESCRIPTION	SIGNATURES ON FILE
REVISED PER DC MP3-20-0124 & DDP 21-000293	DRAWING NO: 25212-26934
DSGN EAL	SCALE: NONE UNLESS OTHERWISE NOTED SH 1



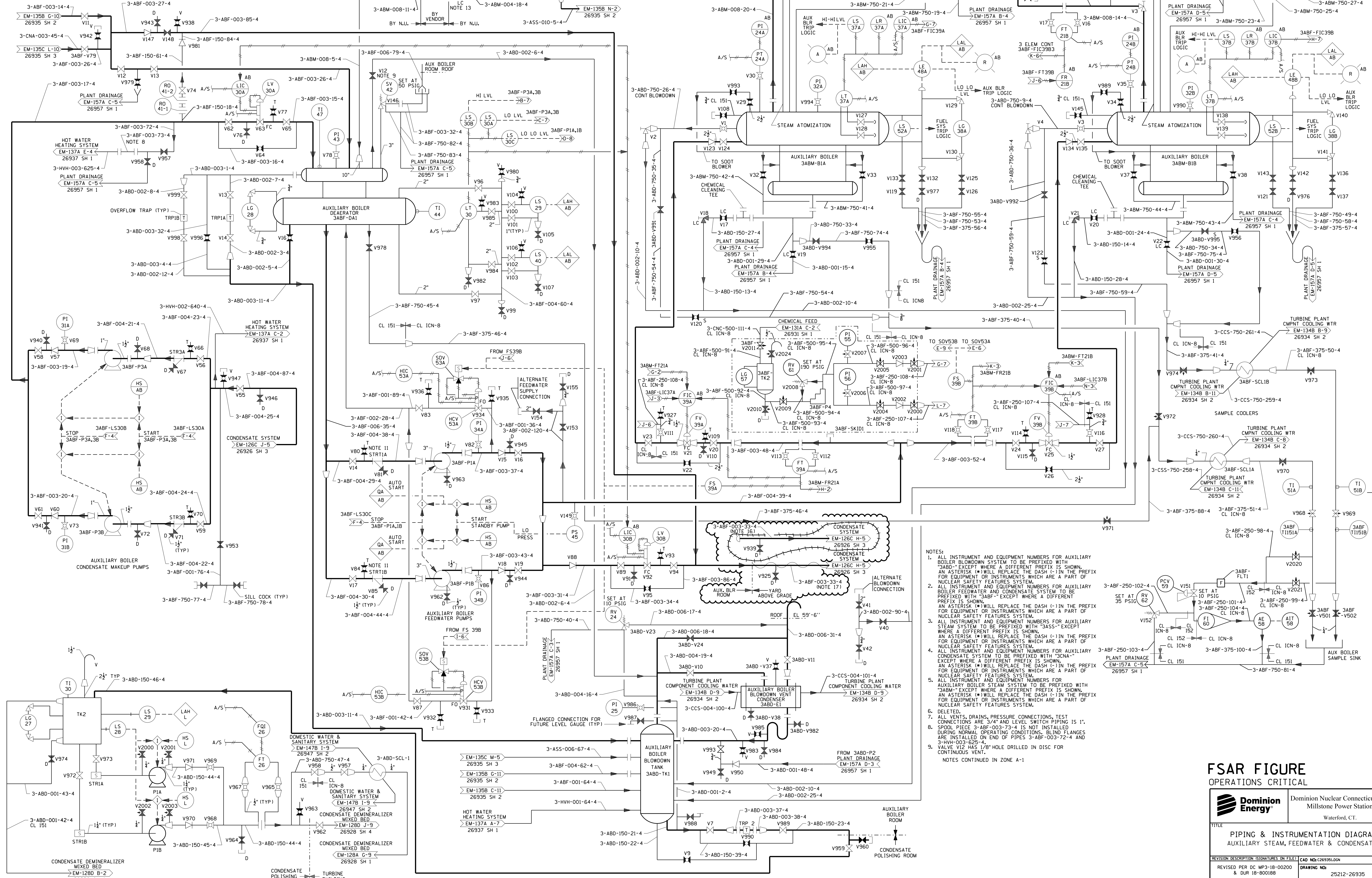
NOTE:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
SEE EM-134A (26934 SH 1)

OPEN ADV 191A/194A, 3CCS-PIA,B,C
CLOSE ADV 192A/193A ALL STOPPED

FSAR FIGURE

OPERATIONS CRITICAL	
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
TITLE PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT COMPONENT COOLING WATER	
REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: C269342.DWG	REV 34
REVISED PER DC MP3-17-00125 AND DUR 22-800171	DRAWING NO: 25212-26934
DSGN EAL	SCALE: NONE UNLESS OTHERWISE NOTED SH 2

- NOTES CONTINUED:
10. SPOOL PIECE INSTALLED FOR AUXILIARY FEED PUMP TURBINE TESTING AND REMOVED FOR NORMAL OPERATION.
 11. STRAINER ELEMENT HAS BEEN REMOVED FOR NORMAL OPERATION.
 12. ALL VENTS, DRAINS, PRESSURE AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWNSTREAM OF FIRST VALVE, UNLESS OTHERWISE NOTED.
 13. OPERATION OF THE BYPASS VALVE COULD RESULT IN DAMAGE TO THE VALVE AND/OR OVERPRESSURIZATION OF DOWNSTREAM PIPING AND COMPONENTS. SLIGHT STEAM TRAVEL RESULTS IN LARGE FLOW CHANGES. THE FLOW CAPACITY OF THE BYPASS VALVE IS MUCH HIGHER THAN THE SYSTEM RELIEF VALVES.
 14. SILENCER 3ABM-SIL2 IS LOCATED INTERNALLY IN PIPE. 3-ABM-006-P-4, WHICH IS FURNISHED BY MASONELLAN.
 15. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITION DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 16. PORTION OF LINE 3-ABF-003-33-4 HAS BEEN CUT / CAPPED AND ABANDONED IN PLACE.
 17. HEAT TRACING TEMPORARILY OUT OF SERVICE. REFERENCE DC MP3-18-00200.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY BOILER BLOWDOWN SYSTEM TO BE PREFIXED WITH "3ABD" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY BOILER FEEDWATER AND CONDENSATE SYSTEM TO BE PREFIXED WITH "3ABF" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY STEAM SYSTEM TO BE PREFIXED WITH "3ASS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 4. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY CONDENSATE SYSTEM TO BE PREFIXED WITH "3ABD" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 5. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY BOILER FEEDWATER AND CONDENSATE SYSTEM TO BE PREFIXED WITH "3ABF" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 6. DELETED.
 7. ALL VENTS, DRAINS, PRESSURE CONNECTIONS, TEST CONNECTIONS ARE 3/4" AND LEVEL SWITCH PIPING IS 1".
 8. SPOOL PIECE 3-ABF-003-73-4 IS NOT INSTALLED DURING NORMAL OPERATING CONDITIONS. BLIND FLANGES ARE INSTALLED ON END OF PIPES 3-ABF-003-72-4 AND 3-HVH-003-625-4.
 9. VALVE V12 HAS 1/8" HOLE DRILLED IN DISC FOR CONTINUOUS VENT.
- NOTES CONTINUED IN ZONE A-1

FSAR FIGURE OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.

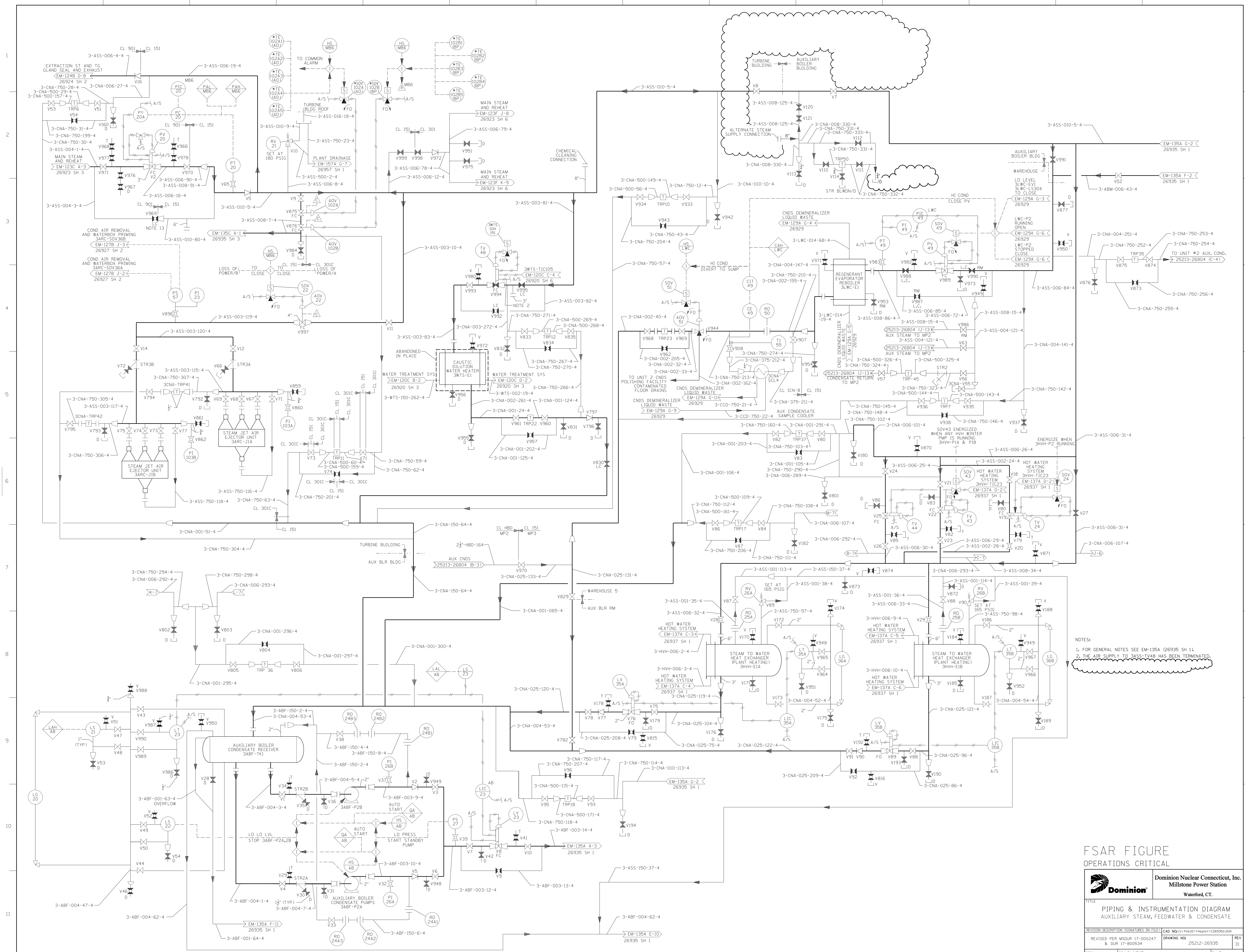
TITLE: PIPING & INSTRUMENTATION DIAGRAM AUXILIARY STEAM, FEEDWATER & CONDENSATE

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 126935-1000

REVISED PER DC MP3-18-00200 & DUR 18-000188 DRAWING NO: 25212-26935 REV 39

DSGN DWJ SCALE NONE UNLESS OTHERWISE NOTED SH 1

S&W DWG. NO. I2179-EM-135A



NOTES:
 1. FOR GENERAL NOTES SEE EM-135A (26935 SH 11)
 2. THE AIR SUPPLY TO 3ASS-1V48 HAS BEEN TERMINATED.

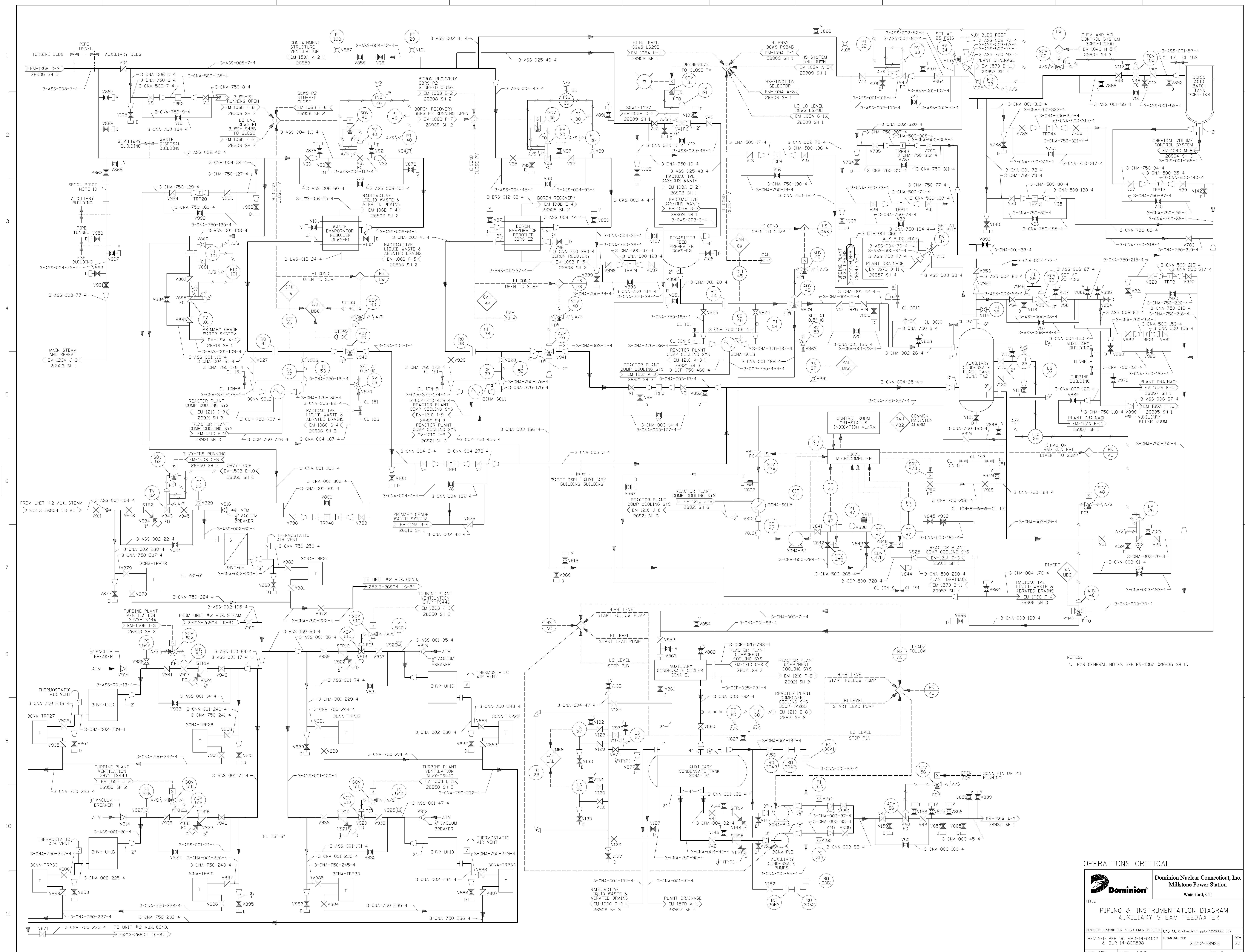
FSAR FIGURE OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE: **PIPING & INSTRUMENTATION DIAGRAM**
 AUXILIARY STEAM, FEEDWATER & CONDENSATE

REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO: E:\ms32\mnp001\c269352.dwg	REV
REVISED PER MSDUR 17-000247 & DUR 17-800534		25212-26935	31
DSM M/N	SCALE: NONE	UNLESS OTHERWISE NOTED SH 2	

S&W DWG. NO.12179-EM-135B



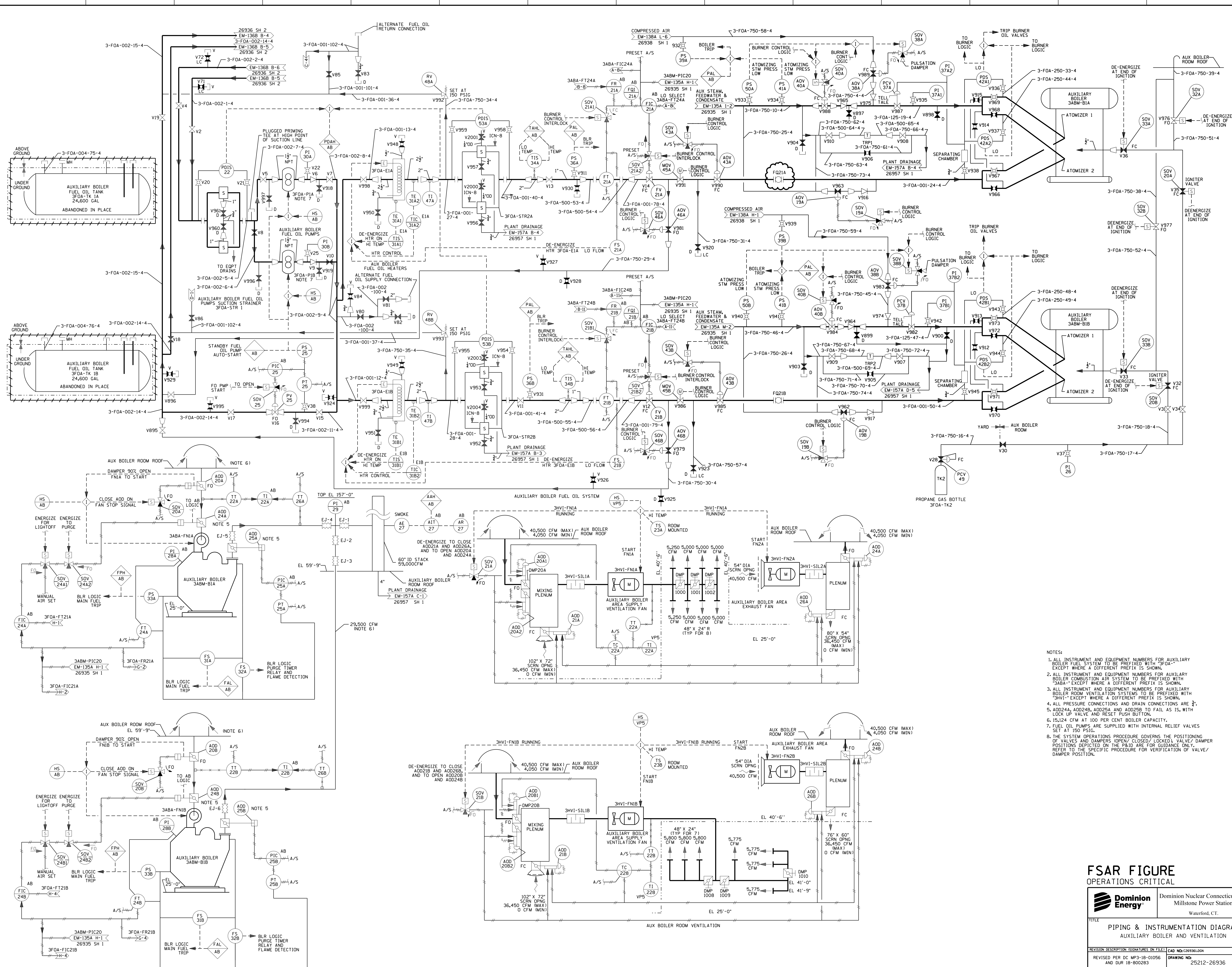
NOTES:
 1. FOR GENERAL NOTES SEE EM-135A I26935 SH 11

OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
 PIPING & INSTRUMENTATION DIAGRAM
 AUXILIARY STEAM FEEDWATER

REVISION DESCRIPTION SIGNATURES ON FILE
 REVISED PER DC MP3-14-01102 DRAWING NO. 25212-26935 REV 27
 & DUR 14-800598 UNLESS OTHERWISE NOTED SH 3



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY BOILER FUEL SYSTEM TO BE PREFIXED WITH "3FOA-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY BOILER COMBUSTION AIR SYSTEM TO BE PREFIXED WITH "3ABA-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR AUXILIARY BOILER ROOM VENTILATION SYSTEMS TO BE PREFIXED WITH "3HVI-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 4. ALL PRESSURE CONNECTIONS AND DRAIN CONNECTIONS ARE 3/4".
 5. ADD24A, ADD24B, ADD25A AND ADD25B TO FAIL AS IS, WITH LOCK UP VALVE AND RESET PUSH BUTTON.
 6. 15,124 CFM AT 100 PER CENT BOILER CAPACITY.
 7. FUEL OIL PUMPS ARE SUPPLIED WITH INTERNAL RELIEF VALVES SET AT 150 PSIG.
 8. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED). VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITIONING.

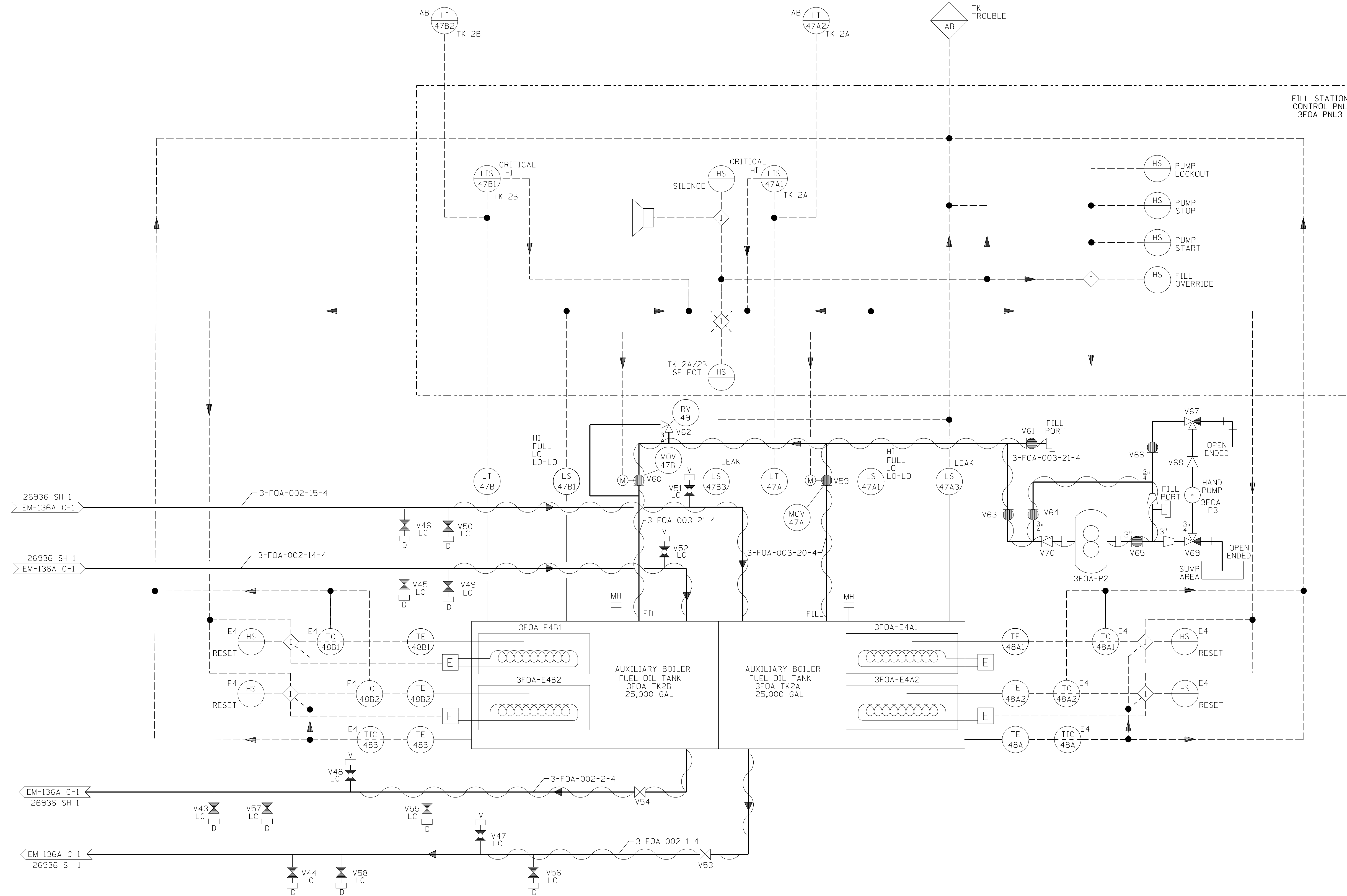
FSAR FIGURE
OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE: PIPING & INSTRUMENTATION DIAGRAM
AUXILIARY BOILER AND VENTILATION

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: C26936.L00N
REVISED PER DC MP3-18-01056 AND DUR 18-000283 DRAWING NO: 25212-26936 REV 31

DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SM 1



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-136A (26936 SH 1)

QA CAT. I, II, III
 FSAR FIGURE
 OPERATIONS CRITICAL

NON
 Q. A.

CAD
 NOTE:
 MANUAL REVISIONS TO THIS DOCUMENT
 WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

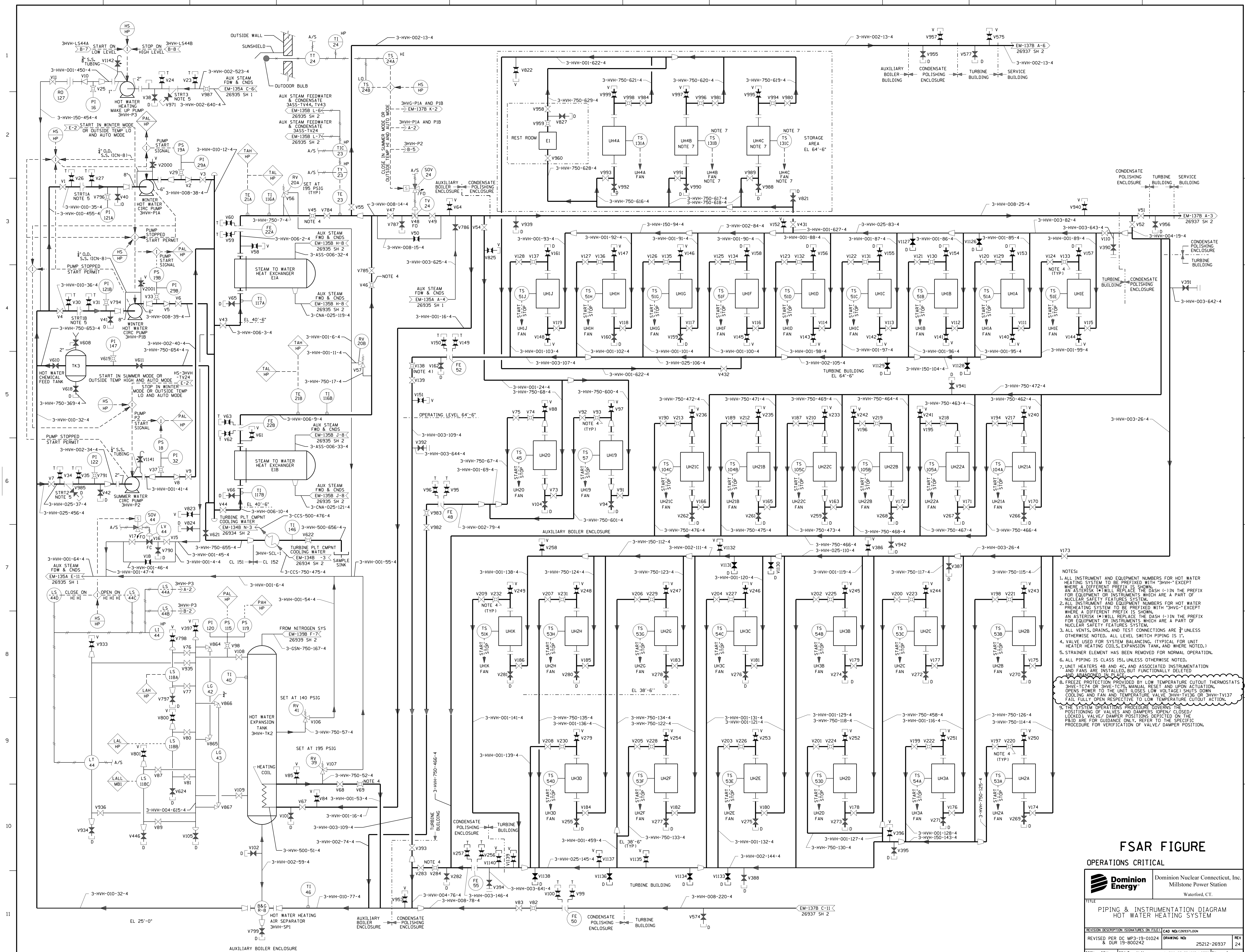
Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 AUXILIARY BOILER AND VENTILATION

BY JCV	CHKD. _____	APP. _____	APP. _____
DATE 3-19-08	DATE _____	DATE _____	DATE _____
SCALE NONE	MICROFILM DATE _____	DWG. NO. 25212-26936 SH. 2	

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
3	12-5-13	INCORP. DCN DM3-08-0045-08 & DUR 13-800584	JSJ	RFL	JKY	RFL
2	4-18-09	INCORP. DCN DM3-07-0045-08	EAL	ASK	JCV	RFL
1	12-17-08	INCORP. DCN DM3-00-0316-07	EAL	MP	JKY	REB

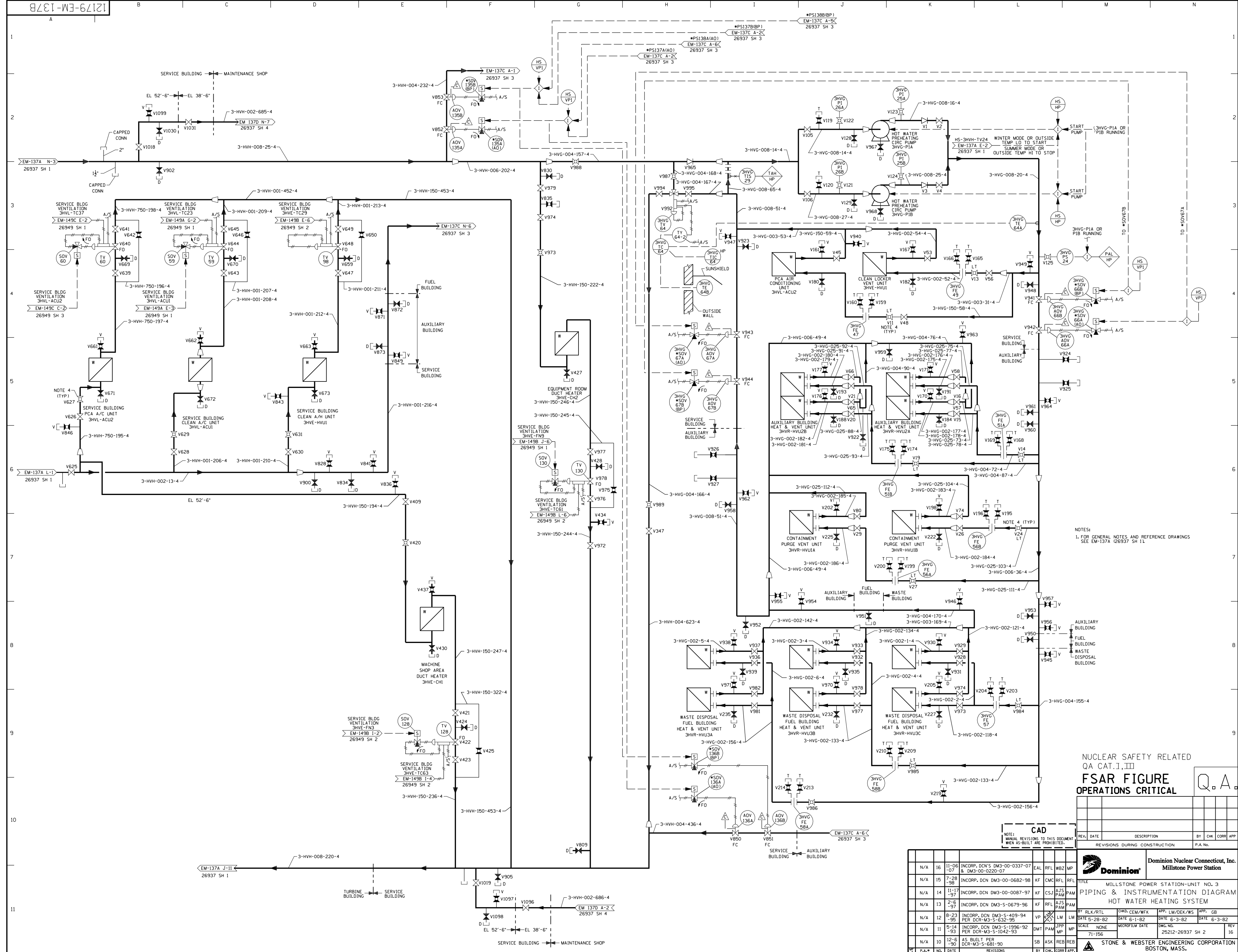


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR HOT WATER HEATING SYSTEM TO BE PREFIXED WITH "3HVH-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR HOT WATER PREHEATING SYSTEM TO BE PREFIXED WITH "3HVG-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. ALL VENTS, DRAINS, AND TEST CONNECTIONS ARE UNLESS OTHERWISE NOTED. ALL LEVEL SWITCH PIPING IS "I".
 4. VALVE USED FOR SYSTEM BALANCING, (TYPICAL FOR UNIT HEATER HEATING COILS, EXPANSION TANK, AND WHERE NOTED.)
 5. STRAINER ELEMENT HAS BEEN REMOVED FOR NORMAL OPERATION.
 6. ALL PIPING IS CLASS 151, UNLESS OTHERWISE NOTED.
 7. UNIT HEATERS 4B AND 4C, AND ASSOCIATED INSTRUMENTATION AND FANS ARE INSTALLED, BUT FUNCTIONALLY DELETED AND ABANDONED IN PLACE.
 8. FREEZE PROTECTION PROVIDED BY LOW TEMPERATURE CUTOFF THERMOSTATS 3HVH-TCT4 OR 3HVH-TCT5, MANUAL RESET AND UPON ACTUATION, SPURNS POWER TO THE UNIT (LOSSES LOW VOLTAGE) SHUTS DOWN COOLING AND FAN AND TEMPERATURE VALVE 3HVH-TV136 OR 3HVH-TV137 FAIL FULLY OPEN RESPECTIVE TO LOW TEMPERATURE CUTOFF ACTION.
 9. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM HOT WATER HEATING SYSTEM			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER DC MP3-19-01024 & DUR 19-000242	CAD NO: C269371.DWG DRAWING NO: 25212-26937	REV 24	REV 24
DSGN JCV SCALE: N/A UNLESS OTHERWISE NOTED SH 1			

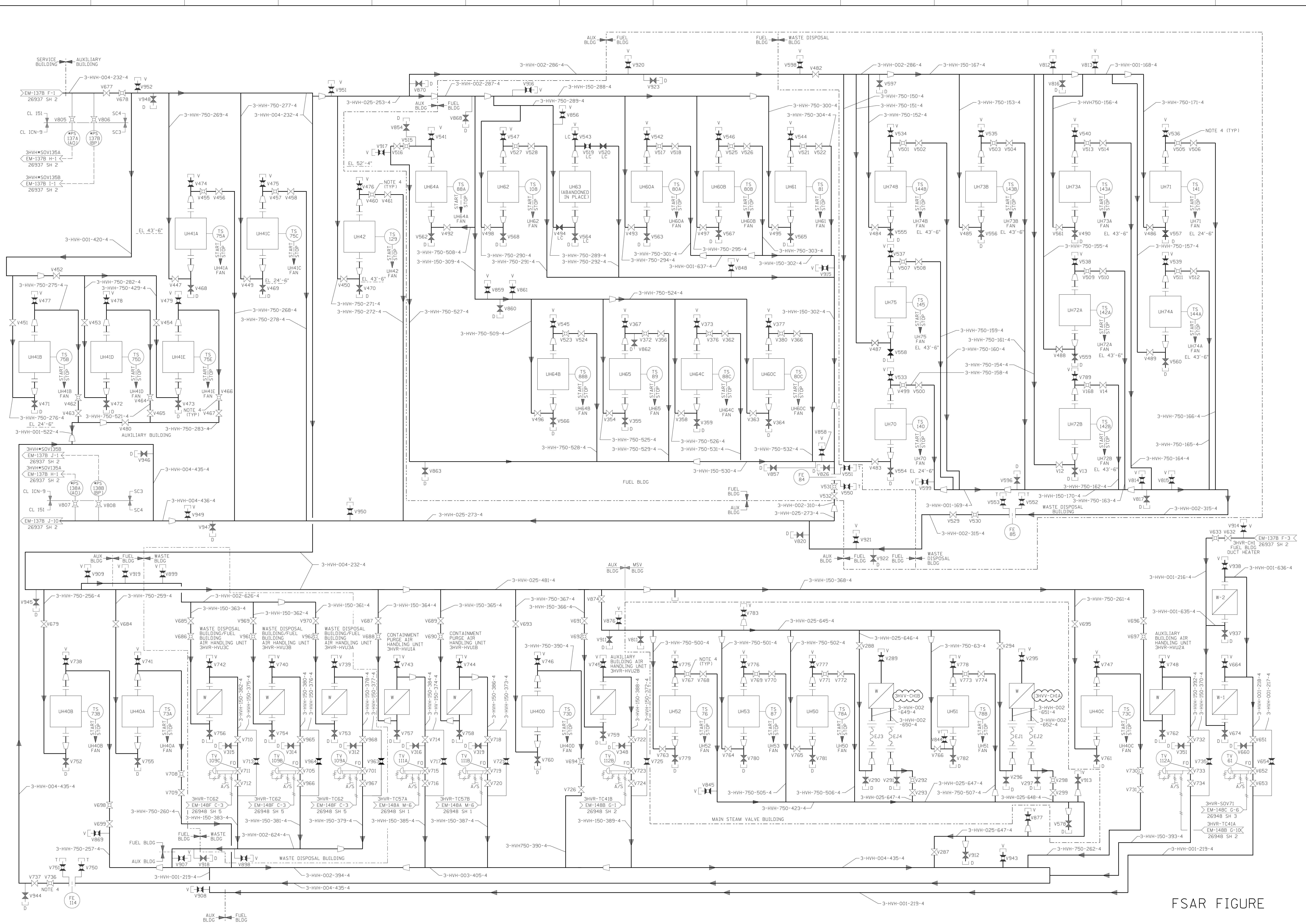


NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-137A (26937 SH 1)

NUCLEAR SAFETY RELATED
 QA CAT. I, II, III
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
						P.A. No.

		Dominion Nuclear Connection, Inc. Millstone Power Station	
TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM HOT WATER HEATING SYSTEM			
BY	RLK/RTL	CHKD	CEM/WFK
APP.	LM/DEK/WS	APP.	LM/DEK/WS
DATE	5-28-82	DATE	6-1-82
DATE	6-3-82	DATE	6-3-82
SCALE	NONE	MICROFILM DATE	DWG. NO.
71-156		25212-26937 SH 2	16
STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.		S&W DWG. NO.12179-EM-137B	



FSAR FIGURE

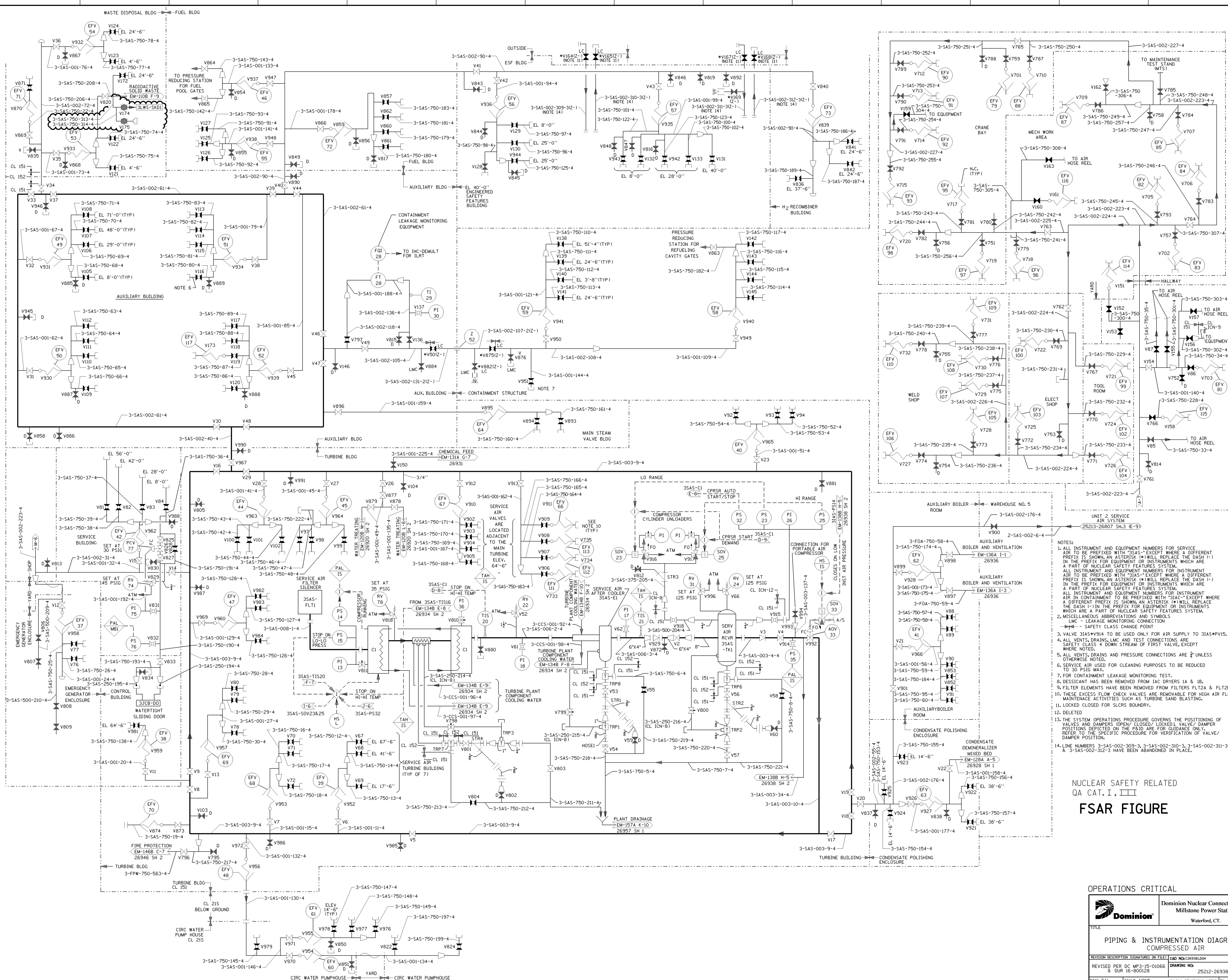
NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-137A (26937 SH.1)

OPERATIONS CRITICAL

Dominion Nuclear Power Station, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
 PIPING & INSTRUMENTATION DIAGRAM
 HOT WATER HEATING SYSTEM

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD No: C:\ms32\mnp001\c269373.dgn
 REVISED PER MSDUR 17-00044 DRAWING NO: 25212-26937 REV 14
 17-800075 SCALE: NONE UNLESS OTHERWISE NOTED SH 3

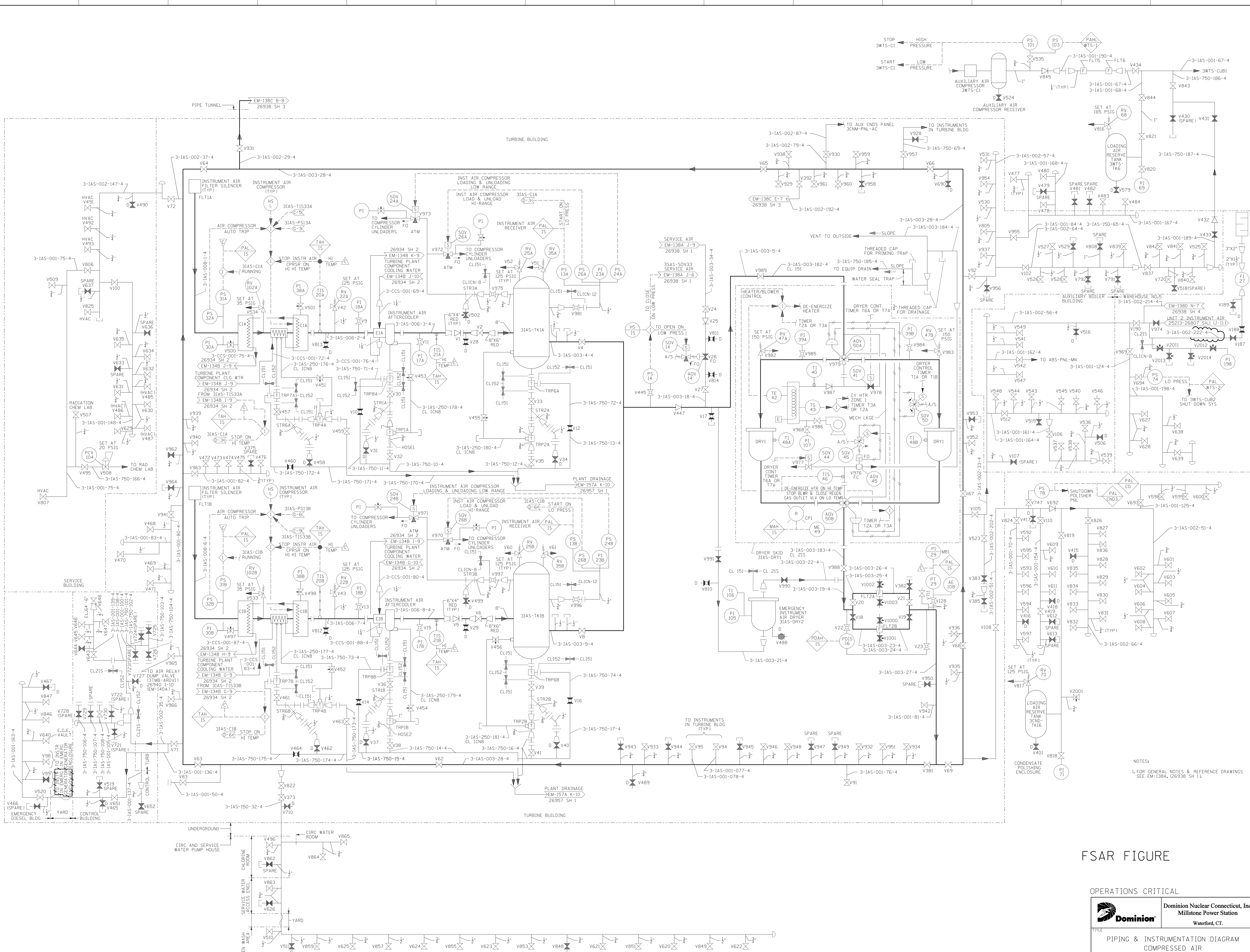


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SERVICE AIR TO BE PREFIXED WITH "3SAS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN, AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR INSTRUMENT AIR TO BE PREFIXED WITH "3IAS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN, AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR INSTRUMENT AIR IN CONTAINMENT TO BE PREFIXED WITH "3IAC-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN, AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 LMC - LEAKAGE MONITORING CONNECTION
 - - - SAFETY CLASS CHANGE POINT
 3. VALVE 3IAS*V914 TO BE USED ONLY FOR AIR SUPPLY TO 3IAS*PV15.
 4. ALL VENTS, DRAINS, LMC AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE, EXCEPT WHERE NOTED.
 5. ALL VENTS, DRAINS AND PRESSURE CONNECTIONS ARE 3 UNLESS OTHERWISE NOTED.
 6. SERVICE AIR USED FOR CLEANING PURPOSES TO BE REDUCED TO 30 PSIG MAX.
 7. FOR CONTAINMENT LEAKAGE MONITORING TEST.
 8. DESSICANT HAS BEEN REMOVED FROM IAC DRIVERS 1A & 1B.
 9. FILTER ELEMENTS HAVE BEEN REMOVED FROM FILTERS FL2A & FL2B.
 10. THESE EXCESS FLOW CHECK VALVES ARE REMOVABLE FOR HIGH AIR FLOW MAINTENANCE ACTIVITIES SUCH AS TURBINE SLAB BLASTING.
 11. LOCKED CLOSED FOR SLCRS BOUNDARY.
 12. DELETED
 13. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED/ VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 14. LINE NUMBERS 3-SAS-002-309-3, 3-SAS-002-310-3, 3-SAS-002-311-3 & 3-SAS-002-312-3 HAVE BEEN ABANDONED IN PLACE.

NUCLEAR SAFETY RELATED
 QA CAT. I, II, III
FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Nuclear Power Station Waterford, CT.
TITLE PIPING & INSTRUMENTATION DIAGRAM COMPRESSED AIR		
REVISION DESCRIPTION REVISED PER DC MP3-15-01066 & DUR 16-800128	SIGNATURES ON FILE CAD NO: C269381.DGN DRAWING NO: 25212-26938	REV 41
DSON EAL	SCALE NONE	UNLESS OTHERWISE NOTED SH 1



FSAR FIGURE

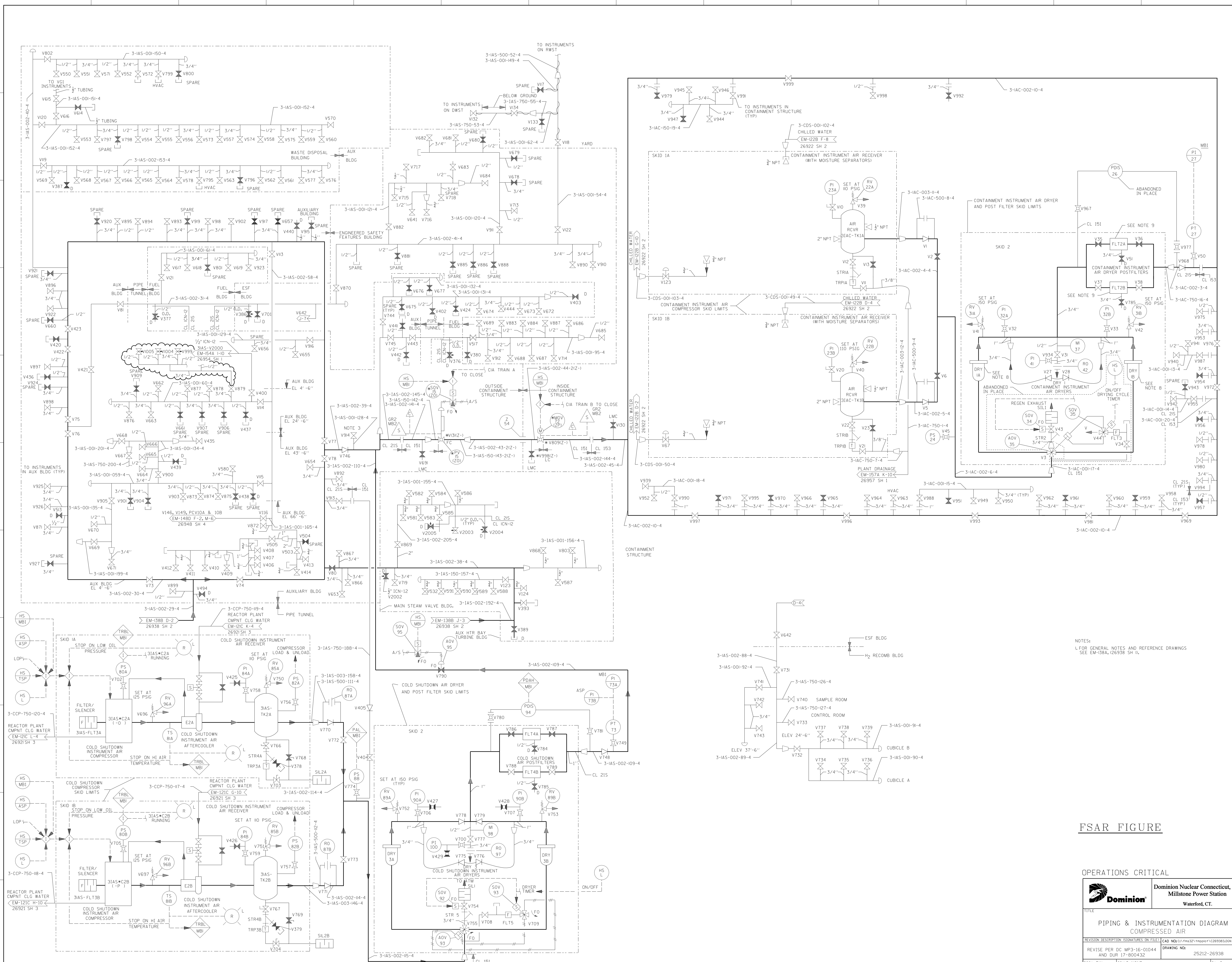
OPERATIONS CRITICAL

Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
COMPRESSED AIR

REVISION DESCRIPTION	ISSUANCES ON FILE	CAD NO: E11.m3321.mpp011.c269382.d00n
REVISED PER MSUR 18-00005 & DUR 18-80006	DRAWING NO: 25212-26938	REV 37
DSGN EAL	SCALE: NONE	UNLESS OTHERWISE NOTED SH 2

S&W DWG. NO. J2179-EM-138B



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-138A, 26938 SH 11.

FSAR FIGURE

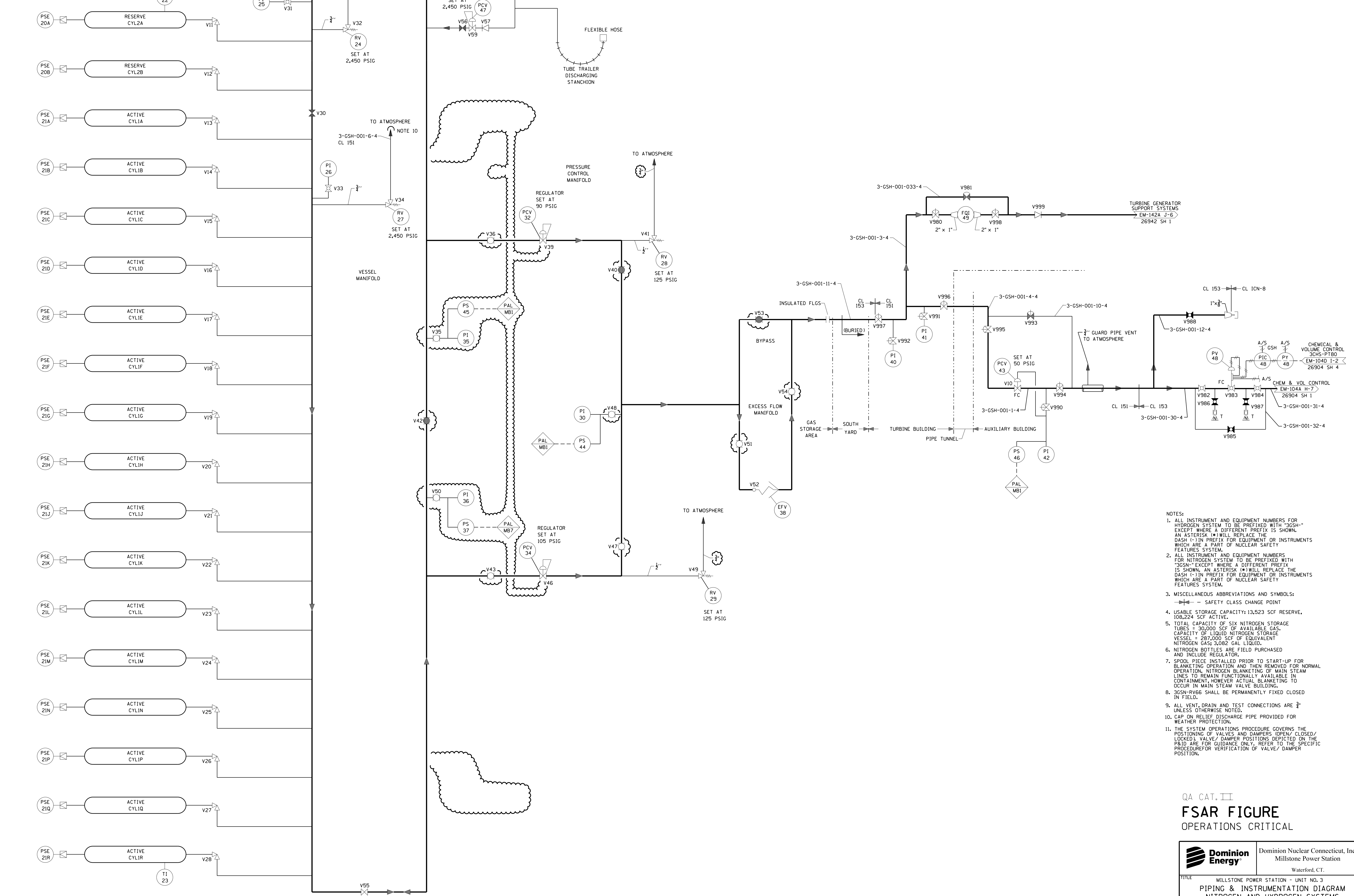
OPERATIONS CRITICAL

Dominion Nuclear Powersect, Inc.
 Millstone Power Station
 Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
COMPRESSED AIR

REVISION DESCRIPTION	ISSUANCE DATE	FILE	CAD NO:	11/16/04
REVISE PER DC MP3-16-01044 AND DUR 17-800432			DRAWING NO:	25212-26938
DSM: EAL	SCALE: NONE	UNLESS OTHERWISE NOTED	SH:	3

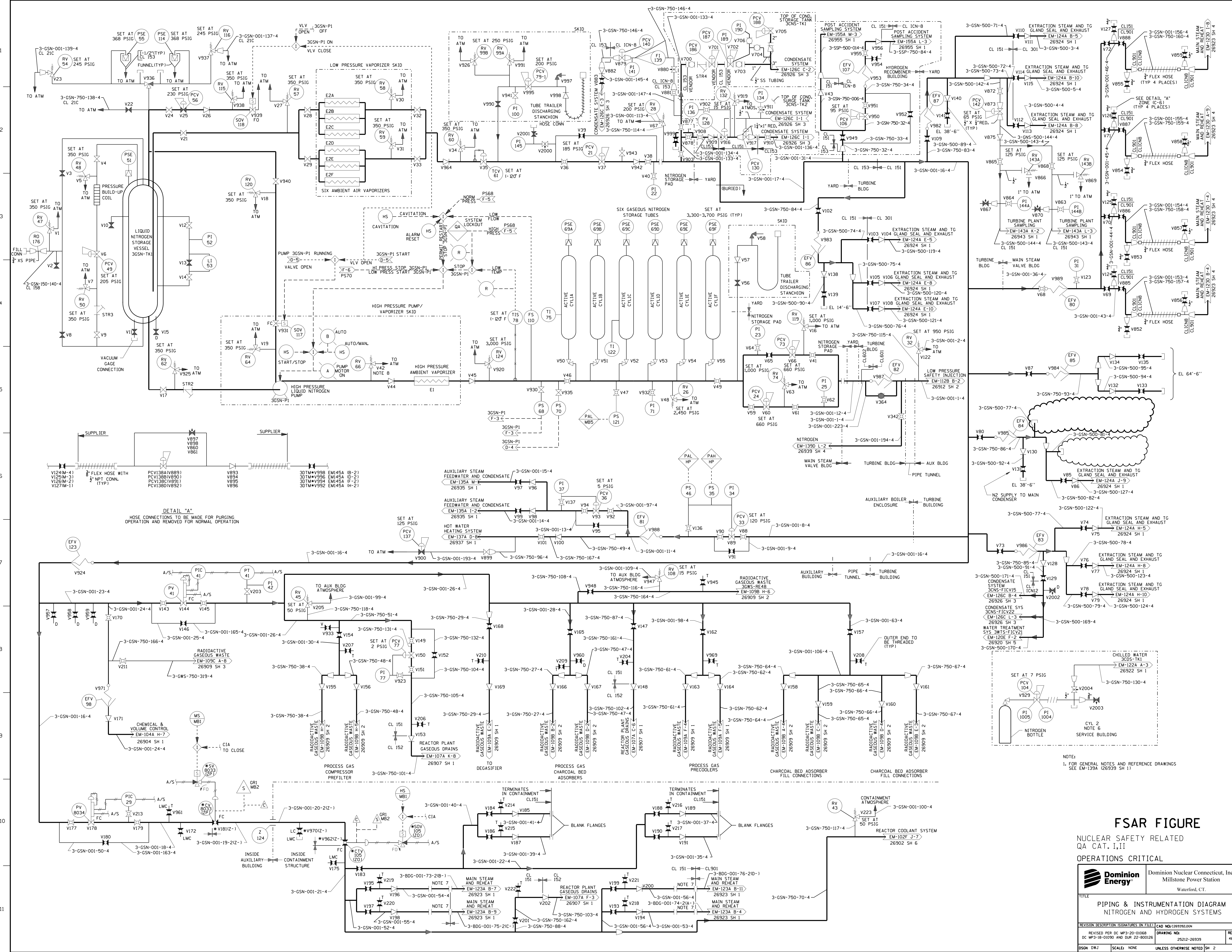
GASEOUS HYDROGEN STORAGE TUBES
 (ACTIVE RANGE 3,307-3,675 PSIG (TYP OF 16)
 (RESERVE RANGE 3,307-3,675 PSIG (TYP OF 2))



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR HYDROGEN SYSTEM TO BE PREFIXED WITH "GSH-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR NITROGEN SYSTEM TO BE PREFIXED WITH "GSN-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - - SAFETY CLASS CHANGE POINT
 4. USABLE STORAGE CAPACITY: 13,523 SCF RESERVE, 108,224 SCF ACTIVE.
 5. TOTAL CAPACITY OF SIX NITROGEN STORAGE TUBES = 30,000 SCF OF AVAILABLE GAS. CAPACITY OF LIQUID NITROGEN STORAGE VESSEL = 287,000 SCF OF EQUIVALENT NITROGEN GAS; 3,082 GAL LIQUID.
 6. NITROGEN BOTTLES ARE FIELD PURCHASED AND INCLUDE REGULATOR.
 7. SPOOL PIECE INSTALLED PRIOR TO START-UP FOR BLANKETING OPERATION AND THEN REMOVED FOR NORMAL OPERATION. NITROGEN BLANKETING OF MAIN STEAM LINES TO REMAIN FUNCTIONALLY AVAILABLE IN CONTAINMENT, HOWEVER ACTUAL BLANKETING TO OCCUR IN MAIN STEAM VALVE BUILDING.
 8. GSNN-RV66 SHALL BE PERMANENTLY FIXED CLOSED IN FIELD.
 9. ALL VENT, DRAIN AND TEST CONNECTIONS ARE 2" UNLESS OTHERWISE NOTED.
 10. CAP ON RELIEF DISCHARGE PIPE PROVIDED FOR WEATHER PROTECTION.
 11. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE PID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

QA CAT. III
FSAR FIGURE
 OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE: MILLSTONE POWER STATION - UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM NITROGEN AND HYDROGEN SYSTEMS			
REVISION DESCRIPTION MSUR 20-000074 MSUR 20-000076 & DUR 20-800264	SIGNATURES ON FILE CAD NO: C269391.DGN DRAWING NO: 25212-26939	REV 15	SCALE: NONE UNLESS OTHERWISE NOTED



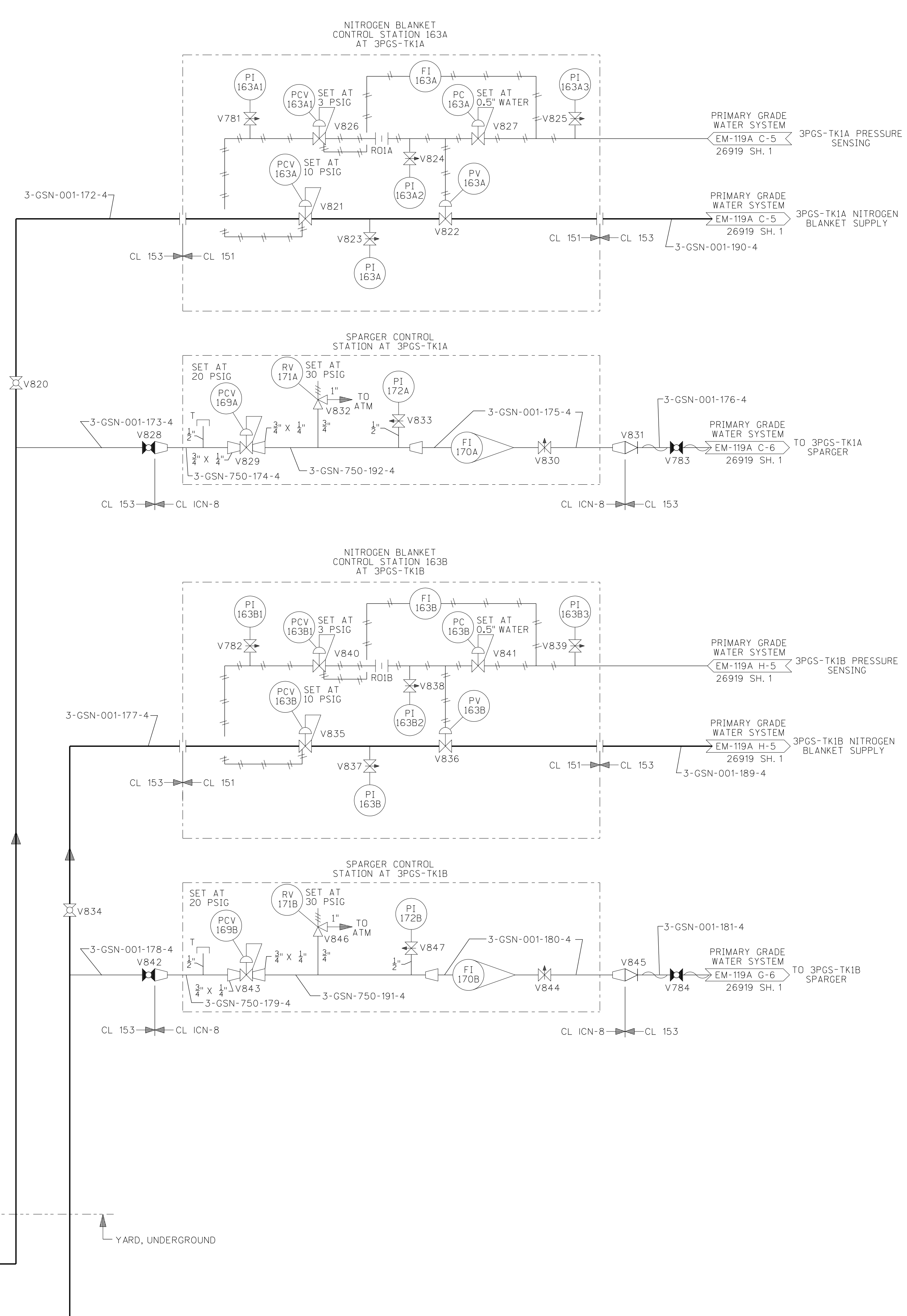
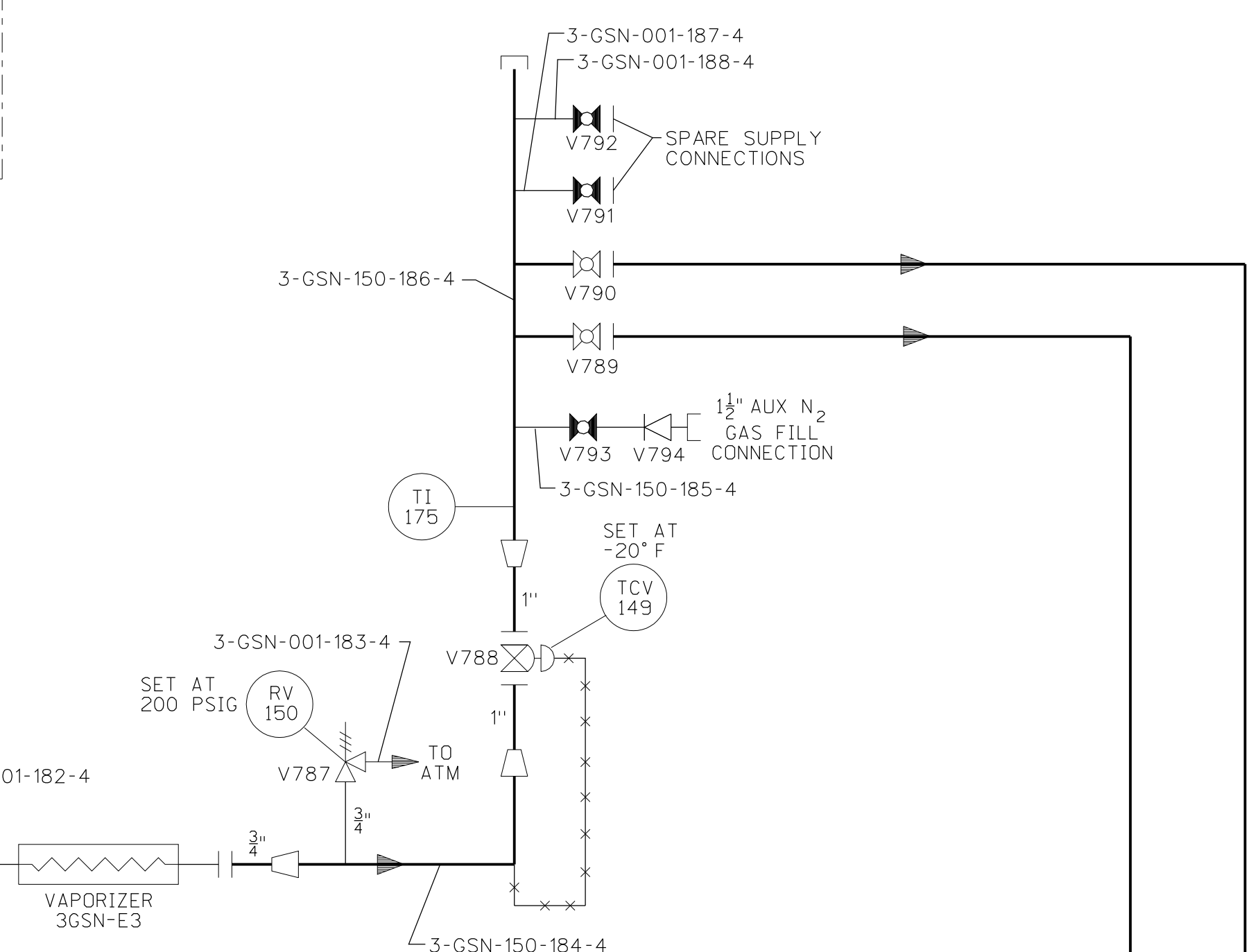
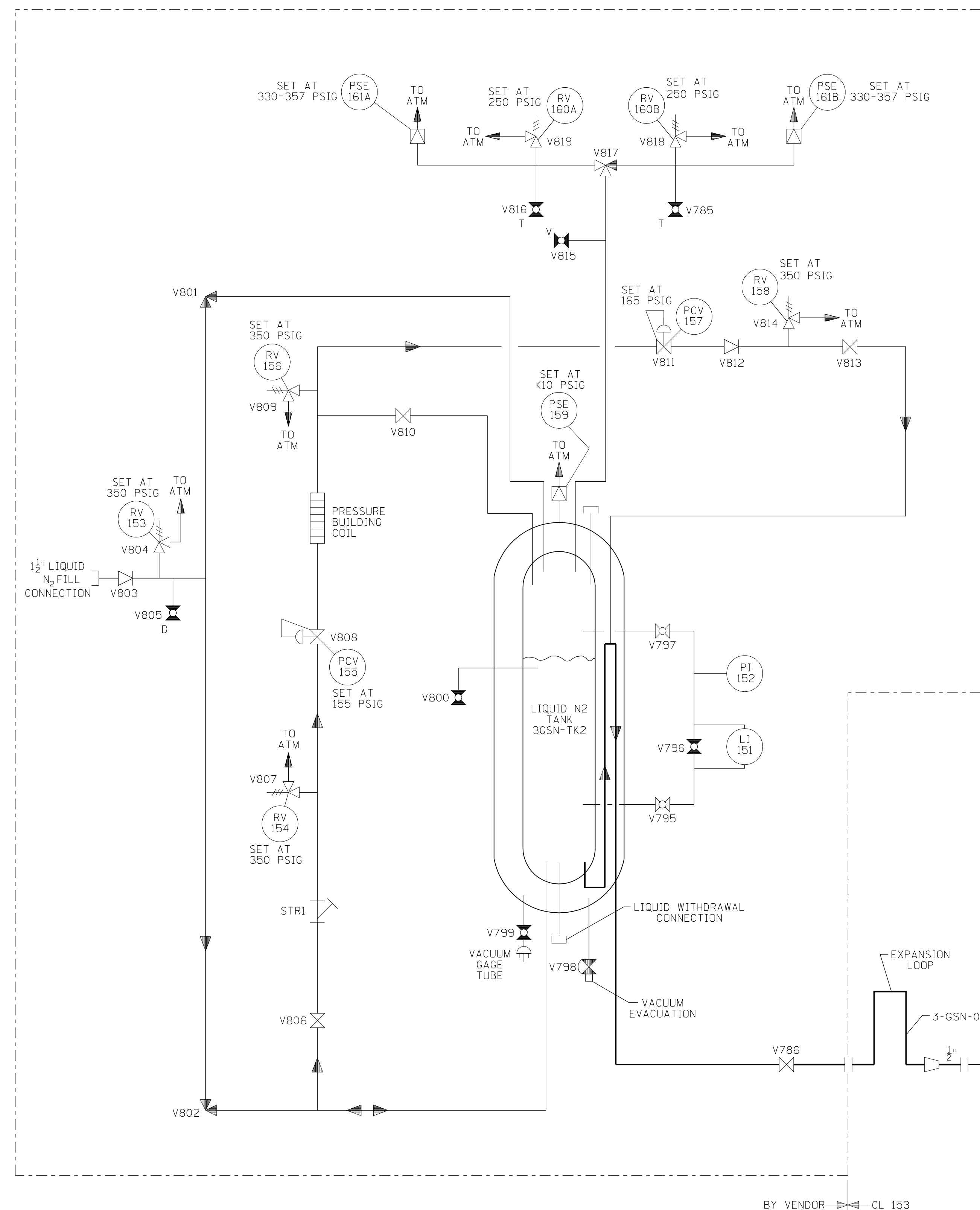
DETAIL "A"
 HOSE CONNECTIONS TO BE MADE FOR PURGING OPERATION AND REMOVED FOR NORMAL OPERATION

NOTE:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-139A (26939 SH 1)

FSAR FIGURE

NUCLEAR SAFETY RELATED
 QA CAT. I,II
 OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Nuclear Power Station Waterford, CT.
PIPING & INSTRUMENTATION DIAGRAM NITROGEN AND HYDROGEN SYSTEMS		
REVISION DESCRIPTION (SIGNATURES ON FILE) DC MP3-18-01030 AND DUR 22-800126	CAD NO: C26939.DWG DRAWING NO: 25212-26939	REV 46
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 2



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-139A (26939 SH. 1)

QA CAT. III
 FSAR FIGURE
 OPERATIONS CRITICAL

NON
 Q.A.

CAD
 NOTES:
 MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

REVISED DURING CONSTRUCTION		P.A. No.	

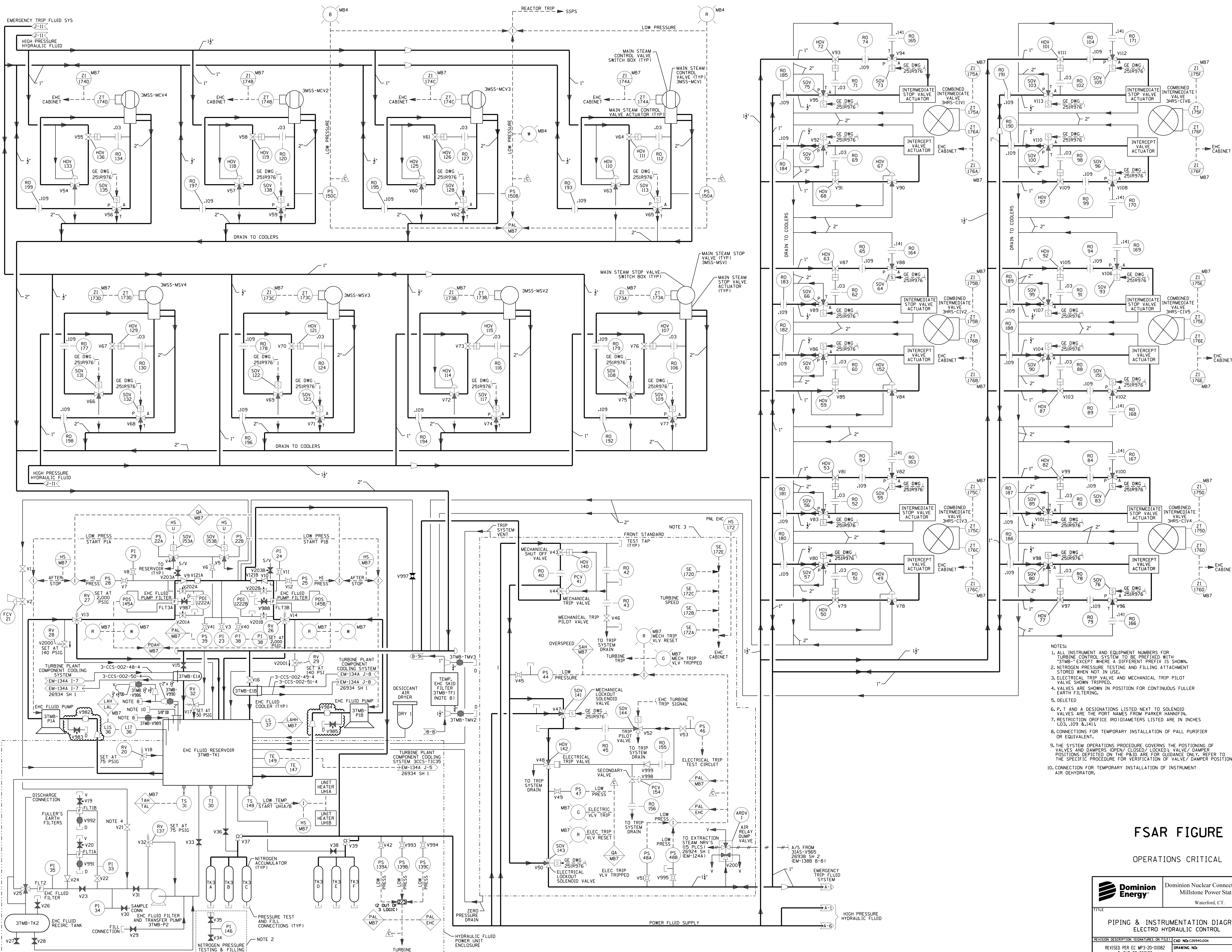
Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 NITROGEN & HYDROGEN SYSTEMS

NO.	DATE	REVISIONS	BY	CHK	APP.
5	9-1-09	INCRP DCM DM3-00-0003-09	EAL	RFL	JCV MP
4	6-1-04	INCRP DCM DM3-00-0126-02	SMC	MP	ASK DED
3	7-28-98	INCRP DCM DM3-00-0682-98	JSC	CMC	RFL RFL

SCALE: NONE
 MICROFILM DATE: 89-002
 Dwg. No. 25212-26939 SH. 3

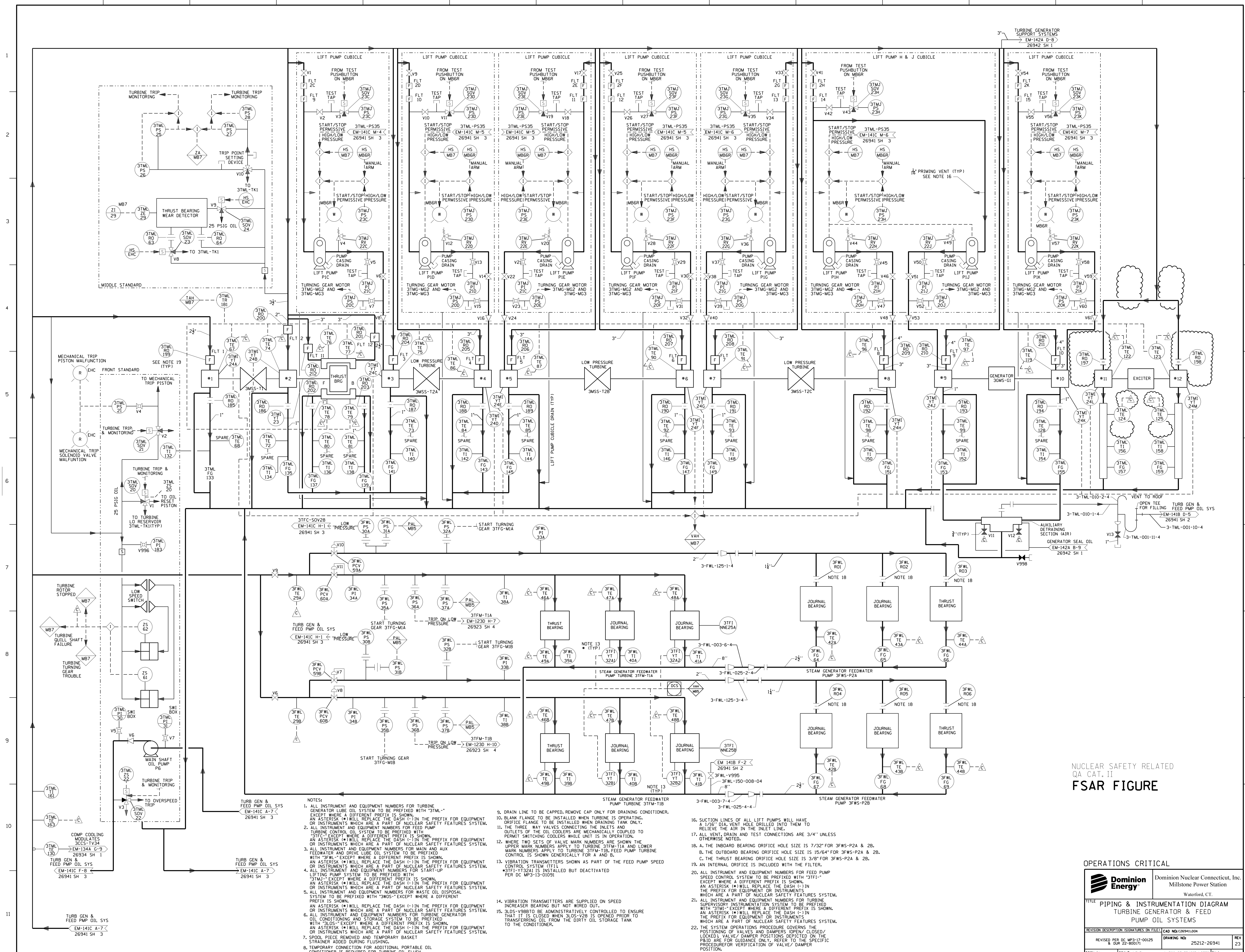
STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE CONTROL SYSTEM TO BE PREFIXED WITH "3TMB" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. NITROGEN PRESSURE TESTING AND FILLING ATTACHMENT STORED WHEN NOT IN USE.
 3. ELECTRICAL TRIP VALVE AND MECHANICAL TRIP PILOT VALVE SHOWN TRIPPED.
 4. VALVES ARE SHOWN IN POSITION FOR CONTINUOUS FULLER EARTH FILTERING.
 5. DELETED
 6. P, T, AND A DESIGNATIONS LISTED NEXT TO SOLENOID VALVES ARE THE PORT NAMES FROM PARKER HANFORD.
 7. RESTRICTION ORIFICE (RO) DIAMETERS LISTED ARE IN INCHES .103, .109 & .141.
 8. CONNECTIONS FOR TEMPORARY INSTALLATION OF PALL PURIFIER OR EQUIVALENT.
 9. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN, CLOSED, LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 10. CONNECTION FOR TEMPORARY INSTALLATION OF INSTRUMENT AIR DEHYDRATOR.

FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM ELECTRO HYDRAULIC CONTROL			
REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: C26940.DGN REVISED PER EC MP3-20-01082 & DUR 22-800120		DRAWING NO: 25212-26940	
DSGN EAL		SCALE: NONE UNLESS OTHERWISE NOTED SH 0	



NUCLEAR SAFETY RELATED
QA CAT. II
FSAR FIGURE

OPERATIONS CRITICAL

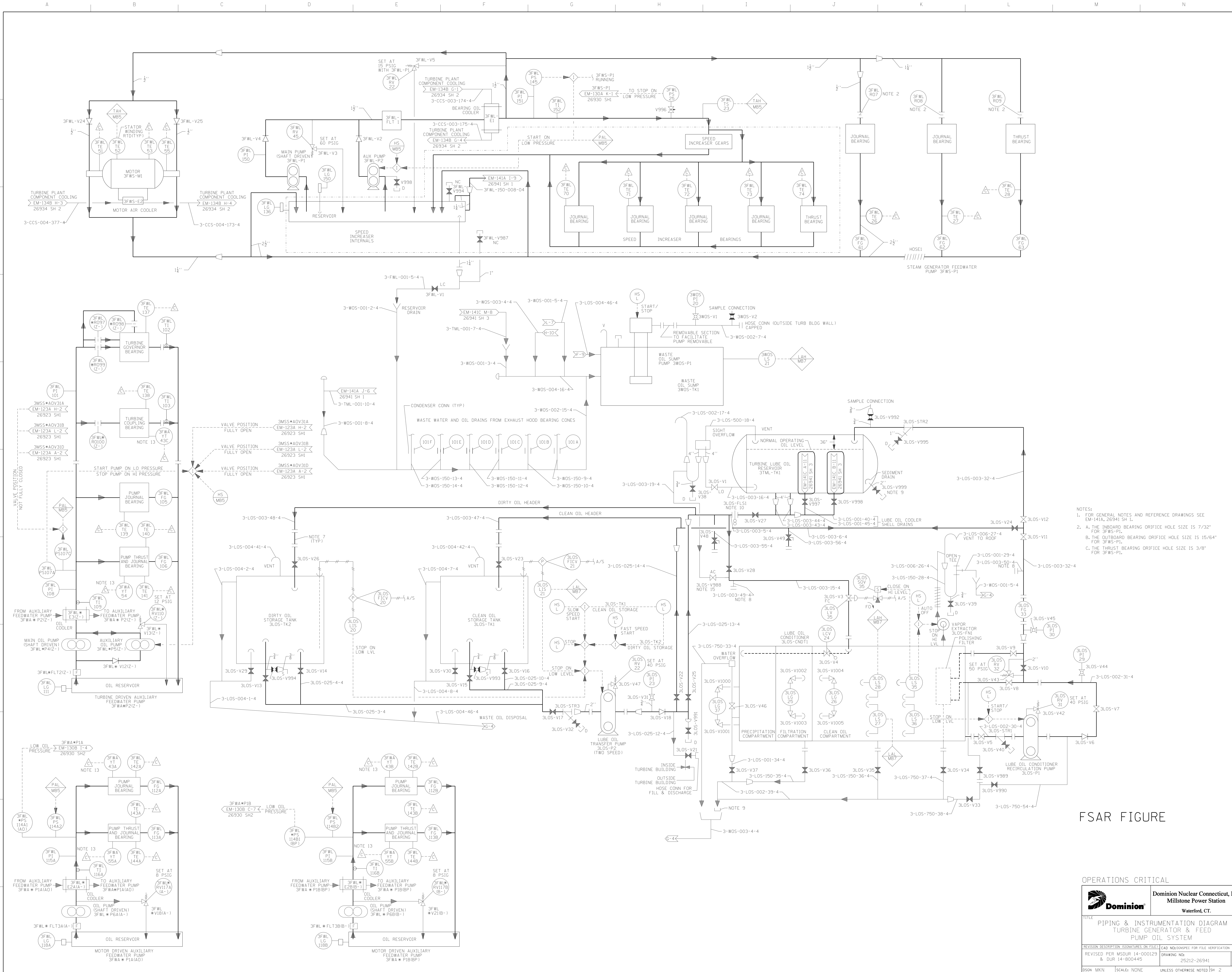
Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE: PIPING & INSTRUMENTATION DIAGRAM
TURBINE GENERATOR & FEED PUMP OIL SYSTEMS

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: C26941.DWG
REVISED PER DC MP3-17-0025 & DUR 22-800171 DRAWING NO: 25212-26941 REV 23

DSGN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 1

- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE GENERATOR LUBE OIL SYSTEM TO BE PREFIXED WITH "3TML" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FEED PUMP TURBINE CONTROL OIL SYSTEM TO BE PREFIXED WITH "3FC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR MAIN AND AUX FEEDWATER AND DRIVE LUBE OIL SYSTEM TO BE PREFIXED WITH "3FWL" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR WASTE OIL DISPOSAL SYSTEM TO BE PREFIXED WITH "3WOS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 - AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE OIL CONDITIONING AND STORAGE SYSTEM TO BE PREFIXED WITH "3LOS" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - SPOOL PIECE REMOVED AND TEMPORARY BASKET STRAINER ADDED DURING FLUSHING.
 - TEMPORARY CONNECTION FOR ADDITIONAL PORTABLE OIL CONDITIONER IF REQUIRED FOR TURBINE OIL FLUSH.
 - DRAIN LINE TO BE CAPPED, REMOVE CAP ONLY FOR DRAINING CONDITION.
 - BLANK FLANGE TO BE INSTALLED WHEN TURBINE IS OPERATING. ORIFICE FLANGE TO BE INSTALLED WHEN DRAINING TANK ONLY.
 - THE THREE WAY VALVES CONNECTING THE INLETS AND OUTLETS OF THE OIL COOLERS ARE MECHANICALLY COUPLED TO PERMIT SWITCHING COOLERS WHILE UNIT IS IN OPERATION.
 - WHERE TWO SETS OF VALVE MARK NUMBERS ARE SHOWN THE UPPER MARK NUMBERS APPLY TO TURBINE 3TFM-TIA AND LOWER MARK NUMBERS APPLY TO TURBINE 3TFM-T1B FEED PUMP TURBINE CONTROL. IS SHOWN GENERALLY FOR A AND B.
 - VIBRATION TRANSMITTERS SHOWN AS PART OF THE FEED PUMP SPEED CONTROL SYSTEM (IT1).
 - 3TF1-T22A1 IS INSTALLED BUT DEACTIVATED PER DC MP3-13-01091.
 - VIBRATION TRANSMITTERS ARE SUPPLIED ON SPEED INCREASES BEARING BUT NOT WIRED OUT.
 - 3LOS-V8BTO TO BE ADMINISTRATIVELY CONTROLLED TO ENSURE THAT IT IS CLOSED WHEN 3LOS-V28 IS OPENED PRIOR TO TRANSFERRING OIL FROM THE DIRTY OIL STORAGE TANK TO THE CONDITIONER.
 - SUCTION LINES OF ALL LIFT PUMPS WILL HAVE A 1/16" DIA. VENT HOLE DRILLED INTO THEM TO RELIEVE THE AIR IN THE INLET LINE.
 - THE THREE WAY VALVES CONNECTING THE INLETS AND OUTLETS OF THE OIL COOLERS ARE MECHANICALLY COUPLED TO PERMIT SWITCHING COOLERS WHILE UNIT IS IN OPERATION.
 - WHERE TWO SETS OF VALVE MARK NUMBERS ARE SHOWN THE UPPER MARK NUMBERS APPLY TO TURBINE 3TFM-TIA AND LOWER MARK NUMBERS APPLY TO TURBINE 3TFM-T1B FEED PUMP TURBINE CONTROL. IS SHOWN GENERALLY FOR A AND B.
 - THE THRUST BEARING ORIFICE HOLE SIZE IS 7/32" FOR 3FWS-P2A & 2B. B. THE OUTBOARD BEARING ORIFICE HOLE SIZE IS 15/64" FOR 3FWS-P2A & 2B. C. THE THRUST BEARING ORIFICE HOLE SIZE IS 3/8" FOR 3FWS-P2A & 2B.
 - AN INTERNAL ORIFICE IS INCLUDED WITH THE FILTER.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FEED PUMP SPEED CONTROL SYSTEM TO BE PREFIXED WITH "3TF1" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE SUPERVISORY INSTRUMENTATION SYSTEM TO BE PREFIXED WITH "3TMI" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/LOCKED/VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

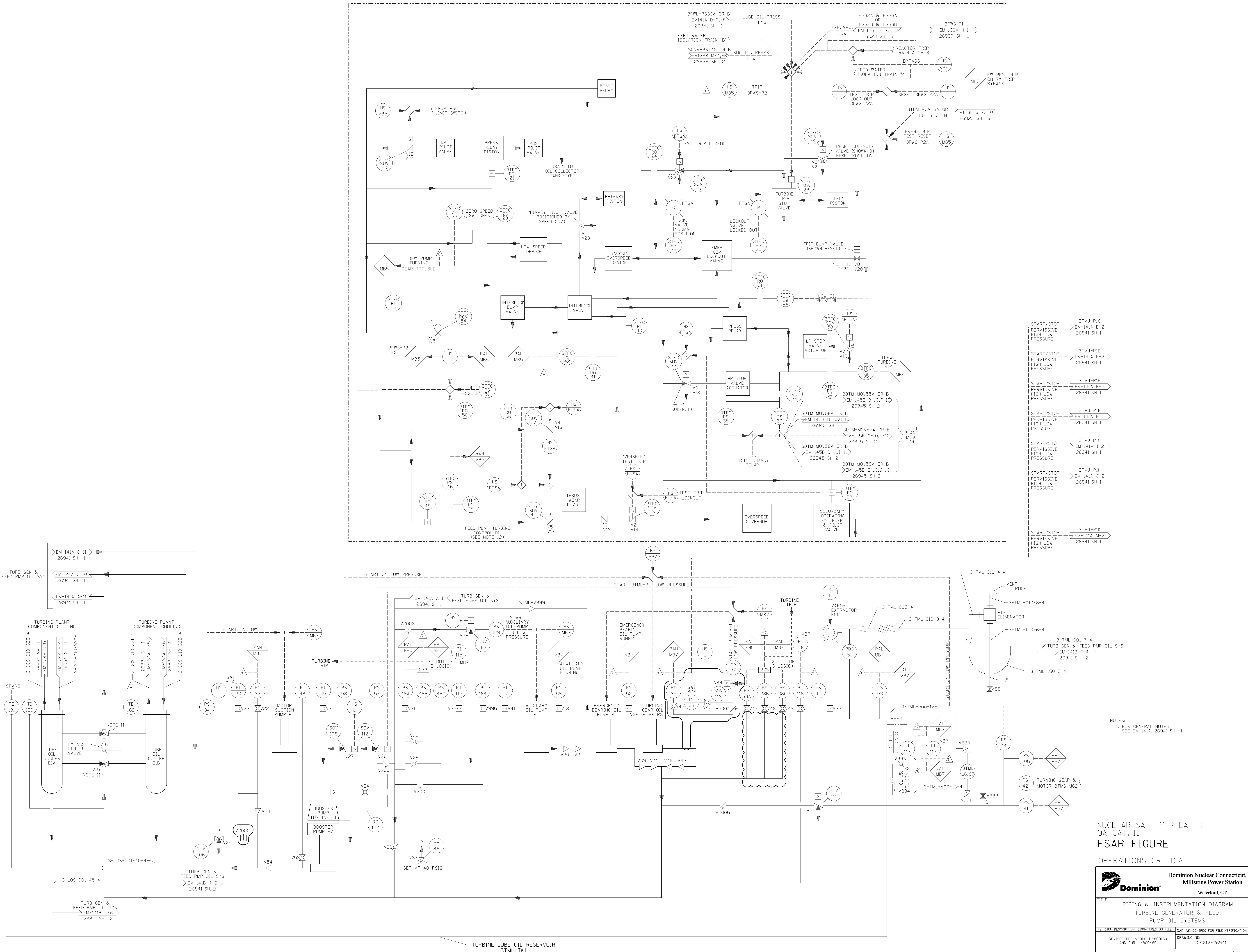


- NOTES
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-141A, 26941 SH 1.
 - A. THE INBOARD BEARING ORIFICE HOLE SIZE IS 7/32" FOR 3FWS-P1.
B. THE OUTBOARD BEARING ORIFICE HOLE SIZE IS 15/64" FOR 3FWS-P1.
C. THE THRUST BEARING ORIFICE HOLE SIZE IS 3/8" FOR 3FWS-P1.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM TURBINE GENERATOR & FEED PUMP OIL SYSTEM			
REVISION DESCRIPTION & DWR 14-800445	DRAWING NO. 25212-26941	CAD INDEPENDENT FOR FILE VERIFICATION	REV 24
DSON MKVN SCALE: NONE	UNLESS OTHERWISE NOTED SH 2		

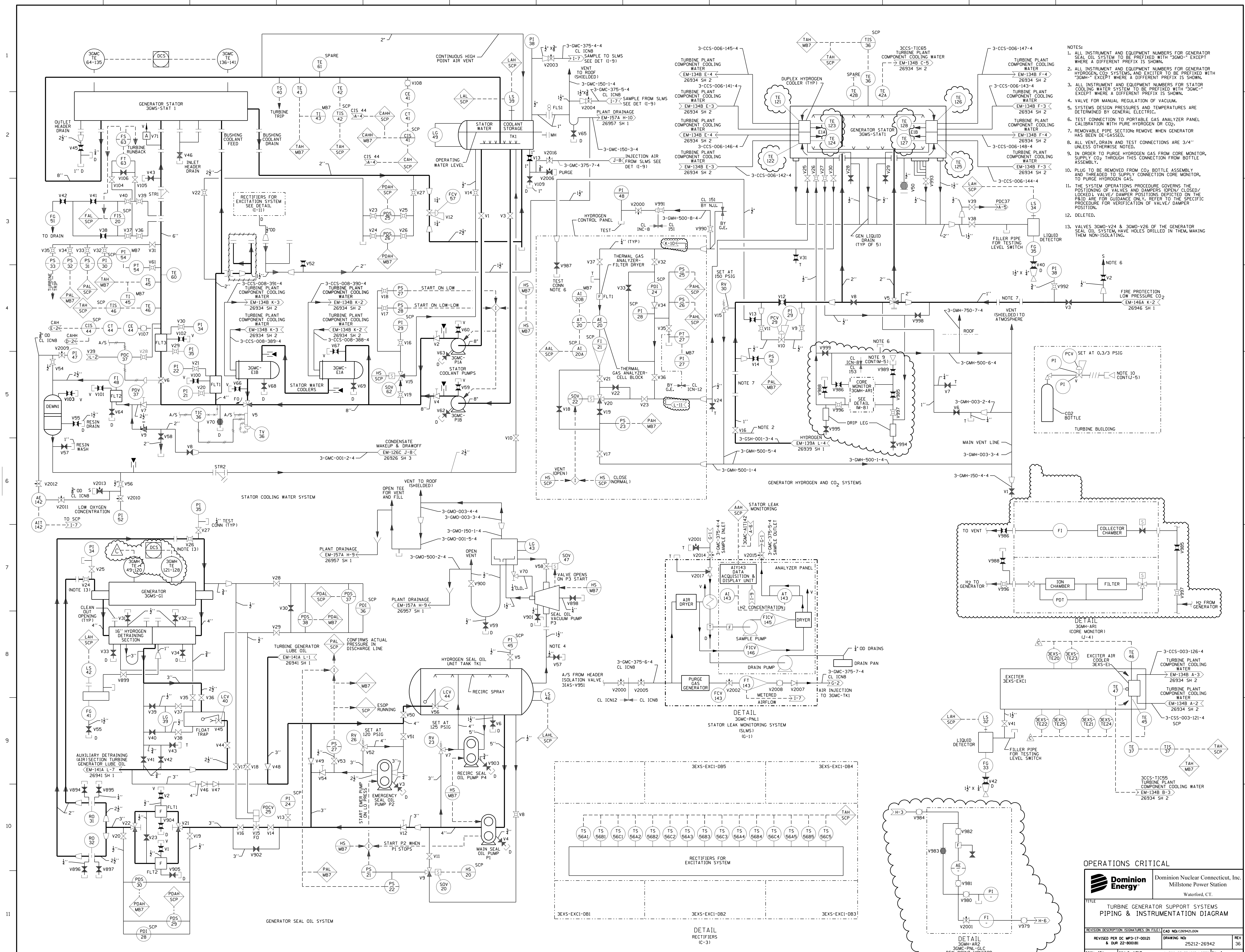


- START/STOP → 3TMJ-PIC → EM-141A E-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE
- START/STOP → 3TMJ-PID → EM-141A F-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE
- START/STOP → 3TMJ-PIE → EM-141A F-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE
- START/STOP → 3TMJ-PIF → EM-141A H-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE
- START/STOP → 3TMJ-PIG → EM-141A I-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE
- START/STOP → 3TMJ-PIH → EM-141A J-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE
- START/STOP → 3TMJ-PIK → EM-141A M-2 → 26941 SH 1 → PERMISSIVE HIGH LOW PRESSURE

NOTES:
1. FOR GENERAL NOTES SEE EM-141A, 26941 SH 1.

NUCLEAR SAFETY RELATED
QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM TURBINE GENERATOR & FEED PUMP OIL SYSTEMS			
REVISION DESCRIPTION	SIGNATURES ON FILE	CAD NO: 25212-26941	REV 12
REVISED PER MSUR 11-800130 AND DUR 11-800480		25212-26941	
DSGN DWJ	SCALE: NONE	UNLESS OTHERWISE NOTED SH 3	



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR GENERATOR SEAL OIL SYSTEM TO BE PREFIXED WITH "3GMO-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR GENERATOR HYDROGEN, CO₂ SYSTEMS, AND EXCITER TO BE PREFIXED WITH "3GMH-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR STATOR COOLING WATER SYSTEM TO BE PREFIXED WITH "3GMC-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 4. VALVE FOR MANUAL REGULATION OF VACUUM.
 5. SYSTEMS DESIGN PRESSURES AND TEMPERATURES ARE DETERMINED BY GENERAL ELECTRIC.
 6. TEST CONNECTION TO PORTABLE GAS ANALYZER PANEL CALIBRATION WITH PURE HYDROGEN OR CO₂.
 7. REMOVABLE PIPE SECTION: REMOVE WHEN GENERATOR HAS BEEN DE-GASSED.
 8. ALL VENT, DRAIN AND TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 9. IN ORDER TO PURGE HYDROGEN GAS FROM CORE MONITOR, SUPPLY CO₂ THROUGH THIS CONNECTION FROM BOTTLE ASSEMBLY.
 10. PLUG TO BE REMOVED FROM CO₂ BOTTLE ASSEMBLY AND THREADED TO SUPPLY CONNECTION CORE MONITOR, TO PURGE HYDROGEN GAS.
 11. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE PAID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 12. DELETED.
 13. VALVES 3GMO-V24 & 3GMO-V26 OF THE GENERATOR SEAL OIL SYSTEM, HAVE HOLES DRILLED IN THEM, MAKING THEM NON-ISOLATING.

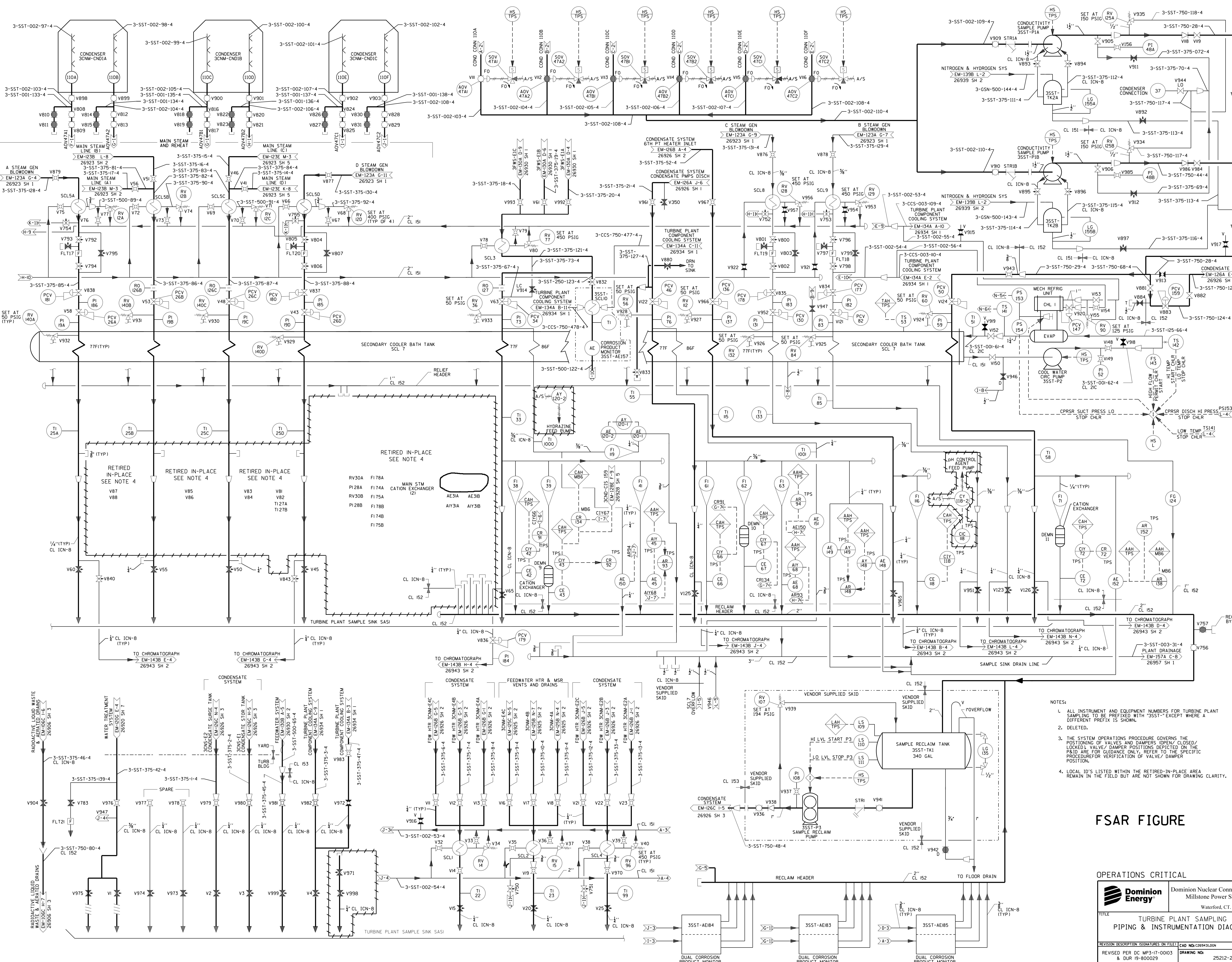
OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE: TURBINE GENERATOR SUPPORT SYSTEMS
PIPING & INSTRUMENTATION DIAGRAM

REVISION DESCRIPTION: SIGNATURES ON FILE CAD NO: C26942L00N
REVISED PER DC MP3-17-00121 & DUR 22-800181 DRAWING NO: 25212-26942 REV 36

DSGN JCV SCALES NONE UNLESS OTHERWISE NOTED SH 1

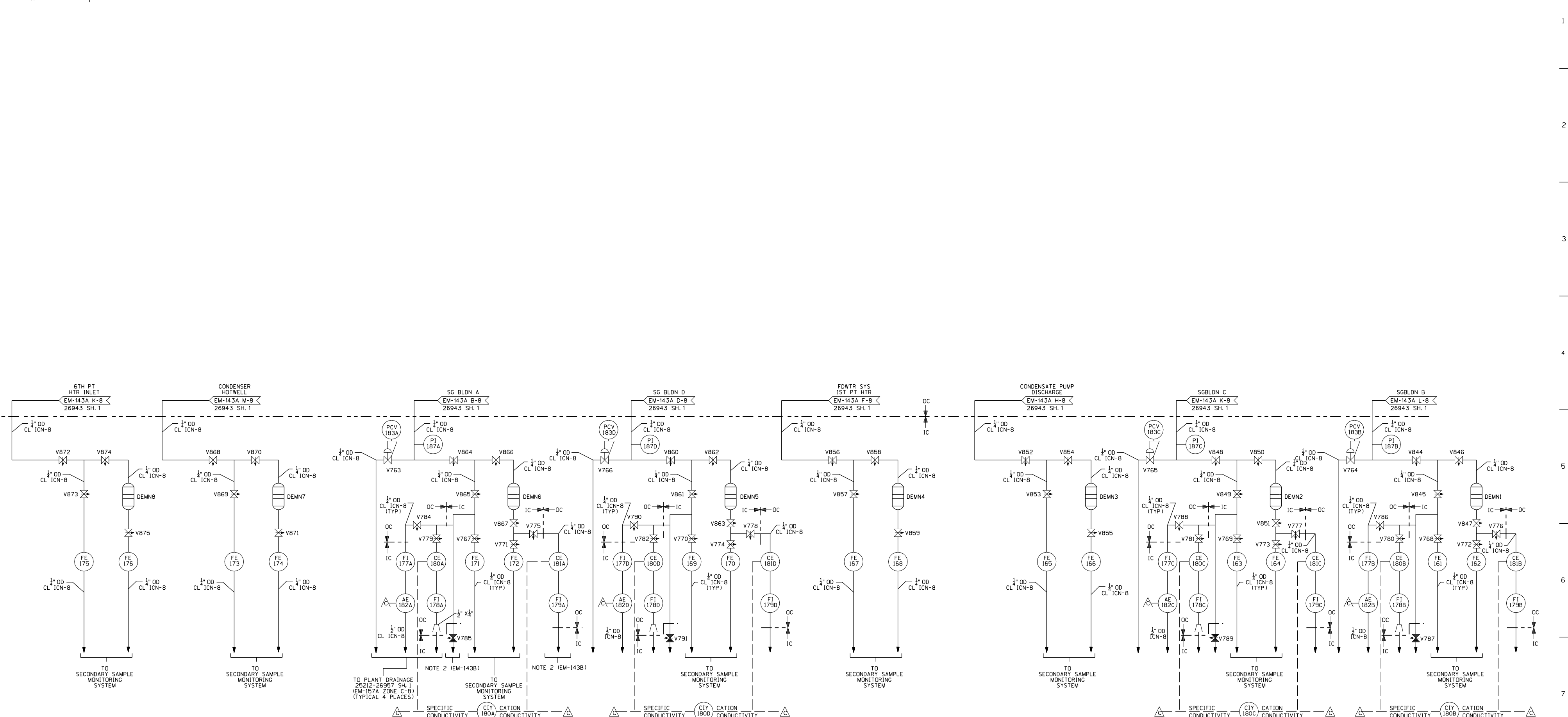


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE PLANT SAMPLING TO BE PREFIXED WITH "3SST-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. DELETED.
 3. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED). VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 4. LOCAL I.D.'S LISTED WITHIN THE RETIRED-IN-PLACE AREA REMAIN IN THE FIELD BUT ARE NOT SHOWN FOR DRAWING CLARITY.

FSAR FIGURE

OPERATIONS CRITICAL

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
	TITLE TURBINE PLANT SAMPLING PIPING & INSTRUMENTATION DIAGRAM
REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: 026943.000N REVISED PER DC MP3-17-00103 & DWR 19-800029	DRAWING NO: 25212-26943
DSGN EAL	SCALE: NONE UNLESS OTHERWISE NOTED (SH 1)



TO PLANT DRAINAGE
25212-26957 SH.1
(EM-157A ZONE C-B)
(TYPICAL 4 PLACES)

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

TO SECONDARY SAMPLE
MONITORING SYSTEM

- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-143A (26943 SH.1)
 - TO PLANT DRAINAGE, 25212-26957 SH.1 (EM-157A ZONE C-B) VIA CHROMATOGRAPH ROOM SINK (TYPICAL 4 PLACES)
- IC= INSIDE ION CHROMATOGRAPH ROOM
OC= OUTSIDE ION CHROMATOGRAPH ROOM

QA CAT. III
FSAR FIGURE
OPERATIONS CRITICAL

NON
Q.A.

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

P.L.#	NO.	DATE	REVISIONS	BY	CHK	CORR	APP.
93-025	1	4-21-95	INCORP. DCM'S DM3-5-301-94 & DM3-5-276-95 PER DSR-M3-5-319-95	MP	TJY	LM	LM
N/A	2	7-29-98	INCORP. DCM DM3-00-0682-98	JSC	CMC	RFL	RFL
N/A	3	11-16-00	INCORP. DCM DM3-00-0403-00	RFL	CSJ	DLW	PFL
N/A	4	2-6-07	INCORP. DCM DM3-00-0216-06	EAL	ASK	DLW	MP
N/A	5	12-3-07	INCORP. DCM DM3-00-0231-06 & DM3-01-0231-06	DWJ	RFL	DLW	MP

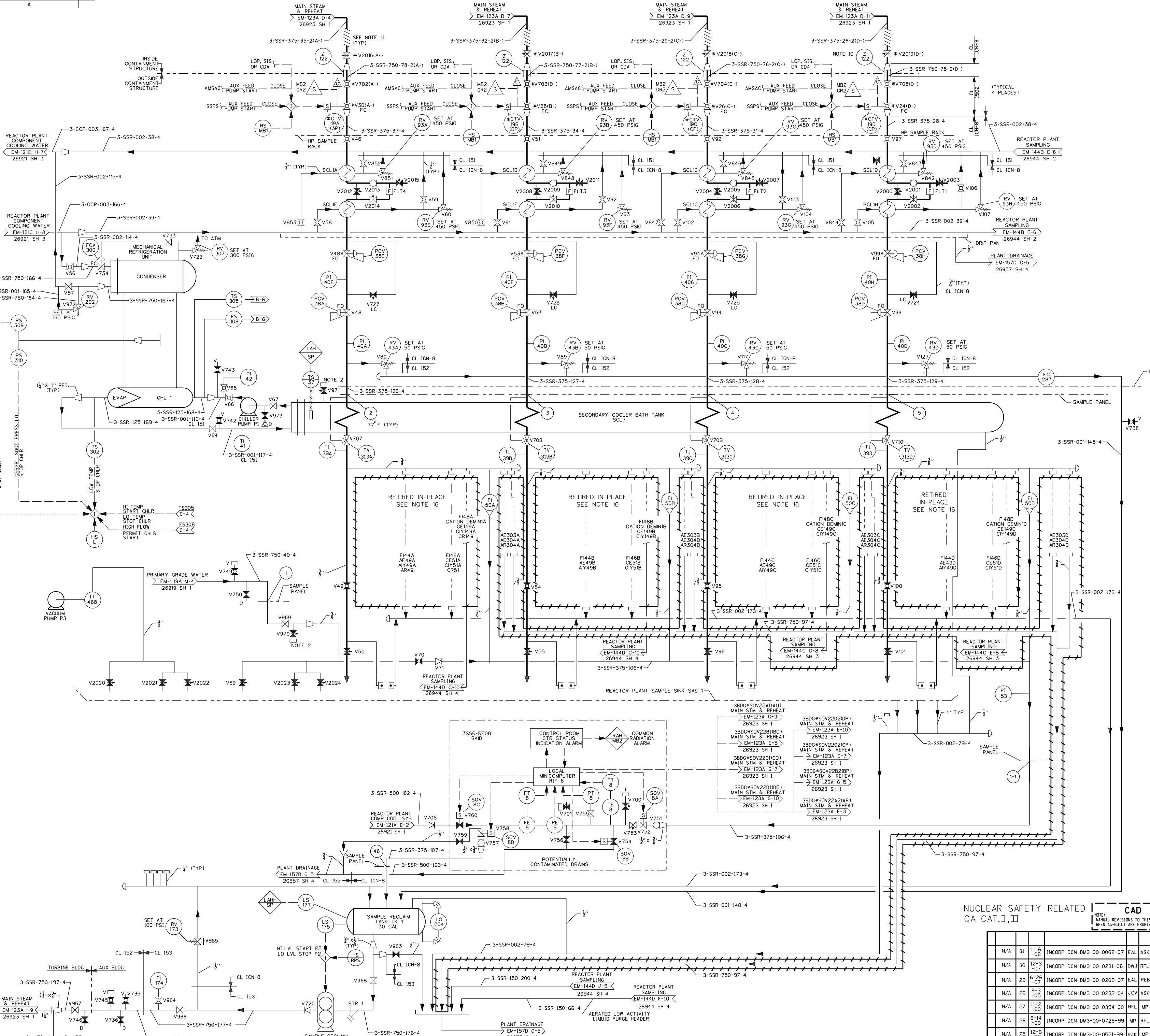
Dominion Dominion Nuclear Connecticut, Inc. Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT SAMPLING

BY: PAM, CHD, MP, APP, LM, APP, LM
DATE: 6/23/94, DATE: 4/19/95, DATE: 4/21/95, DATE: 4/21/95

SCALE: NONE MICROFILM DATE: 93-025 DWG. NO.: 25212-26943 SH. 2

STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR PLANT SAMPLING TO BE PREFIXED WITH "3SSR-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. CONNECTION UTILIZED TO FILL SECONDARY COOLER BATH TANK.
 3. OPEN
 4. ALL FLOW INDICATORS ARE EQUIPPED WITH INTEGRAL NEEDLE VALVE INLET AND CHECK VALVE OUTLET.
 5. QUICK DISCONNECTS ARE PROVIDED FOR INTEGRATION OF SAMPLE COLLECTION VESSEL.
 6. CONNECTION PROVIDED FOR HIGH PRESSURE SAMPLE FOR DISSOLVED GAS ANALYSIS.
 7. OPEN
 8. CONNECTION PROVIDED FOR DIGITAL PRESSURE INDICATOR (PI-467 & PI-467 PROVIDED BY WESTINGHOUSE) VALVES V784 AND V830 OPERABLE FROM PANEL FRONT.
 9. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - SAFETY CLASS CHANGE POINT
 10. PENETRATIONS ARE TO BE SCHEDULE 80.
 11. FLEX HOSES SHOWN DO NOT DEPICT ACTUAL NUMBER OR LOCATIONS. SEE THE APPLICABLE TUBING ISOMETRICS FOR ACTUAL LOCATIONS AND NUMBERS OF FLEX HOSES.
 12. ALL VENT, DRAIN & TEST CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 13. ALL VENT, DRAIN & TEST CONNECTIONS ARE SAFETY CLASS 4 DOWNSTREAM OF FIRST VALVE, UNLESS OTHERWISE NOTED.
 14. ○ = PENETRATION NUMBER LOCATED IN BACK OF SAMPLE SINK.
 15. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN, CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 16. LOCAL I.D.'S LISTED WITHIN THE RETIRED-IN-PLACE AREA REMAIN IN THE FIELD BUT ARE NOT SHOWN FOR DRAWING CLARITY.

FSAR FIGURE OPERATIONS CRITICAL

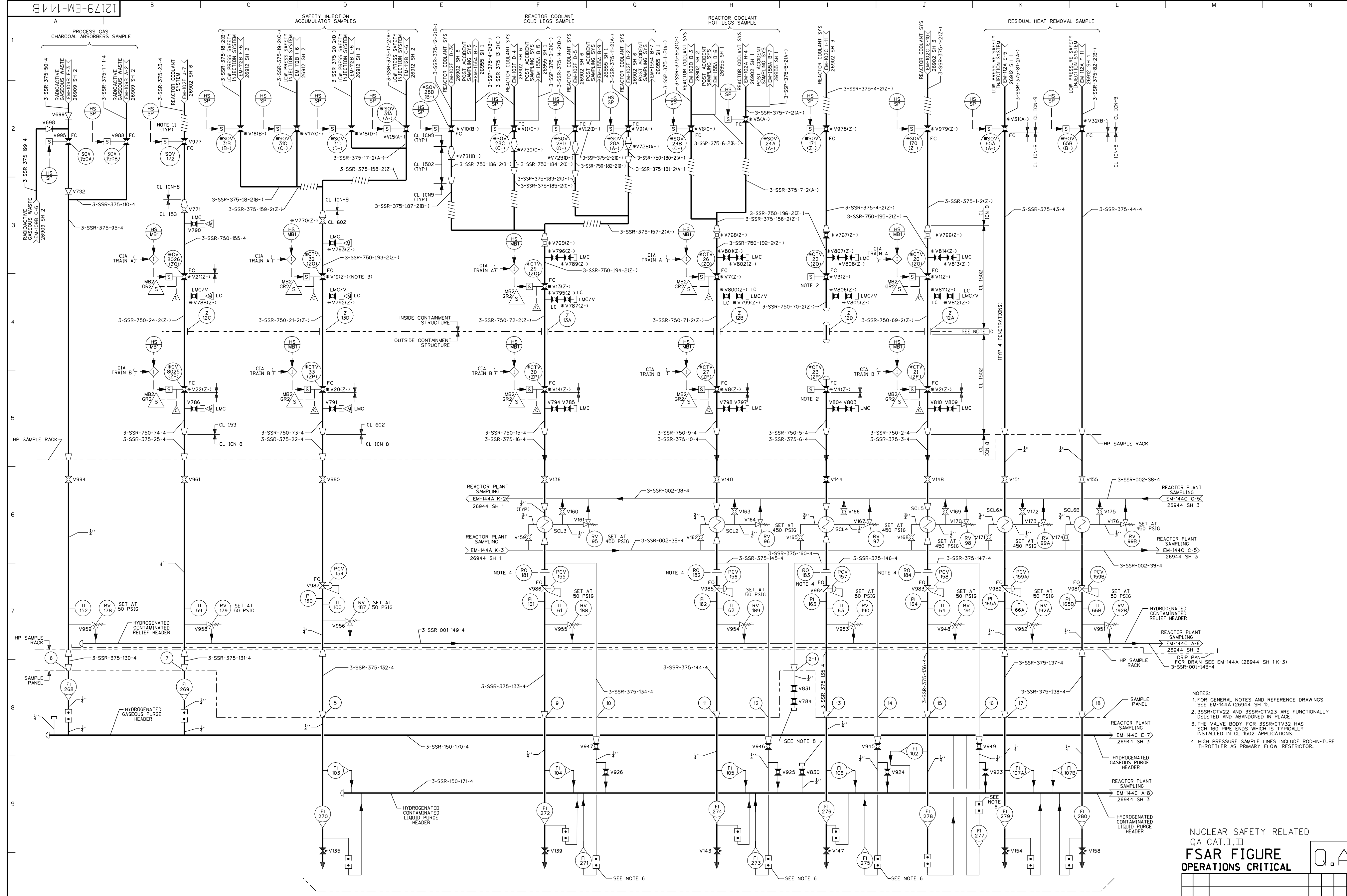
REV.	DATE	DESCRIPTION	BY	CHK.	CDR.	APP.
REVISIONS DURING CONSTRUCTION						

NUCLEAR SAFETY RELATED
QA CAT. I, II

REV.	DATE	DESCRIPTION	BY	CHK.	CDR.	APP.	
N/A	31-11-08	INCORP DCN DM3-00-0062-07	EAL	ASK	DLW	RFL	
N/A	30-12-07	INCORP DCN DM3-00-0231-06	DWJ	RFL	DLW	MP	
N/A	29-06-07	INCORP DCN DM3-00-0209-07	EAL	REB	DLW	RFL	
N/A	28-03-05	INCORP DCN DM3-00-0232-04	JCV	ASK	DLW	DED	
N/A	27-11-00	INCORP DCN DM3-00-0394-00	RFL	MP	AJS	RFL	
N/A	26-08-14	INCORP DCN DM3-00-0729-99	MP	RFL	DLW	CFW	
N/A	25-12-09	INCORP DCN DM3-00-0521-99	RJK	MP	AJS	RFL	
P.A.	NO.	DATE	REVISIONS	BY	CHK.	CDR.	APP.

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-144A (26944 SH 1).
 2. 3SSR-CTV22 AND 3SSR-CTV23 ARE FUNCTIONALLY DELETED AND ABANDONED IN PLACE.
 3. THE VALVE BODY FOR 3SSR-CTV32 HAS SCH 160 PIPE ENDS WHICH IS TYPICALLY INSTALLED IN ALL 1502 APPLICATIONS.
 4. HIGH PRESSURE SAMPLE LINES INCLUDE ROD-IN-TUBE THROTTLER AS PRIMARY FLOW RESTRICTOR.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
REACTOR PLANT SAMPLING

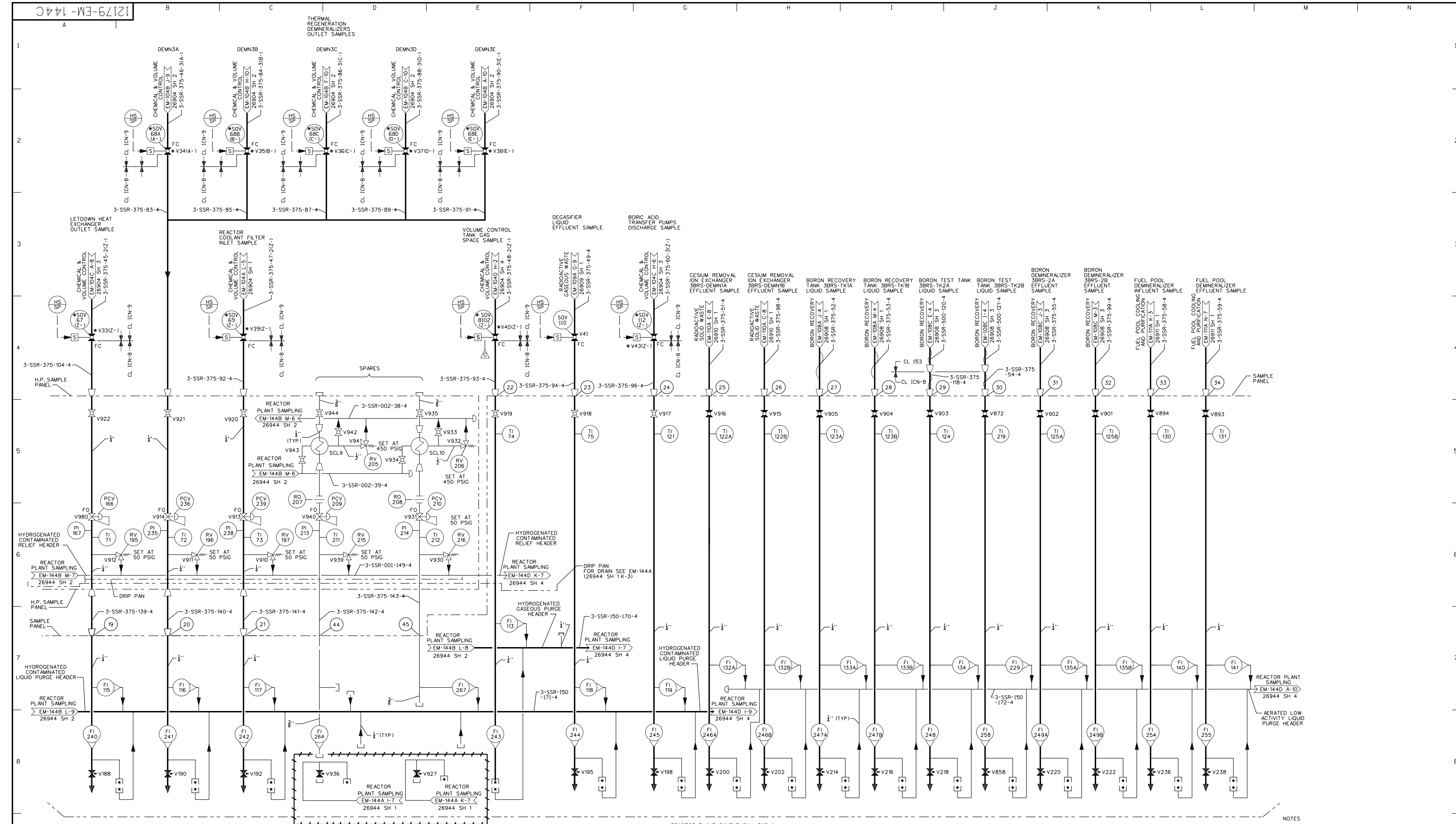
BY: BTD/RTL
DATE: 5-25-82
SCALE: NONE
DWG. NO.: 25212-26944 SH 2 OF 4

APP: BPS/DEK/WS
DATE: 5-26-82
SCALE: NONE
DWG. NO.: 25212-26944 SH 2 OF 4

APP: GOB
DATE: 6-3-82

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	22	B-14-00	INCORP DCN DM3-00-0729-99	MP	RFL	DLW/WCF
N/A	21	7-28-98	INCORP DCN DM3-00-0682-98	JSC	CMC/RFL	RFL
N/A	20	1-23-99	INCORP DCN DM3-00-1760-97	KF	RFL	MP
N/A	19	1-6-98	INCORP DCN DM3-5-757-96	KF	RFL	MP
N/A	18	12-5-97	INCORP DCN DM3-00-0019-97	AC	TJY	RWS
N/A	17	11-26-97	INCORP DCN DM3-00-1317-97	AC	CSJ	PAM
N/A	16	11-20-97	INCORP DCN DM3-00-1271-97	AC	MP	PAM
P.A.	NO.	DATE	REVISIONS	BY	CHK	CORR



NOTES
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-144A (26944 SH 1).

NUCLEAR SAFETY RELATED
 QA CAT. I, II

FSAR FIGURE OPERATIONS CRITICAL

CAD
 NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
						P.A. No.

N/A	NO.	DATE	REVISIONS	BY	CHK	CORR	APP
N/A	11	12-3-07	INCRP DCM DM3-00-0231-06	DWJ	RFL	DLW	MP
N/A	10	7-28-98	INCRP DCM DM3-00-0682-98	JSC	CMC	RFL	RFL
N/A	9	1-23-98	INCRP DCM DM3-00-1760-97	KF	RFL	AJS	MP
N/A	8	12-5-97	INCRP DCM DM3-00-0019-97	AC	MP	TJY	RWS
N/A	7	5-8-96	INCRP DCM DM3-5-384-96 PER DCR-M3-5-279-96	PAM	LEJ	AJS	LM
N/A	6	7-31-95	INCRP DCM DM3-5-774-95 PER DCR-M3-5-937-95	PAM	MP	AJS	LM
N/A	5	1-29-88	INCORPORATED E&DCR N-ME-04883	SEB	GMO	DAS	FJL
N/A	4	3-24-87	INCORPORATED E&DCR N-ME-03924	SOS	BWN	MAS	FJL
P.A.*	NO.	DATE	REVISIONS	BY	CHK	CORR	APP

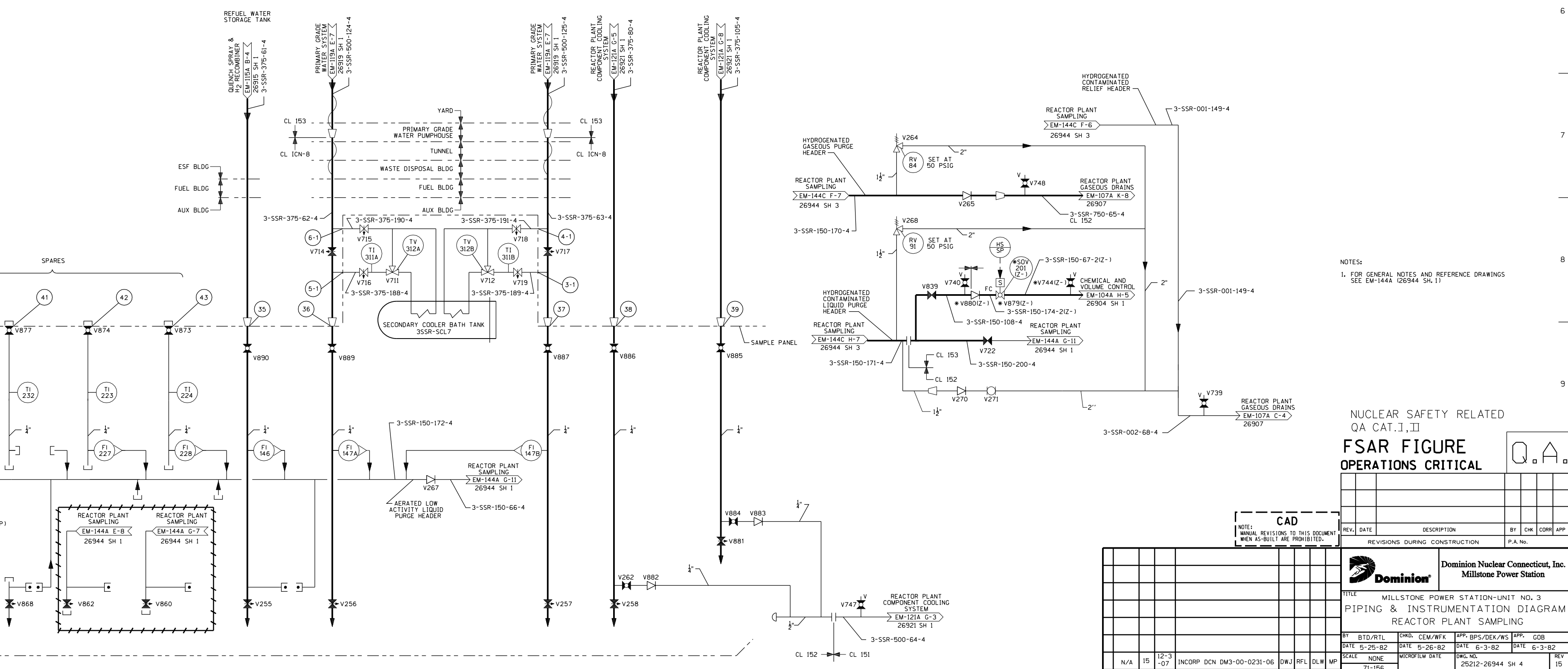
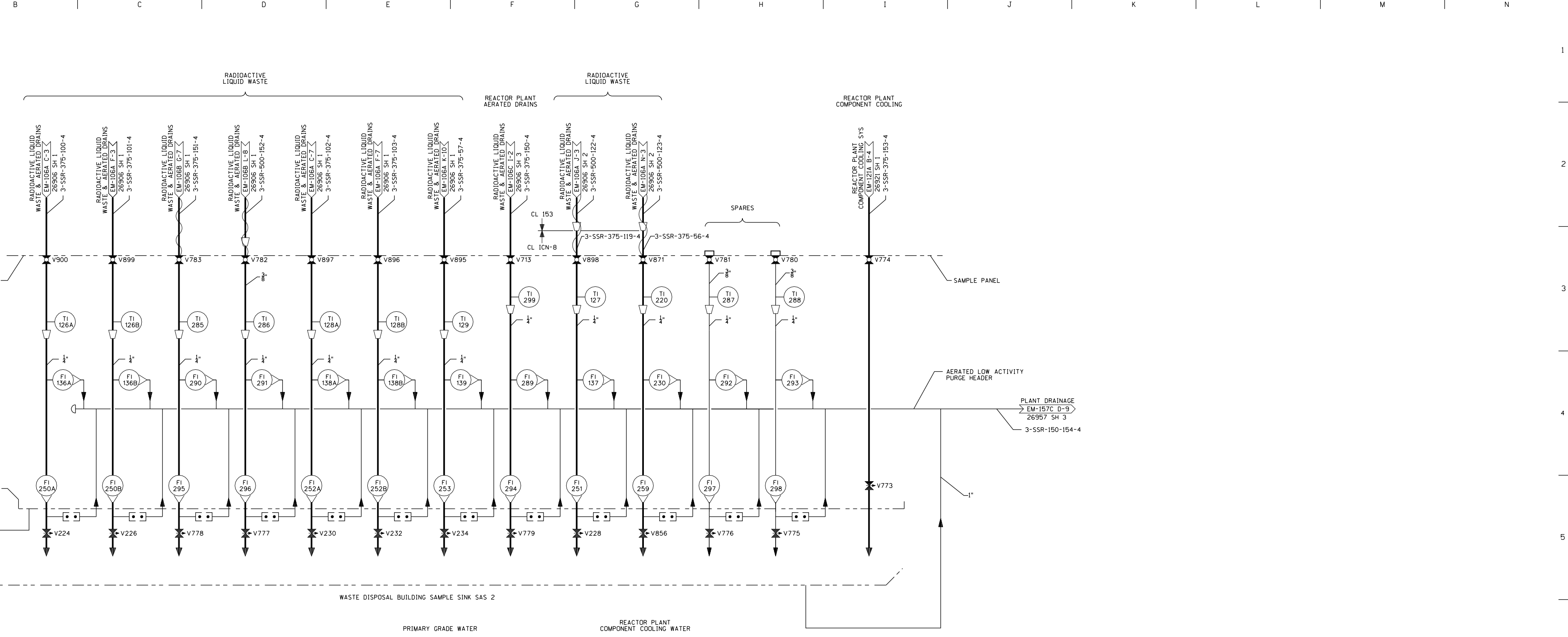
Dominion Nuclear Connecticut, Inc.
 Millstone Power Station

MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 REACTOR PLANT SAMPLING

BY	BTD/RTL	CHK	CEM/WFK	APP	BPS/DEK/WS	APP	GOB
	DATE	DATE	DATE	DATE	DATE	DATE	DATE

SCALE: NONE
 MICROFILM DATE: 71-156
 DWG. NO.: 251212-26944 SH 3
 SHEET: 11

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-144A (26944 SH.1)

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

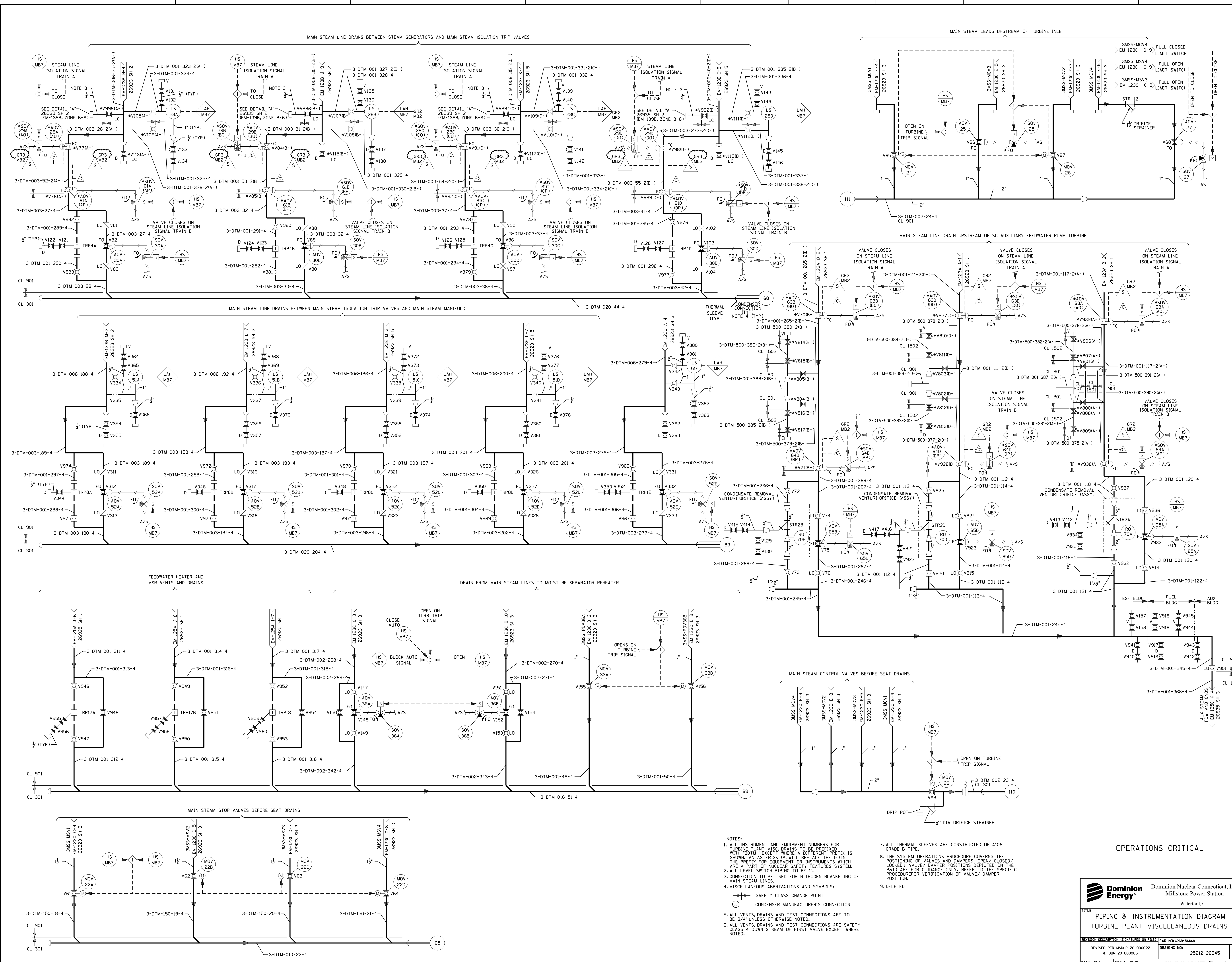
CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

Revisions During Construction

--	--	--	--	--	--	--

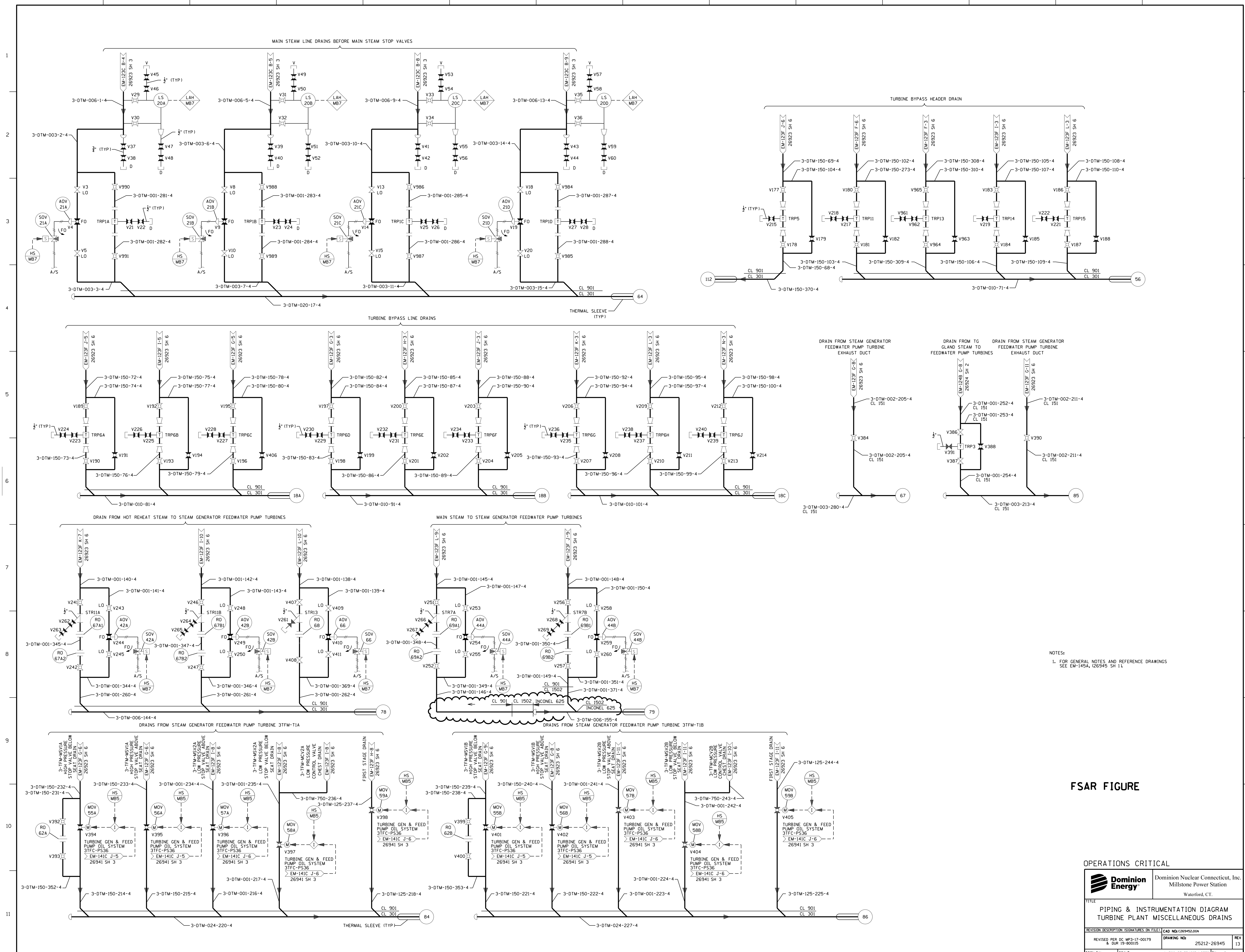
Dominion Nuclear Connecticut, Inc. Millstone Power Station
 TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM REACTOR PLANT SAMPLING
 BY: BTD/RTL CWD, CEM/WFK APP: BPS/DEK/WS APP: GOB
 DATE: 5-25-82 DATE: 5-26-82 DATE: 6-3-82 DATE: 6-3-82
 SCALE: NONE MICROFILM DATE: DWG. NO.: 25212-26944 SH. 4 REV: 15
 71-156
 STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE PLANT MISC. DRAINS TO BE PREFIXED WITH "3-DTM-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN; AN ASTERISK (*) WILL REPLACE THE (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL LEVEL SWITCH PIPING TO BE 1".
 3. CONNECTION TO BE USED FOR NITROGEN BLANKETING OF MAIN STEAM LINES.
 4. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - SAFETY CLASS CHANGE POINT
 - CONDENSER MANUFACTURER'S CONNECTION
 5. ALL VENTS, DRAINS AND TEST CONNECTIONS ARE TO BE 3/4" UNLESS OTHERWISE NOTED.
 6. ALL VENTS, DRAINS AND TEST CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE EXCEPT WHERE NOTED.
 7. ALL THERMAL SLEEVES ARE CONSTRUCTED OF A106 GRADE B PIPE.
 8. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY; REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 9. DELETED

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT MISCELLANEOUS DRAINS			
REVISION DESCRIPTION SIGNATURES ON FILE	CAD NO. C269451.DGN	DRAWING NO. 25212-26945	REV 45
OSUN JSJ	SCALE: NONE	UNLESS OTHERWISE NOTED	SH 1



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS
 SEE EM-145A, (26945 SH 1)

FSAR FIGURE

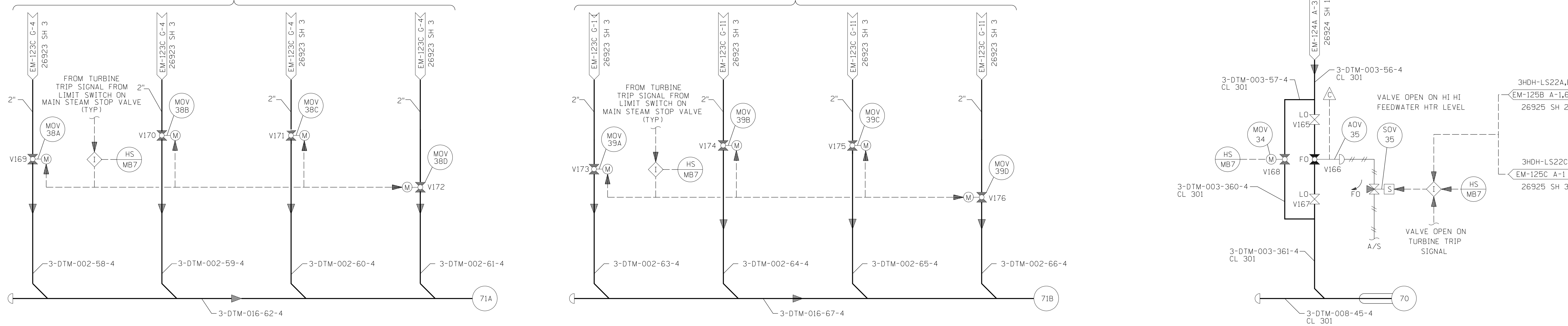
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT MISCELLANEOUS DRAINS			
REVISION DESCRIPTION (SIGNATURES ON FILE) DSGM EAL	CAD NO: 1269452.DGN DRAWING NO: 25212-26945 SCALE: UNLESS OTHERWISE NOTED SH 2	REV 13	REV 13

COLD REHEAT LINES FROM HIGH PRESSURE TURBINE 3M55-T1 TO MOISTURE SEPARATOR REHEATER 3CR5-MSP1A

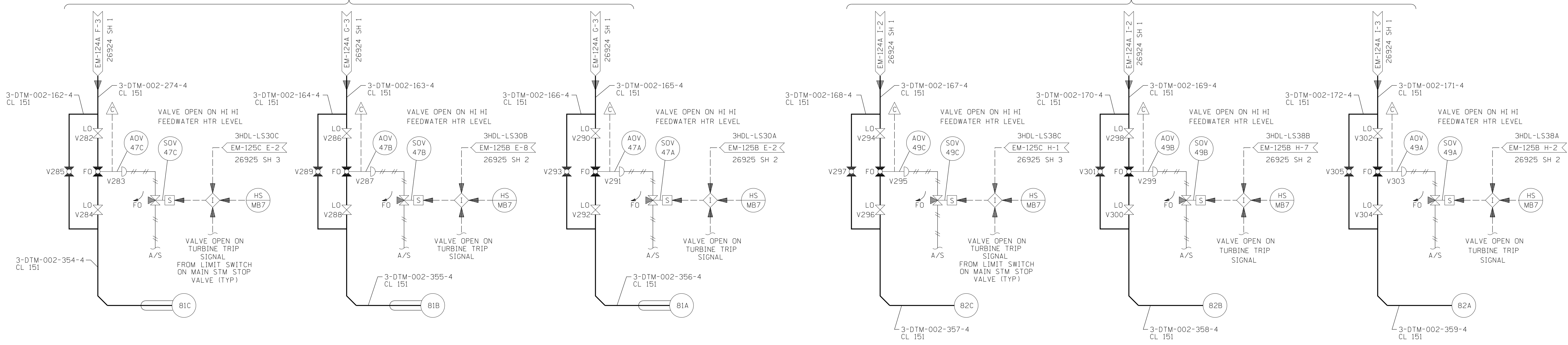
COLD REHEAT LINES FROM HIGH PRESSURE TURBINE 3M55-T1 TO MOISTURE SEPARATOR REHEATER 3CR5-MSP1B

FIRST POINT EXTRACTION LINE DRAIN



THIRD POINT EXTRACTION LINE DRAINS

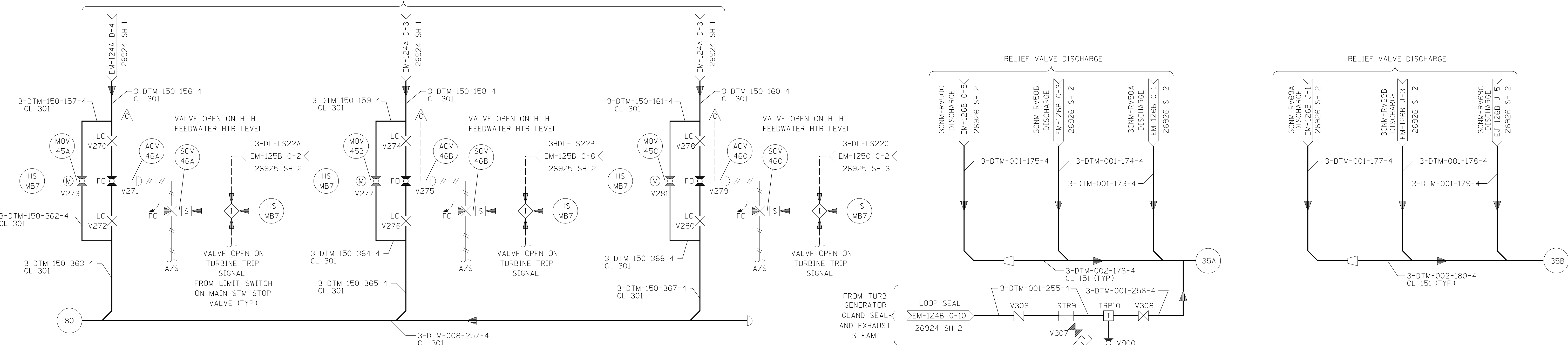
FOURTH POINT EXTRACTION LINE DRAINS



SECOND POINT EXTRACTION LINE DRAINS

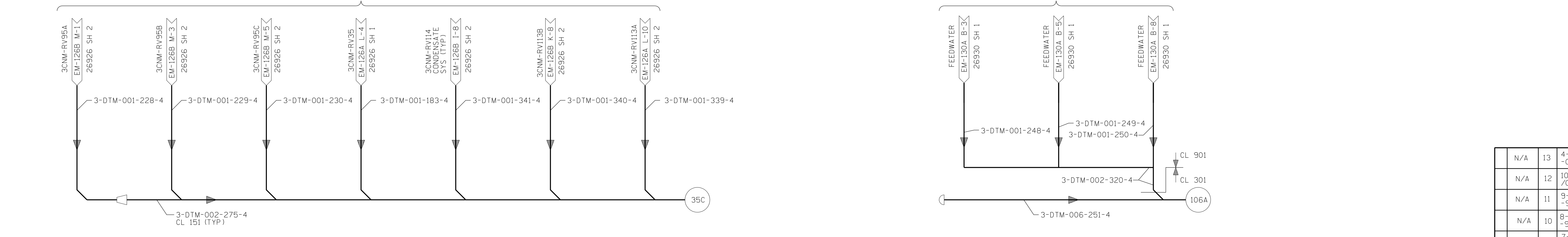
RELIEF VALVE DISCHARGE

RELIEF VALVE DISCHARGE



RELIEF VALVE DISCHARGE

HP FEEDWATER HEATER RELIEF VALVE DISCHARGES



NOTES: 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-145A, I26945 SH 1 I

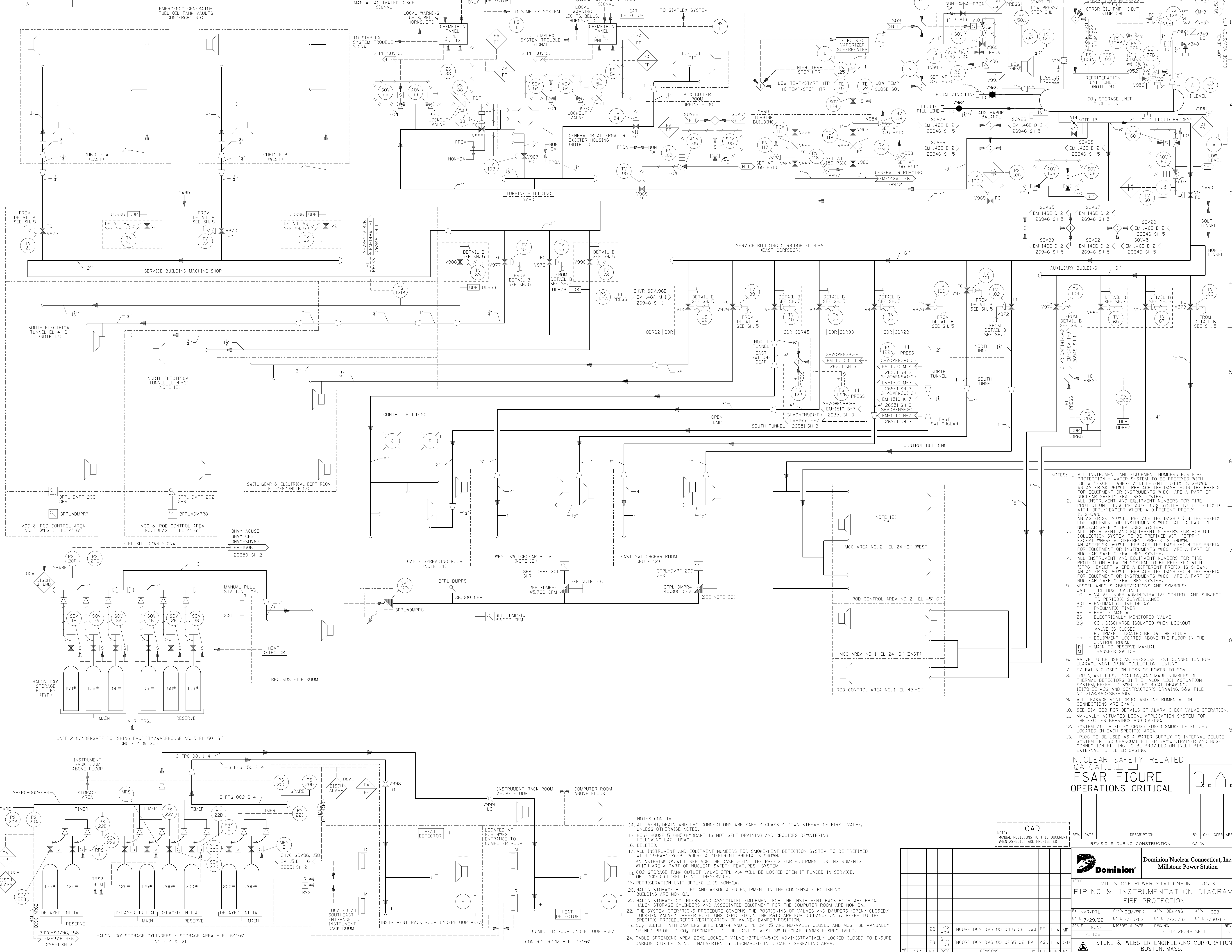
QA CAT. FSAR FIGURE OPERATIONS CRITICAL NON Q.A.

CAD NOTES: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

Table with columns: REV, DATE, DESCRIPTION, BY, CHK, CORR, APP. Includes entries for construction and P.A. No.

Table with columns: NO., DATE, REVISIONS. Includes entries for INCORP. DCN DM3-00-0094-09, DM3-00-0287-08, DM3-01-0595-99, DM3-00-0393-99, DM3-00-0682-98, DM3-00-0931-97, DM3-S-429-96, DM3-S-426-96, DM3-S-506-93, DM3-S-2889-93.

Project information including Dominion Nuclear Connecticut, Inc. Millstone Power Station, TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT MISCELLANEOUS DRAINS, DATE: 3-16-82, DATE: 3-31-82, DATE: 4-7-82, SCALE: NONE, MICROFILM DATE, DWG. NO.: 25212-26945 SH 3, STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FIRE PROTECTION - WATER SYSTEM TO BE PREFIXED WITH "3FPL" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FIRE PROTECTION - LOW PRESSURE CO₂ SYSTEM TO BE PREFIXED WITH "3FPL" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 3. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR RCP OIL COLLECTION SYSTEM TO BE PREFIXED WITH "3FPC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 4. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR FIRE PROTECTION - HALON SYSTEM TO BE PREFIXED WITH "3FHC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 5. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 CAB - FIRE HOSE CABINET
 LC - VALVE UNDER ADMINISTRATIVE CONTROL AND SUBJECT TO PERIODIC SURVEILLANCE
 PDT - PNEUMATIC TIME DELAY
 PT - PNEUMATIC TIMER
 RM - REMOTE MANUAL
 ZS - ELECTRICALLY MONITORED VALVE
 ZS - CO₂ DISCHARGE ISOLATED WHEN LOCKOUT VALVE IS CLOSED
 + - EQUIPMENT LOCATED BELOW THE FLOOR
 ++ - EQUIPMENT LOCATED ABOVE THE FLOOR IN THE CONTROL ROOM.
 [M] - MAIN TO RESERVE MANUAL TRANSFER SWITCH
 6. VALVE TO BE USED AS PRESSURE TEST CONNECTION FOR LEAKAGE MONITORING COLLECTION TESTING
 7. FV FAILS CLOSED ON LOSS OF POWER TO SOV
 8. FOR QUANTITIES, LOCATION, AND MARK NUMBERS OF THERMAL DETECTORS IN THE HALON 1301 ACTION SYSTEM, REFER TO SNEC ELECTRICAL DRAWING, 12179-EE-42G AND CONTRACTOR'S DRAWING, S&W FILE NO. 2176-460-367-200.
 9. ALL LEAKAGE MONITORING AND INSTRUMENTATION CONNECTIONS ARE 3/4".
 10. SEE DIM 363 FOR DETAILS OF ALARM CHECK VALVE OPERATION.
 11. MANUALLY ACTIVATED LOCAL APPLICATION SYSTEM FOR THE EXCITER BEARINGS AND CASING.
 12. SYSTEM ACTUATED BY CROSS ZONED SMOKE DETECTORS LOCATED IN EACH SPECIFIC AREA.
 13. HR106 TO BE USED AS A WATER SUPPLY TO INTERNAL DELUGE SYSTEM IN TSC CHARCOAL FILTER BAYS, STRAINER AND HOSE CONNECTION FITTING TO BE PROVIDED ON INLET PIPE EXTERNAL TO FILTER CASING.

NUCLEAR SAFETY RELATED
 QA CAT. I, II, III
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CDR	APP

Revisions During Construction

NO.	DATE	DESCRIPTION	BY	CHK	CDR	APP

Domain Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 FIRE PROTECTION

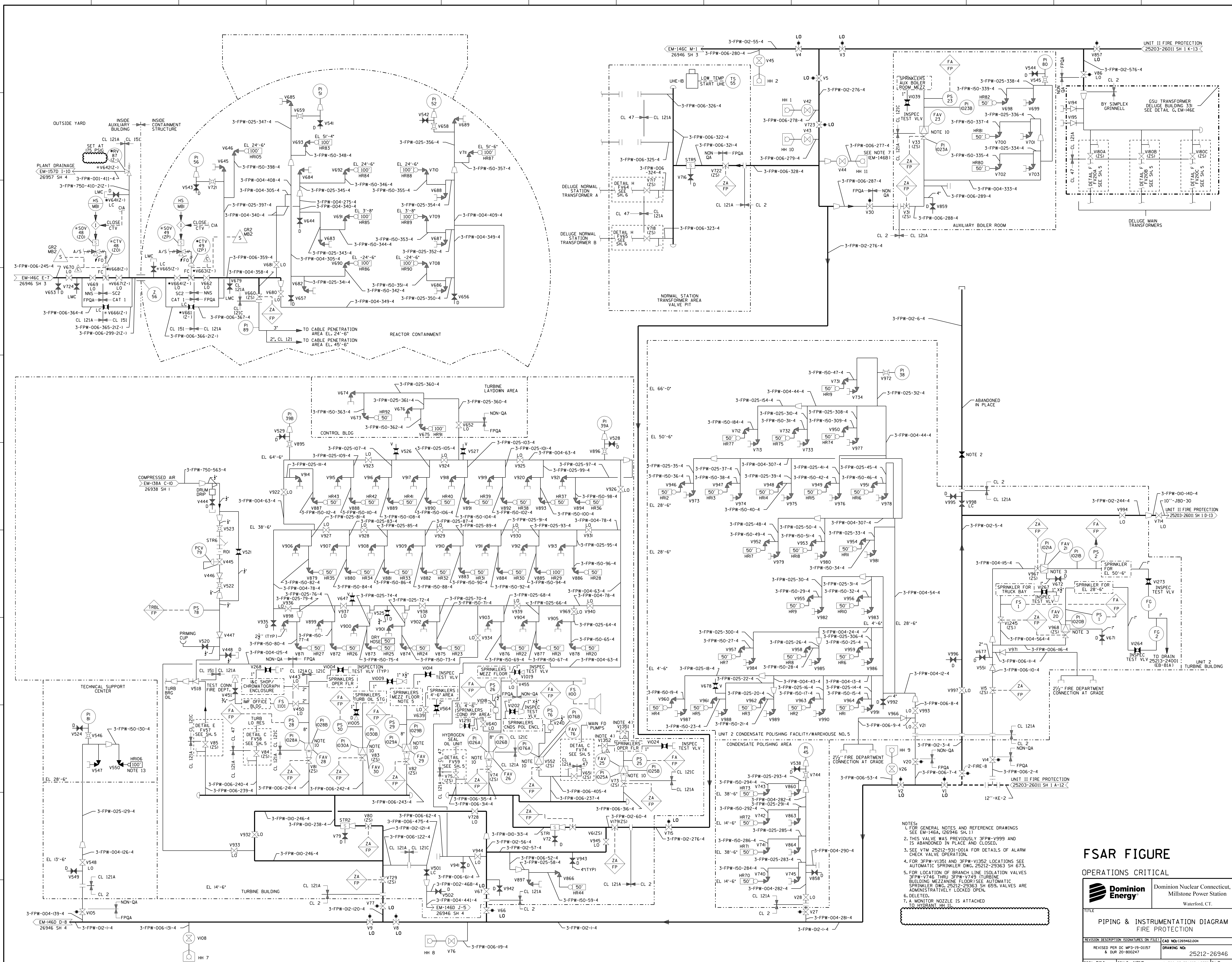
DATE	BY	APP.	DATE	BY	APP.
DATE 7/29/82	DATE 7/29/82	DATE 7/29/82	DATE 7/30/82		

SCALE: NONE
 MICROFILM DATE: 25212-26946 SH 1
 71-156

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

- NOTES CONT'D:
14. ALL VENT, DRAIN AND LMC CONNECTIONS ARE SAFETY CLASS 4 DOWN STREAM OF FIRST VALVE, UNLESS OTHERWISE NOTED.
 15. HOSE HOUSE 5 (HH5) HYDRANT IS NOT SELF-DRAINING AND REQUIRES DEWATERING FOLLOWING EACH USAGE.
 16. DELETED.
 17. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SMOKE/HEAT DETECTION SYSTEM TO BE PREFIXED WITH "3FPA" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 18. CO₂ STORAGE TANK OUTLET VALVE 3FPL-V14 WILL BE LOCKED OPEN IF PLACED IN-SERVICE, OR LOCKED CLOSED IF NOT IN-SERVICE.
 19. REFRIGERATION UNIT 3FPL-CH1 IS NON-OA.
 20. HALON STORAGE BOTTLES AND ASSOCIATED EQUIPMENT IN THE CONDENSATE POLISHING BUILDING ARE NON-OA.
 21. HALON STORAGE CYLINDERS AND ASSOCIATED EQUIPMENT FOR THE INSTRUMENT RACK ROOM ARE FPQA. HALON STORAGE CYLINDERS AND ASSOCIATED EQUIPMENT FOR THE COMPUTER ROOM ARE NON-OA.
 22. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/ CLOSED/ LOCKED; VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 23. CO₂ RELIEF PATH DAMPERS 3FPL-DMPR4 AND 3FPL-DMPR5 ARE NORMALLY CLOSED AND MUST BE MANUALLY OPENED PRIOR TO CO₂ DISCHARGE TO THE EAST & WEST SWITCHGEAR ROOMS RESPECTIVELY.
 24. CABLE SPREADING AREA ZONE LOCKOUT VALVE (3FPL-V45) IS ADMINISTRATIVELY LOCKED CLOSED TO ENSURE CARBON DIOXIDE IS NOT INADVERTENTLY DISCHARGED INTO CABLE SPREADING AREA.

NOTES
 MANUAL REVISIONS TO THIS DOCUMENT
 WHEN AS-BUILT ARE PROHIBITED.



- NOTES:
1. GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-146A, (26946 SH 1)
 2. THIS VALVE WAS PREVIOUSLY 3FPW-V999 AND IS ABANDONED IN PLACE AND CLOSED.
 3. SEE VTM 25212-931-001A FOR DETAILS OF ALARM CHECK VALVE OPERATION.
 4. FOR 3FPW-V1351 AND 3FPW-V1352 LOCATIONS SEE AUTOMATIC SPRINKLER DWG. 25212-29363 SH 673.
 5. FOR LOCATION OF BRANCH LINE ISOLATION VALVES 3FPW-V746 THRU 3FPW-V749 (TURBINE BUILDING MEZZANINE FLOOR) SEE AUTOMATIC SPRINKLER DWG. 25212-29363 SH 655. VALVES ARE ADMINISTRATIVELY LOCKED OPEN.
 6. DELETED.
 7. A MONITOR NOZZLE IS ATTACHED TO HYDRANT HH 11.

FSAR FIGURE

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

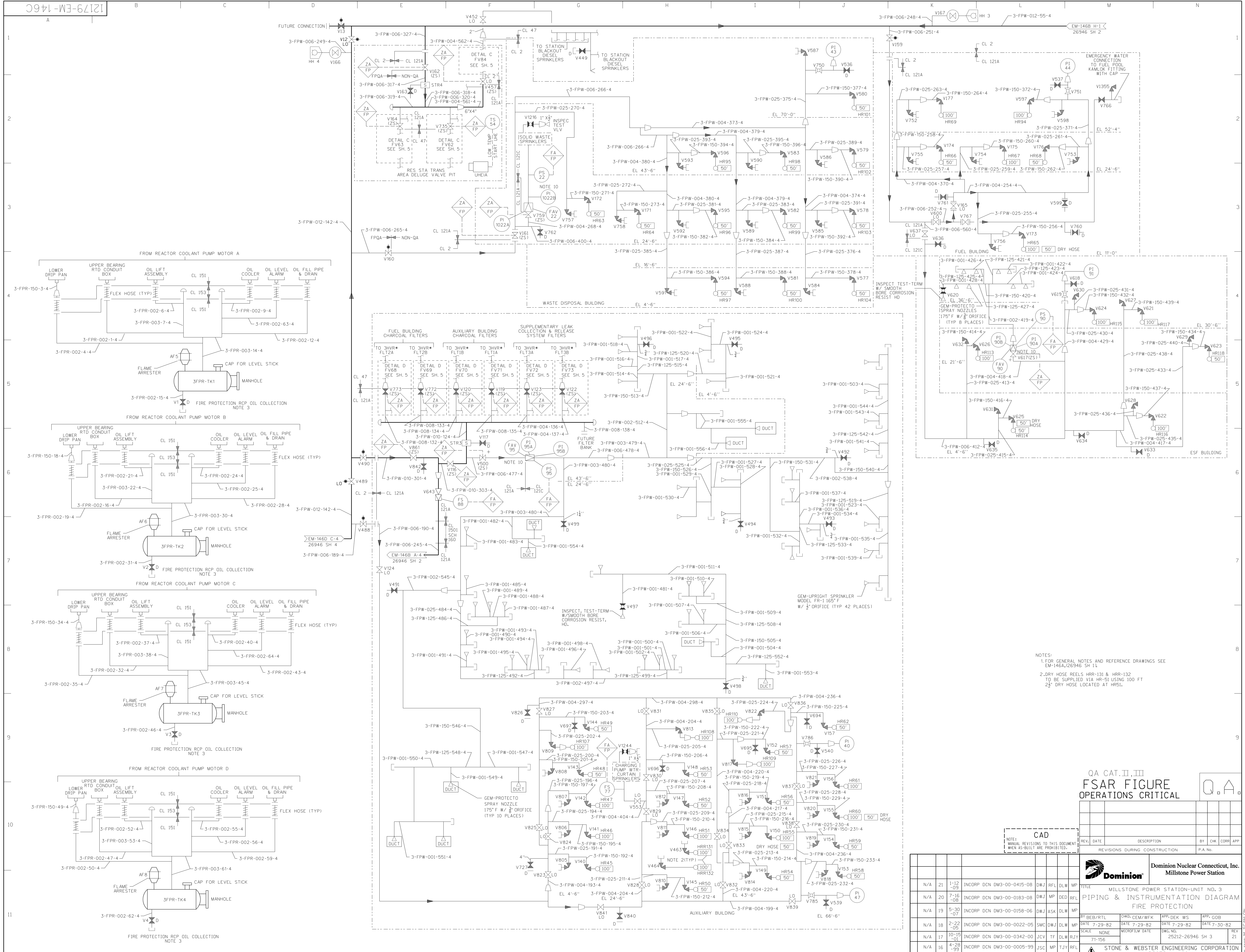
PIPING & INSTRUMENTATION DIAGRAM
FIRE PROTECTION

TITLE

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: C269462.DWG

REVISED PER DC MP3-19-01157 & DCR 20-00027 DRAWING NO: 25212-26946 REV 54

DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 2



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-146A, 26946 SH 11.
 2. DRY HOSE REELS HRR-131 & HRR-132 TO BE SUPPLIED VIA HRR-51 USING 100 FT 2 1/2" DRY HOSE LOCATED AT HRR51.

QA CAT. II, III
FSAR FIGURE OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	21	1-12-05	INCORP DCN DM3-00-0415-08	DWJ	REF	DLW
N/A	20	7-16-08	INCORP DCN DM3-00-0183-08	DWJ	MP	DEE
N/A	19	5-30-07	INCORP DCN DM3-00-0158-06	DWJ	ASJ	DLW
N/A	18	2-22-05	INCORP DCN DM3-00-0022-05	SMC	DWJ	DLW
N/A	17	10-15-01	INCORP DCN DM3-00-0342-00	JCV	MP	TJY
N/A	16	4-28-99	INCORP DCN DM3-00-0005-99	JCV	MP	TJY
P.A.	NO	DATE	REVISIONS	BY	CHK	CORR

REVISIONS DURING CONSTRUCTION

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

Domain Nuclear Connecticut, Inc. Millstone Power Station

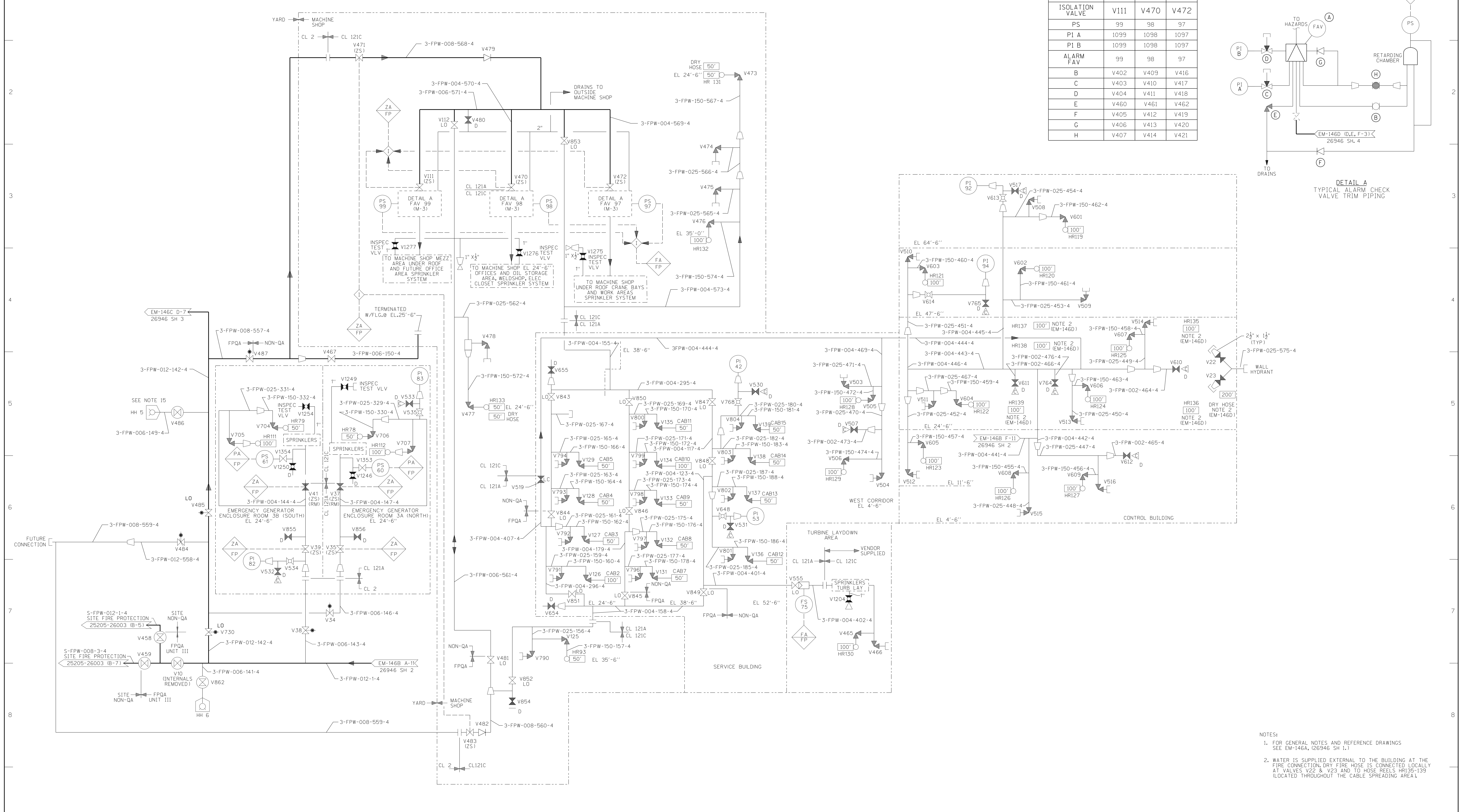
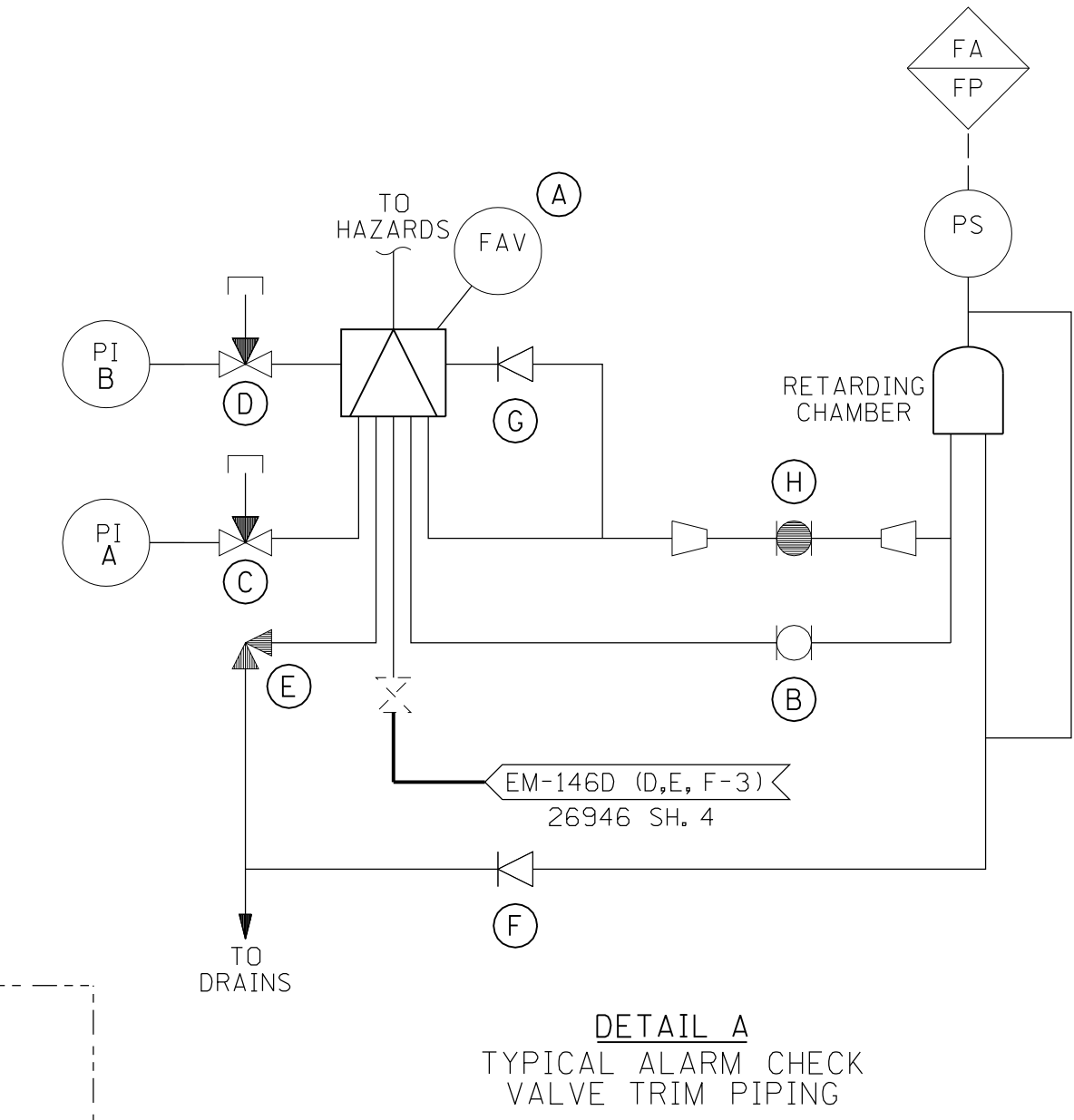
MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
FIRE PROTECTION

DATE: 7-29-82
 SCALE: NONE
 MICROFILM DATE: 71-156

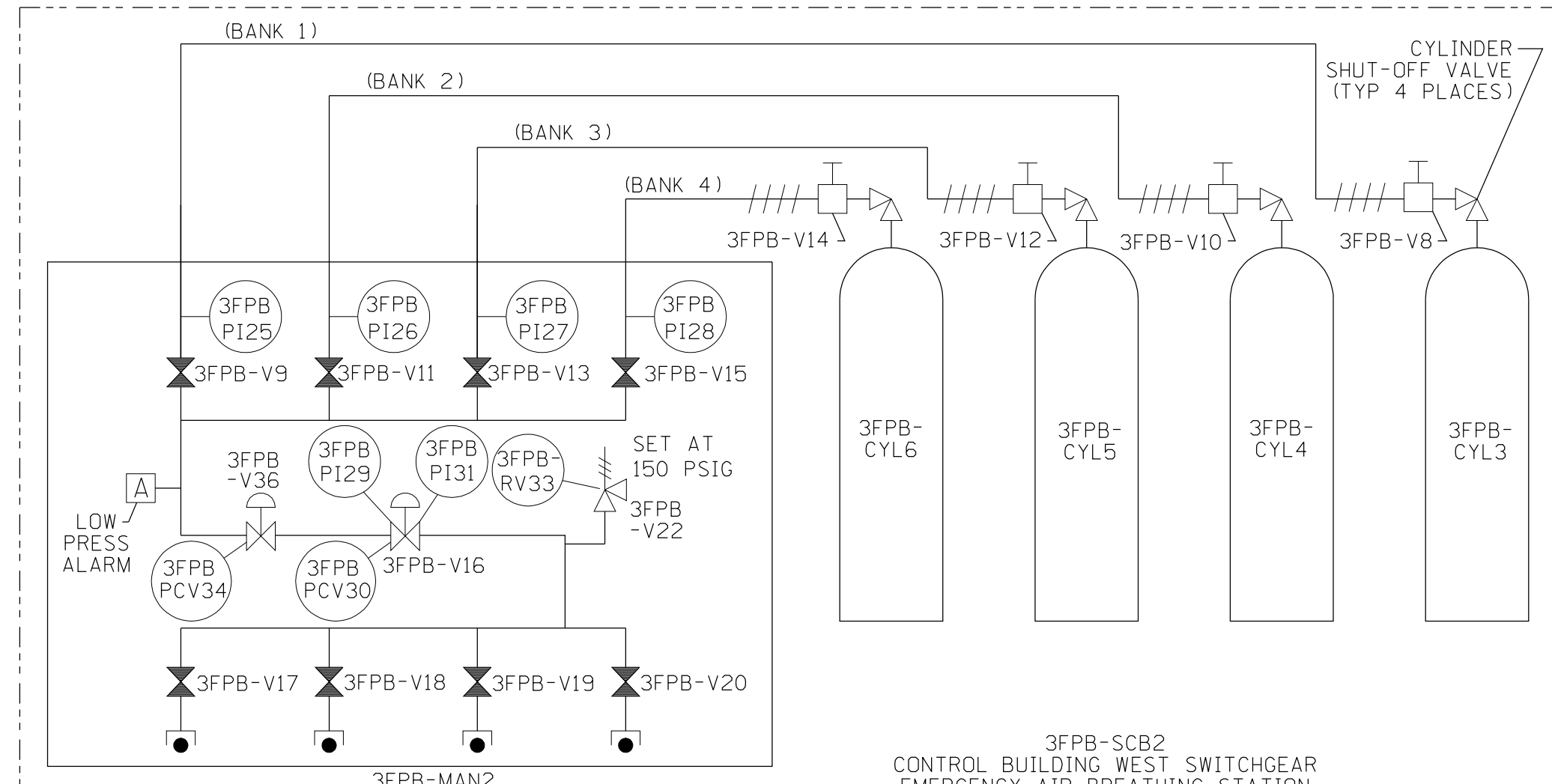
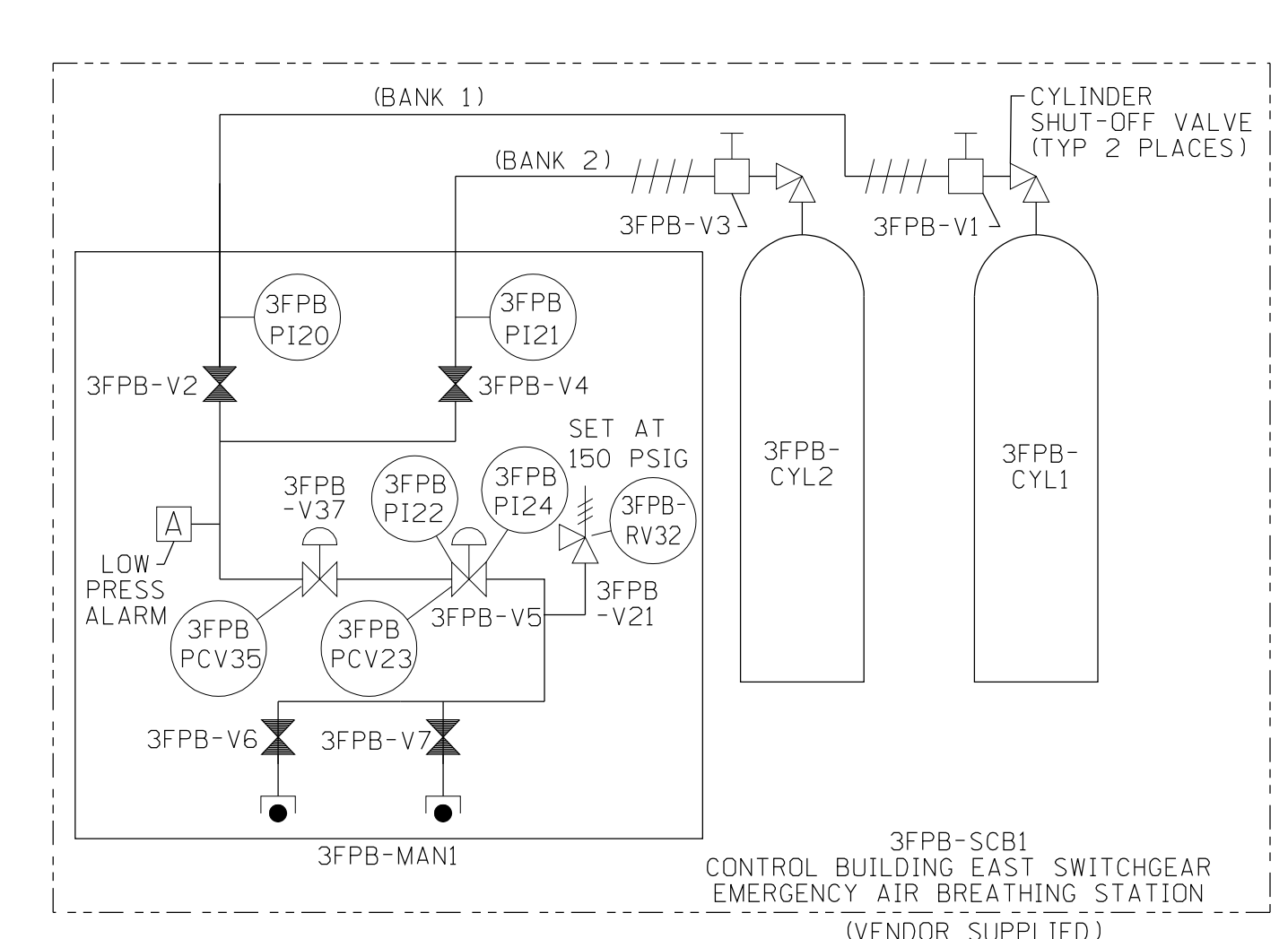
STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

TABLE FOR ALARM CHECK VALVE TRIM PIPING

DETAIL No.	A	A	A
ISOLATION VALVE	V111	V470	V472
PS	99	98	97
PI A	1099	1098	1097
PI B	1099	1098	1097
ALARM FAV	99	98	97
B	V402	V409	V416
C	V403	V410	V417
D	V404	V411	V418
E	V460	V461	V462
F	V405	V412	V419
G	V406	V413	V420
H	V407	V414	V421



- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-146A, (26946 SH 1.)
 - WATER IS SUPPLIED EXTERNAL TO THE BUILDING AT THE FIRE CONNECTION; DRY FIRE HOSE IS CONNECTED LOCALLY AT VALVES V22 & V23 AND TO HOSE REELS HRI35-139 LOCATED THROUGHOUT THE CABLE SPREADING AREA.



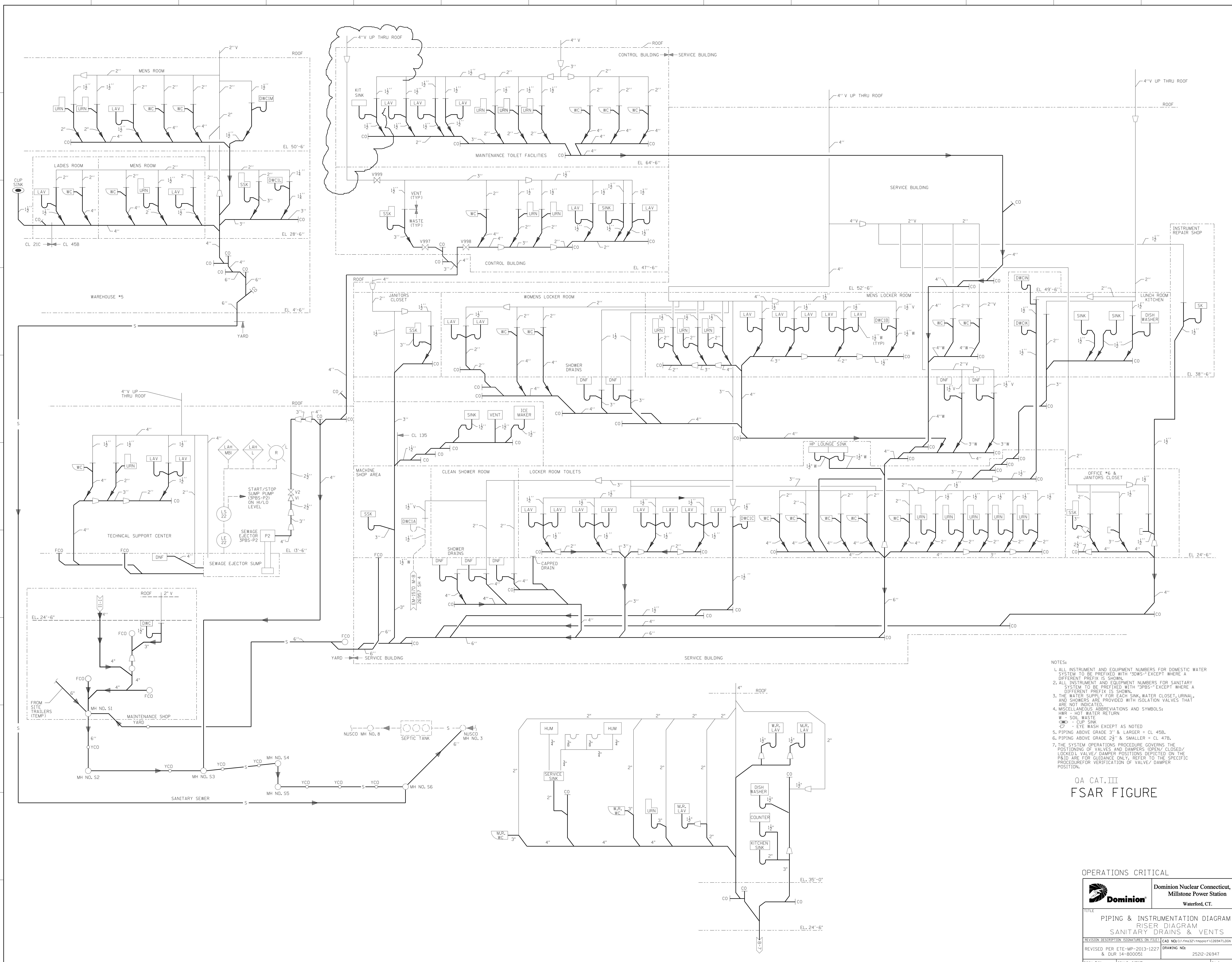
QA CAT. III
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	27-07-10	INCORP DCN DM3-00-0514-10	EAL	MP	MEL	REF
N/A	26-06-23-10	INCORP DCN DM3-00-0022-10	EAL	MP	JSJ	REF
N/A	25-09-13-07	INCORP DCN DM3-00-0284-07	EAL	ASK	DLW	REF
N/A	24-08-30-05	INCORP DCN DM3-00-0026-04	EAL	MP	DLW	MP
N/A	23-08-24-05	INCORP DCN DM3-00-0293-04	DLW	ASK	WBZ	MP
N/A	22-02-22-05	INCORP DCN DM3-00-0022-05	SMC	DLW	DLW	MP
N/A	21-05-13-04	INC. DCN DM3-00-0026-03, DM3-01-0026-01, DM3-02-0026-01	EAL	MP	DLW	DED
N/A	20-10-02	INCORP DCN DM3-00-0015-02	JSJ	TF	DLW	RJY

REVISIONS DURING CONSTRUCTION

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	27-07-10	INCORP DCN DM3-00-0514-10	EAL	MP	MEL	REF
N/A	26-06-23-10	INCORP DCN DM3-00-0022-10	EAL	MP	JSJ	REF
N/A	25-09-13-07	INCORP DCN DM3-00-0284-07	EAL	ASK	DLW	REF
N/A	24-08-30-05	INCORP DCN DM3-00-0026-04	EAL	MP	DLW	MP
N/A	23-08-24-05	INCORP DCN DM3-00-0293-04	DLW	ASK	WBZ	MP
N/A	22-02-22-05	INCORP DCN DM3-00-0022-05	SMC	DLW	DLW	MP
N/A	21-05-13-04	INC. DCN DM3-00-0026-03, DM3-01-0026-01, DM3-02-0026-01	EAL	MP	DLW	DED
N/A	20-10-02	INCORP DCN DM3-00-0015-02	JSJ	TF	DLW	RJY

Dominion Dominion Nuclear Connecticut, Inc.
 Millstone Power Station
 TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 FIRE PROTECTION
 DATE: 11-21-85
 SCALE: NONE
 DRAWING NO.: 25212-26946 SH.4
 SHEET NO.: 27
 STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.

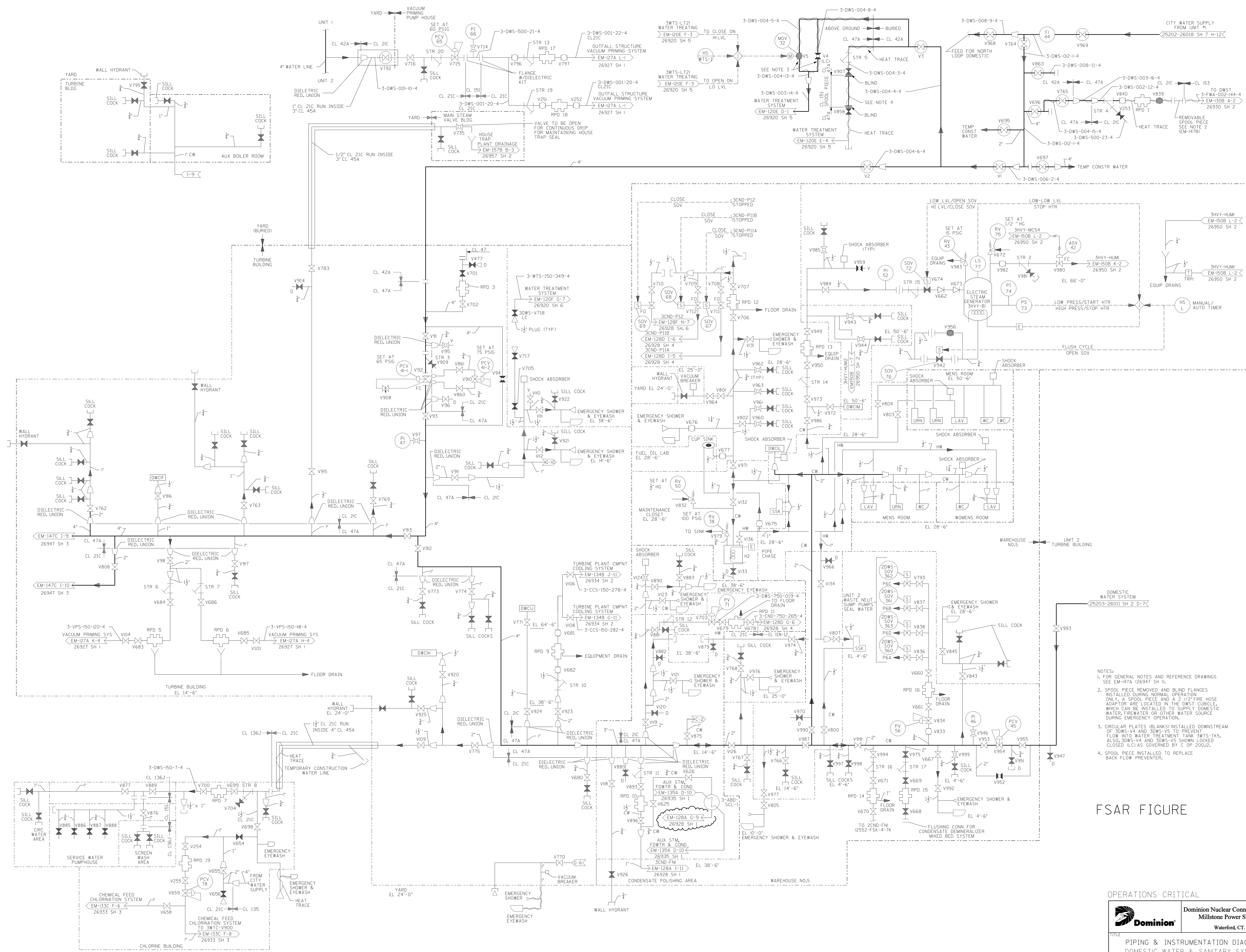


- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR DOMESTIC WATER SYSTEM TO BE PREFIXED WITH "30WS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SANITARY SYSTEM TO BE PREFIXED WITH "3PBS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. THE WATER SUPPLY FOR EACH SINK, WATER CLOSET, URINAL, AND SHOWERS ARE PROVIDED WITH ISOLATION VALVES THAT ARE NOT INDICATED.
 4. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 HW - HOT WATER RETURN
 W - SOL. WASTE
 S - CUP SINK
 E - EYE WASH EXCEPT AS NOTED
 5. PIPING ABOVE GRADE 3" & LARGER = CL 45B.
 6. PIPING ABOVE GRADE 2 1/2" & SMALLER = CL 47B.
 7. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DIMPERS (OPEN/CLOSED/ LOCKED). VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

QA CAT. III
 FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM RISER DIAGRAM SANITARY DRAINS & VENTS			
REVISION DESCRIPTION & DUR 14-800051	SIGNATURES ON FILE CAD NO: 014-800051	DRAWING NO: 25212-26947	REV 10
DSGM EAL		SCALE: NONE UNLESS OTHERWISE NOTED SH 1	



- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-147A (26947 SH 1).
 - SPOOL PIECE REMOVED AND BLIND FLANGES INSTALLED DURING NORMAL OPERATION ONLY. A SPOOL PIECE AND A 2 1/2" FIRE HOSE ADAPTOR ARE LOCATED IN THE DUST CURTAIN, WHICH CAN BE INSTALLED TO SUPPLY DOMESTIC WATER, FIRE WATER OR OTHER WATER SOURCE DURING EMERGENCY OPERATION.
 - CIRCULAR PLATES (BLANKS) INSTALLED DOWNSTREAM OF 3DWS-V4 AND 3DWS-V5 TO PREVENT FLOW INTO WATER TREATMENT TANK 3WTS-TK5. ALSO 3DWS-V4 AND 3DWS-V5 SHOWN LOCKED CLOSED (LC) AS GOVERNED BY C.O.P. 200.2.
 - SPOOL PIECE INSTALLED TO REPLACE BACK FLOW PREVENTER.

FSAR FIGURE

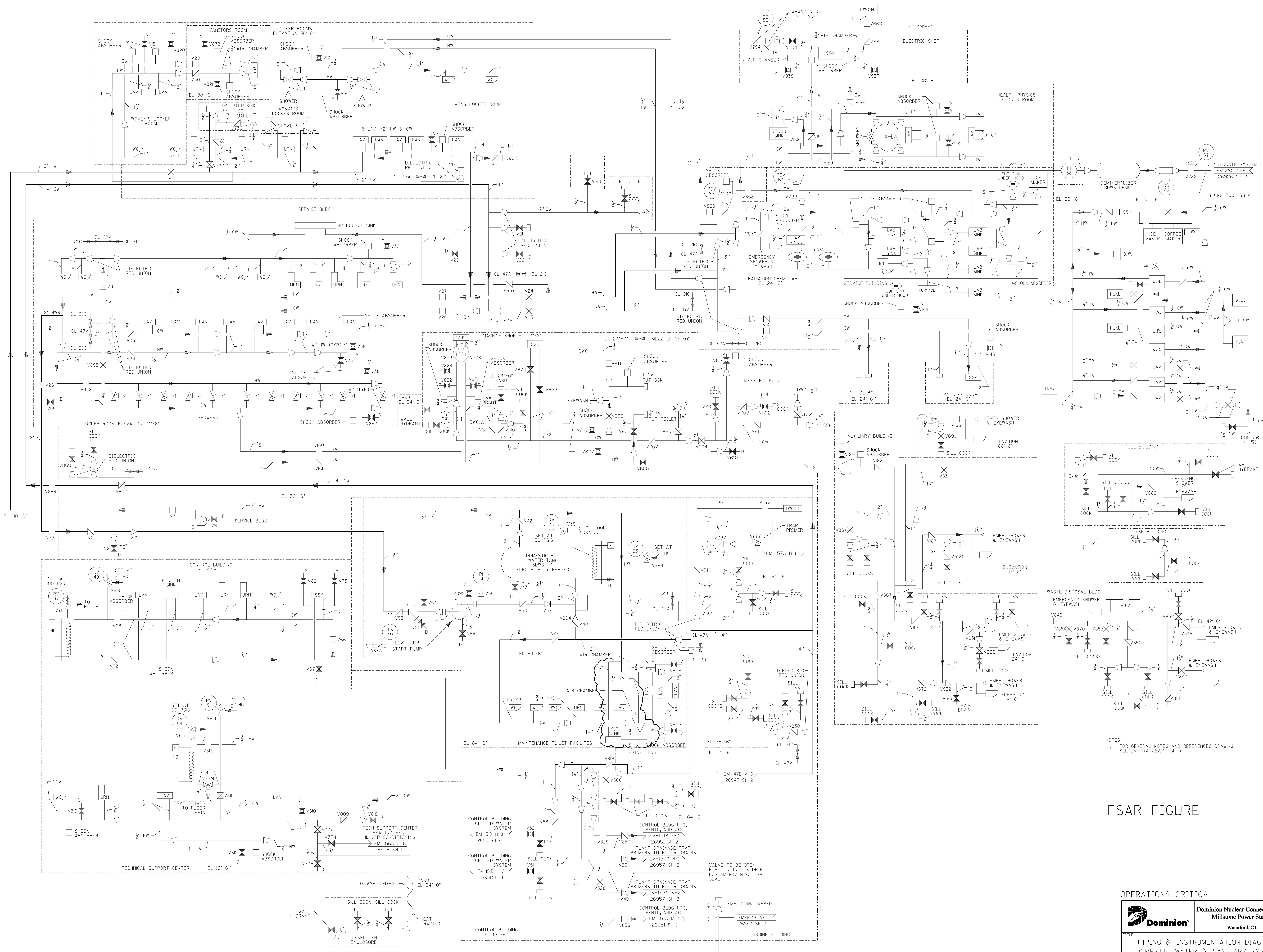
OPERATIONS CRITICAL

Dominion Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
DOMESTIC WATER & SANITARY SYSTEM

REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: E1.FMS321.mpp0011.0269472.DGN
REVISED PER MSUR 16-00026 & DIR 16-00052 DRAWING NO: 25212-26947 REV 41

DSGN DWJ SCALE: NONE UNLESS OTHERWISE NOTED SH 2



NOTES:
 1. FOR GENERAL NOTES AND REFERENCES DRAWING SEE EM-147A (26947 SH II).

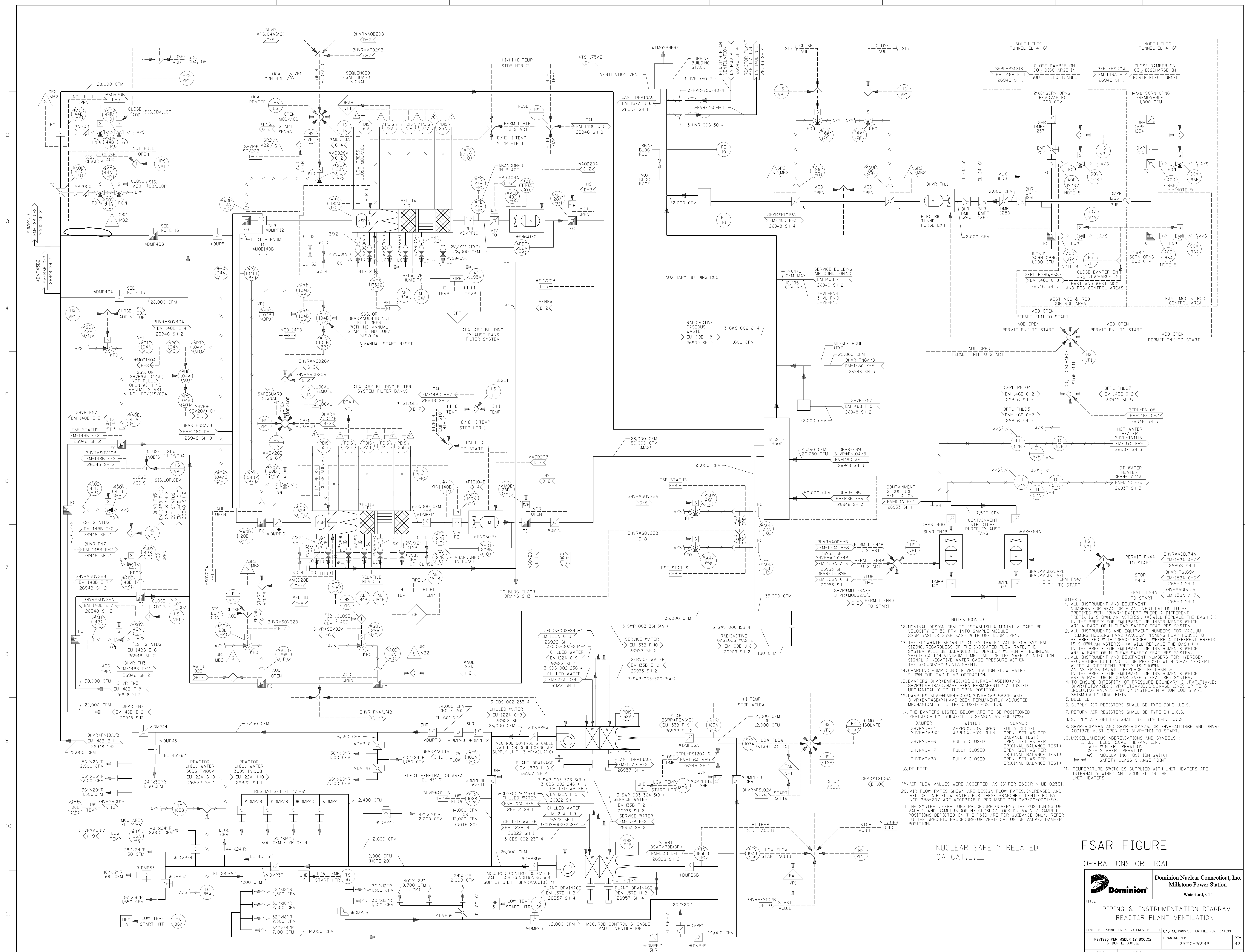
FSAR FIGURE

OPERATIONS CRITICAL



TITLE
 PIPING & INSTRUMENTATION DIAGRAM
 DOMESTIC WATER & SANITARY SYSTEM

REVISION DESCRIPTION (SIGNATURES ON FILE)	CAD NO: 01-FMS321-mp001-0269473.DGN
REVISED PER ETE-MP-2013-1227 AND DUR 14-800046	DRAWING NO: 25212-26947
ISSN EAL	SCALE: NONE UNLESS OTHERWISE NOTED SH 3



- NOTES (CONT.)
12. NOMINAL DESIGN CFM TO ESTABLISH A MINIMUM CAPTURE VELOCITY OF 50 FPM INTO SAMPLE MODULE 35SP-SAS1 OR 35SP-SAS2 WITH ONE DOOR OPEN.
 13. THE FLOWRATE SHOWN IS AN ESTIMATED VALUE FOR SYSTEM SIZING, REGARDLESS OF THE INDICATED FLOW RATE, THE SYSTEM WILL BE BALANCED TO DEVELOP WITHIN A TECHNICAL SPECIFICATION MINIMUM TIME LIMIT OF THE SAFETY INJECTION SIGNAL A NEGATIVE WATER GAGE PRESSURE WITHIN THE SECONDARY CONTAINMENT.
 14. CHARGING PUMP CUBIC VENTILATION FLOW RATES SHOWN FOR TWO PUMP OPERATION.
 15. DAMPERS 3HVR-DMP45C10L, 3HVR-DMP45B10I AND 3HVR-DMP46I0I HAVE BEEN PERMANENTLY ADJUSTED MECHANICALLY TO THE OPEN POSITION.
 16. DAMPERS 3HVR-DMP45C2P1, 3HVR-DMP45B2P1 AND 3HVR-DMP46I0I HAVE BEEN PERMANENTLY ADJUSTED MECHANICALLY TO THE CLOSED POSITION.
 17. THE DAMPERS LISTED BELOW ARE TO BE POSITIONED PERIODICALLY (SUBJECT TO SEASON) AS FOLLOWS:
- | DAMPER | WINTER | SUMMER |
|------------|------------------|---|
| 3HVR-DMP4 | APPROX. 50% OPEN | FULLY CLOSED (PER BALANCE TEST) |
| 3HVR-DMP32 | APPROX. 50% OPEN | OPEN (SET AS PER ORIGINAL BALANCE TEST) |
| 3HVR-DMP6 | FULLY CLOSED | OPEN (SET AS PER ORIGINAL BALANCE TEST) |
| 3HVR-DMP7 | FULLY CLOSED | OPEN (SET AS PER ORIGINAL BALANCE TEST) |
| 3HVR-DMP8 | FULLY CLOSED | OPEN (SET AS PER ORIGINAL BALANCE TEST) |
18. DELETED
 19. AIR FLOW VALUES WERE ACCEPTED "AS IS" PER E&CR N-ME-02591.
 20. AIR FLOW RATES SHOWN ARE DESIGN FLOW RATES, INCREASED AND REDUCED AIR FLOW RATES FOR THESE BRANCHES IDENTIFIED BY NCR 388-207 ARE ACCEPTABLE PER MSSE DCN DMJ-00-0001-97.
 21. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED/VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY, REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.

NUCLEAR SAFETY RELATED
QA CAT. I, II

FSAR FIGURE
OPERATIONS CRITICAL

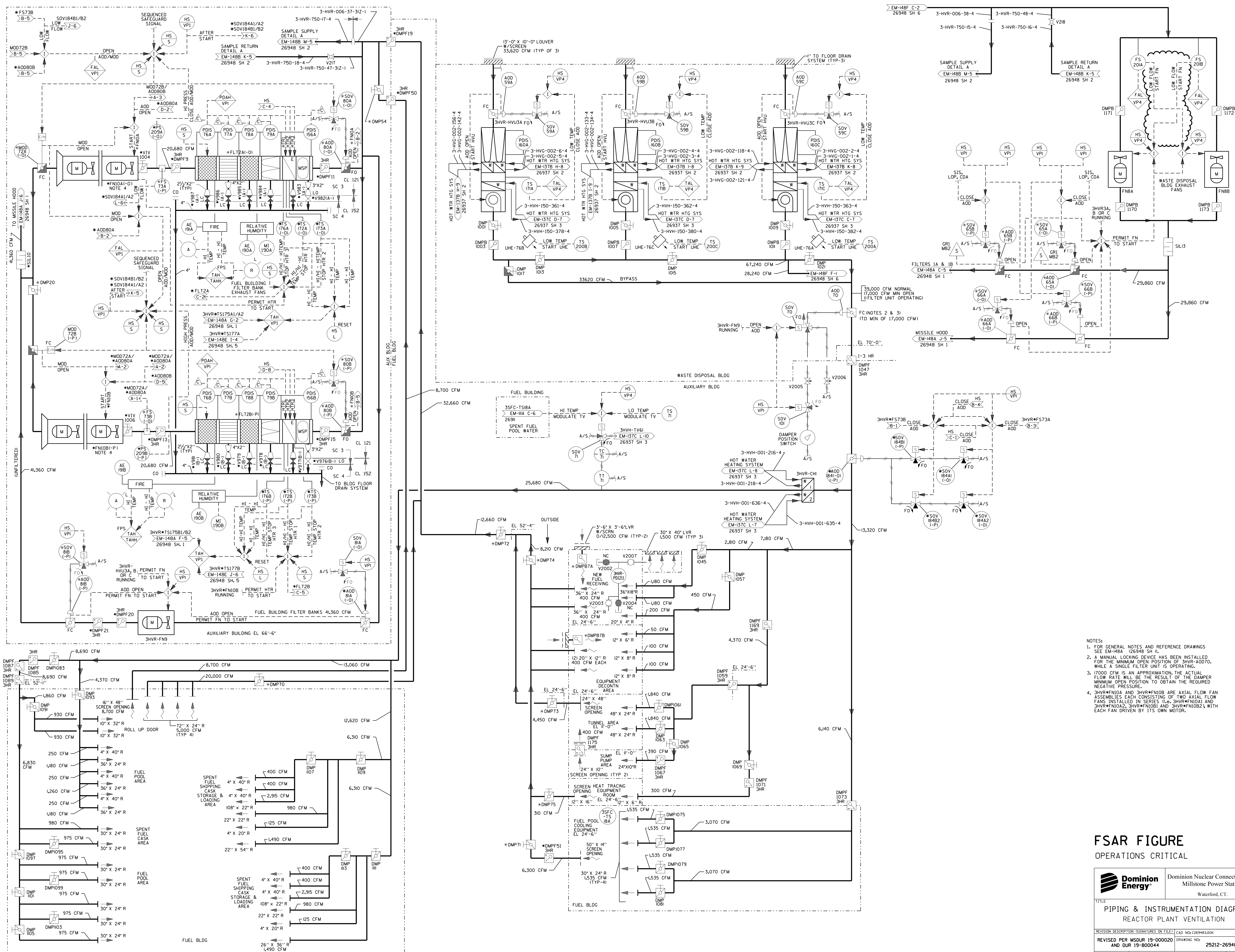
Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

PIPING & INSTRUMENTATION DIAGRAM
REACTOR PLANT VENTILATION

REVISION DESCRIPTION | SIGNATURES ON FILE | CAD NO: NOSPFC FOR FILE VERIFICATION

REVISED PER MSUR 12-800012 & DUR 12-800312 | DRAWING NO: 25212-26948 | REV 42

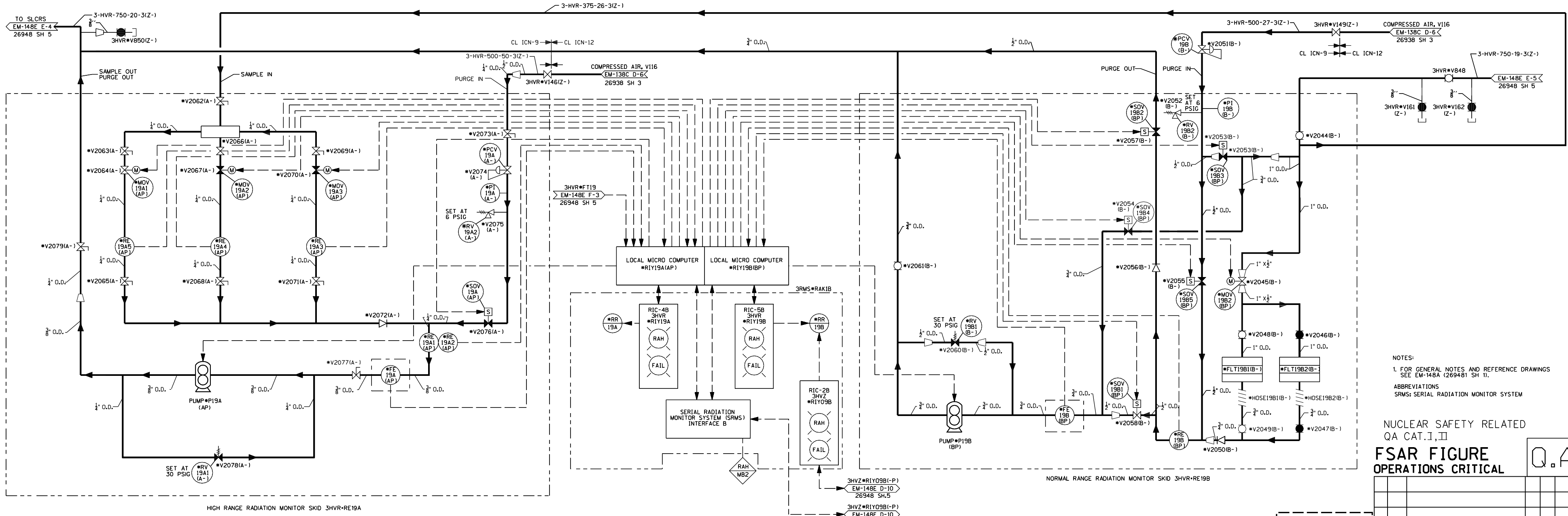
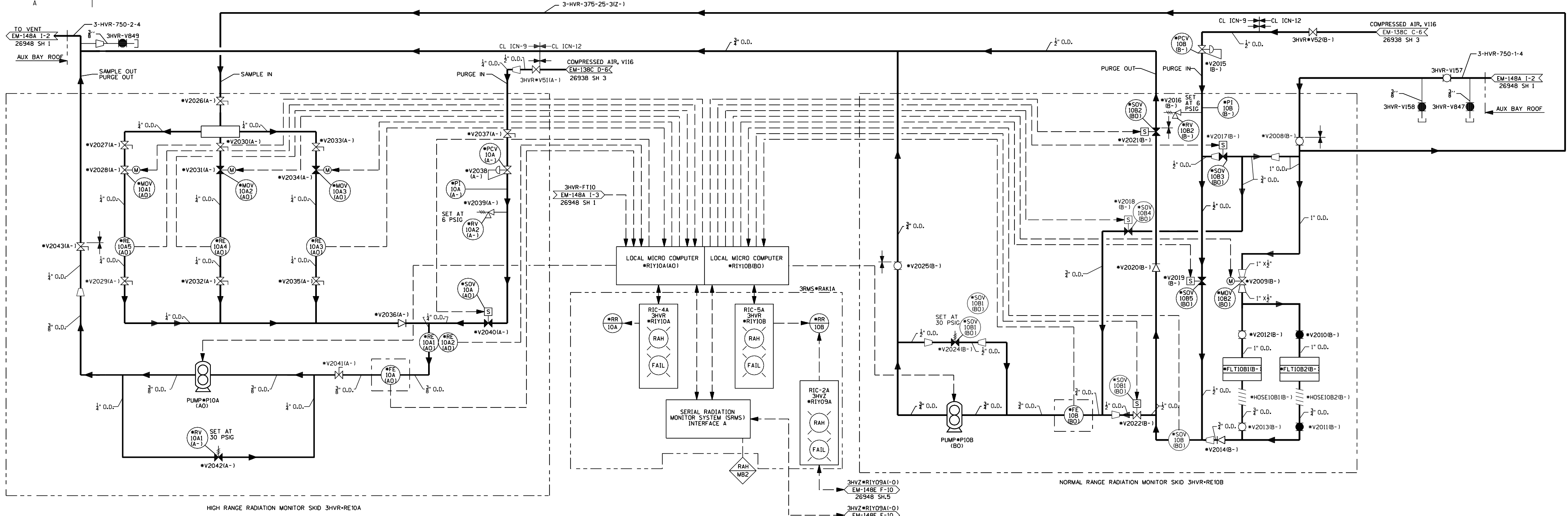
DSGN DWJ | SCALE: NONE | UNLESS OTHERWISE NOTED SH 1



- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-148A (26948 SH 1).
 2. A MANUAL LOCKING DEVICE HAS BEEN INSTALLED FOR THE MINIMUM OPEN POSITION OF 3HRV-A0DD0. WHILE A SINGLE FILTER UNIT IS OPERATING.
 3. 17000 CFM IS AN APPROXIMATION; THE ACTUAL FLOW RATE WILL BE THE RESULT OF THE DAMPER MINIMUM OPEN POSITION TO OBTAIN THE REQUIRED NEGATIVE PRESSURE.
 4. 3HRV-FN01A AND 3HRV-FN01B ARE AXIAL FLOW FAN ASSEMBLIES EACH CONSISTING OF TWO AXIAL FLOW FANS INSTALLED IN SERIES. 3HRV-FN01A AND 3HRV-FN02A, 3HRV-FN01B AND 3HRV-FN02B, WITH EACH FAN DRIVEN BY ITS OWN MOTOR.

FSAR FIGURE
OPERATIONS CRITICAL

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
	TITLE PIPING & INSTRUMENTATION DIAGRAM REACTOR PLANT VENTILATION	
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER MSDUR 19-000020 AND DUR 19-800044	DRAWING NO. 25212-26948	CAD NO. 026948.000A REV 26
DESIGNED BY DLW	SCALE: NONE	UNLESS OTHERWISE NOTED SH 3



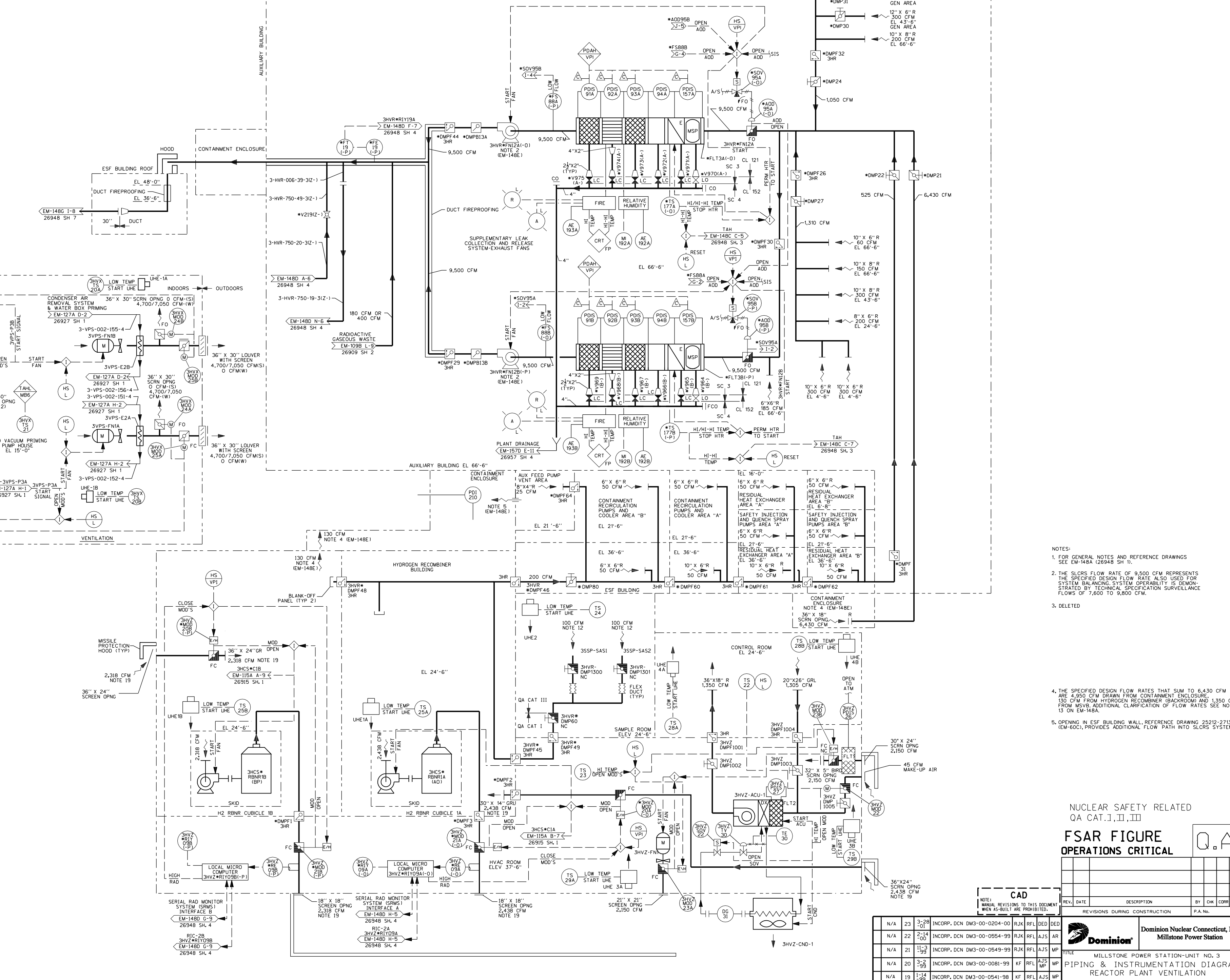
NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-148A (26948 SH 1).
 ABBREVIATIONS
 SRMS: SERIAL RADIATION MONITOR SYSTEM

NUCLEAR SAFETY RELATED
 QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

CAD
 NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
		REVISIONS DURING CONSTRUCTION				P.A. No.

		Dominion Nuclear Connecticut, Inc. Millstone Power Station	
TITLE MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM REACTOR PLANT VENTILATION			
BY RK/RTL	CHKD CEM/WFK	APP. G.HJ/DEK/WS	APP. GOB
DATE 7-29-82	DATE 7-29-82	DATE 7-29-82	DATE 7-30-82
N/A	18	12-14	06
N/A	17	9-6	00
INCORP DCN DM3-00-0262-06 INCORP DCN DM3-00-0091-03		DWJ/FL DLW/MP	SMC/ASK DLW/MP
SCALE NONE MICROFILM DATE DWG. NO. 25212-26948 SH 4 OF 7 71-156			
STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.			



- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-148A (26948 SH 1).
 - THE SLCRS FLOW RATE OF 9,500 CFM REPRESENTS THE SPECIFIED DESIGN FLOW RATE ALSO USED FOR SYSTEM BALANCING. SYSTEM OPERABILITY IS DEMONSTRATED BY TECHNICAL SPECIFICATION SURVEILLANCE FLOWS OF 7,600 TO 9,800 CFM.
 - DELETED
 - THE SPECIFIED DESIGN FLOW RATES THAT SUM TO 6,430 CFM ARE 4,950 CFM DRAWN FROM CONTAINMENT ENCLOSURE, 130 CFM FROM HYDROGEN RECOMBINER (BACKROOM) AND 1,350 CFM FROM MSVB. ADDITIONAL CLARIFICATION OF FLOW RATES SEE NOTE 13 ON EM-148A.
 - OPENING IN ESF BUILDING WALL, REFERENCE DRAWING 25212-27133 (EM-600), PROVIDES ADDITIONAL FLOW PATH INTO SLCRS SYSTEM.

NUCLEAR SAFETY RELATED
QA CAT. I, II, III

FSAR FIGURE
OPERATIONS CRITICAL

--	--	--	--	--	--	--	--	--	--

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

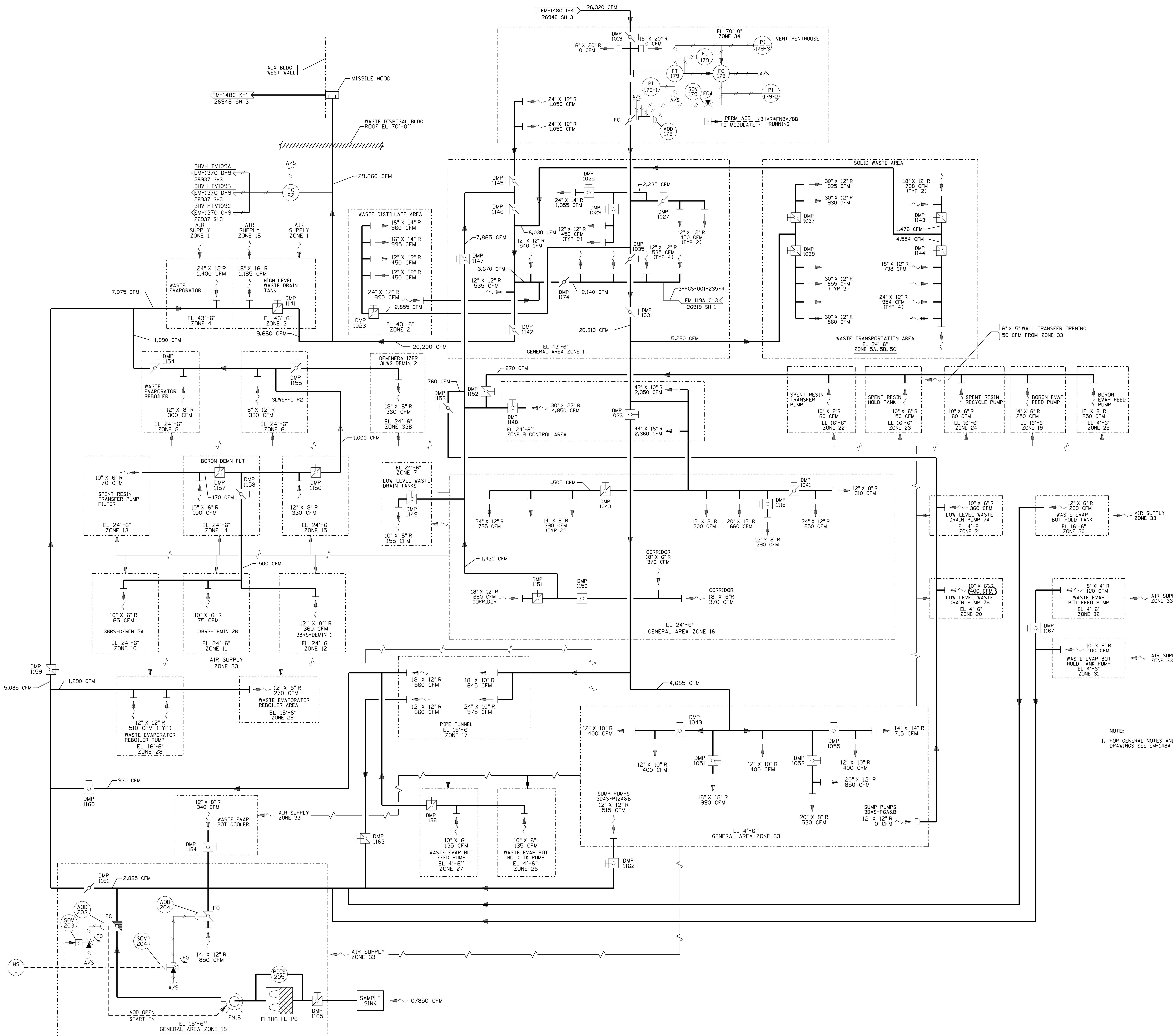
Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
REACTOR PLANT VENTILATION

BY: J.E. CWD: AS/RFJ APP: RHM/MRS MPP: JEH
DATE: 10/23/84 DATE: 10/23/84 DATE: 10/23/84 DATE: 10/23/84
SCALE: NONE MICROFILM DATE: DWG. NO.: 25212-26948 SH 5 OF 7 REV: 23
71-156

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

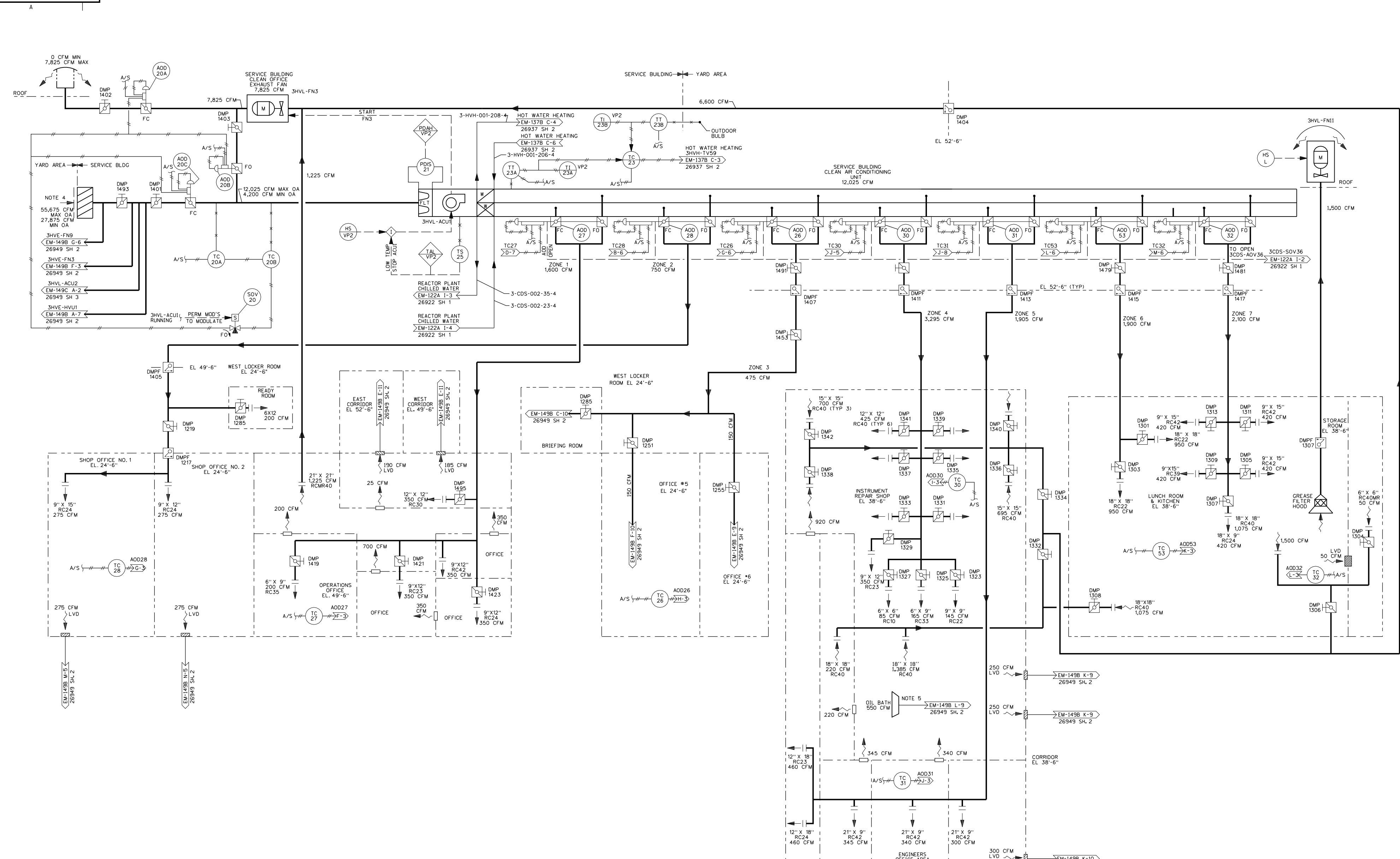
N/A	23	3-28	INCORP. DCN DM3-00-0204-00	RJK	RFL	DED	DED
N/A	22	2-14	INCORP. DCN DM3-00-0554-99	RJK	RFL	AJS	AR
N/A	21	11-3	INCORP. DCN DM3-00-0549-99	RJK	RFL	AJS	MP
N/A	20	3-25	INCORP. DCN DM3-00-0081-99	KF	RFL	AJS	MP
N/A	19	1-14	INCORP. DCN DM3-00-0541-98	KF	RFL	AJS	MP
N/A	18	1-7	INCORP. DCN DM3-01-0708-98	KF	MPS	RFL	
N/A	17	7-30	INCORP. DCN DM3-00-0708-98	JSC	RFL	AGR	AGR
N/A	16	7-28	INCORP. DCN DM3-00-0682-98	JSC	CMC	RFL	RFL



NOTE:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-148A (26948) SH 11.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING AND INSTRUMENTATION DIAGRAM REACTOR PLANT VENTILATION			
REVISION DESCRIPTION (SIGNATURES ON FILE) CAD NO: C26948B.DGN	DRAWING NO: 25212-26948	REV 7	SCALE: NONE UNLESS OTHERWISE NOTED SH 6



- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SERVICE BUILDING AIR CONDITIONING SYSTEMS TO BE PREFIXED WITH "SHVL-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR SERVICE BUILDING VENTILATION TO BE PREFIXED WITH "SHVE-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR DOMESTIC WATER SYSTEM TO BE PREFIXED WITH "3DW-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - THIS LOUVER IS 15'-0" X 12'-0" & SUPPLIES THE FOLLOWING SYSTEMS:
SHVE-FN9
SHVL-ACU1
SHVL-ACU2
SHVE-HVU1
 - FOR INTERMITTENT USE, WHEN OIL BATH IS IN USE.
 - ALL PIPING, VALVES, INSTRUMENTATION, & EQUIPMENT FOR VACUUM SYSTEM WITHIN THE BUILDINGS IS SUPPLIED BY THE PLUMBING CONTRACTOR. ALL VENTS, DRAINS, & TEST CONNECTIONS ARE "A".
 - UNLESS OTHERWISE NOTED: SUPPLY AIR REGISTERS SHALL BE TYPE DDHO RETURN AIR REGISTERS SHALL BE TYPE DHPD SUPPLY AIR GRILLS SHALL BE TYPE DHF.
 - PCA ROOMS SHOULD BE MAINTAINED WITH SLIGHT NEGATIVE PRESSURE.
 - ANNUNCIATOR INPUTS TO A COMMON VP2 TROUBLE ALARM ON VP1.

NOTES CONT:

10. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSR FIGURE
OPERATIONS CRITICAL

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

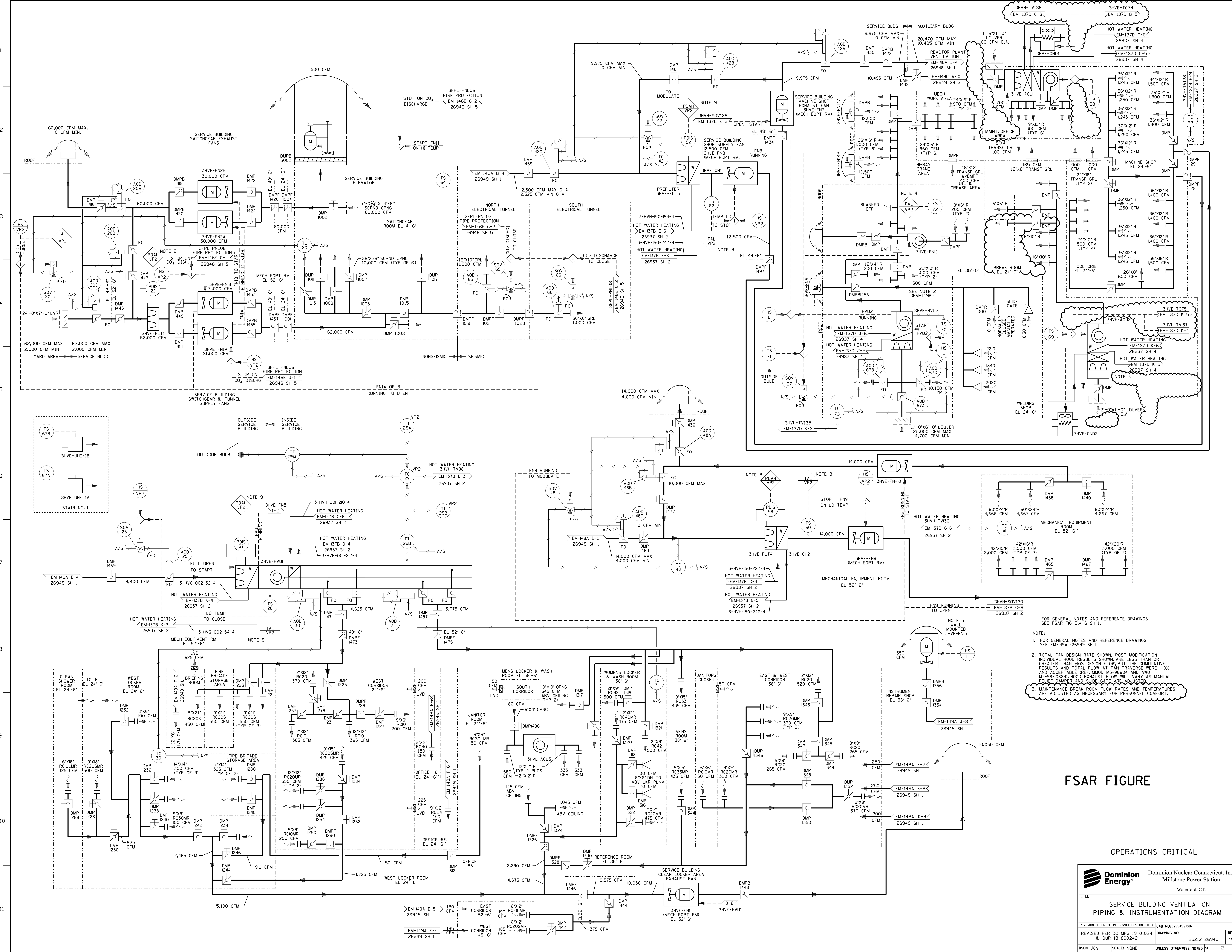
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						



TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM SERVICE BUILDING VENTILATION							
BY	CHK	DATE	APP. DATE	DATE	DATE	DATE	REV.
N/A	8	5-16-08	INCORP DCM DM3-00-0090-08	JMS	ASK	JJS	RFL
N/A	7	8-24-05	INCORP DCM DM3-00-0293-04	DLW	ASK	WBZ	MP
N/A	6	11-2-00	INCORP DCM DM3-00-0394-00	RFL	MP	AJS	PFL
N/A	5	7-20-98	INCORP DCM DM3-00-0682-98	JSC	CMC	RFL	RFL
N/A	4	12-17-87	INCORPORATED E&DCR N-ME-04589	MED	CJA	JVM	JVM
				SBR	CMO	HJS	CJA
				BY	CHK	CORR	APP

SCALE: NONE
DATE: 2-19-82
DWG. NO.: 25212-26949 SH 1
REV. 8

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE FSAR FIG 9.4-6 SH 1.

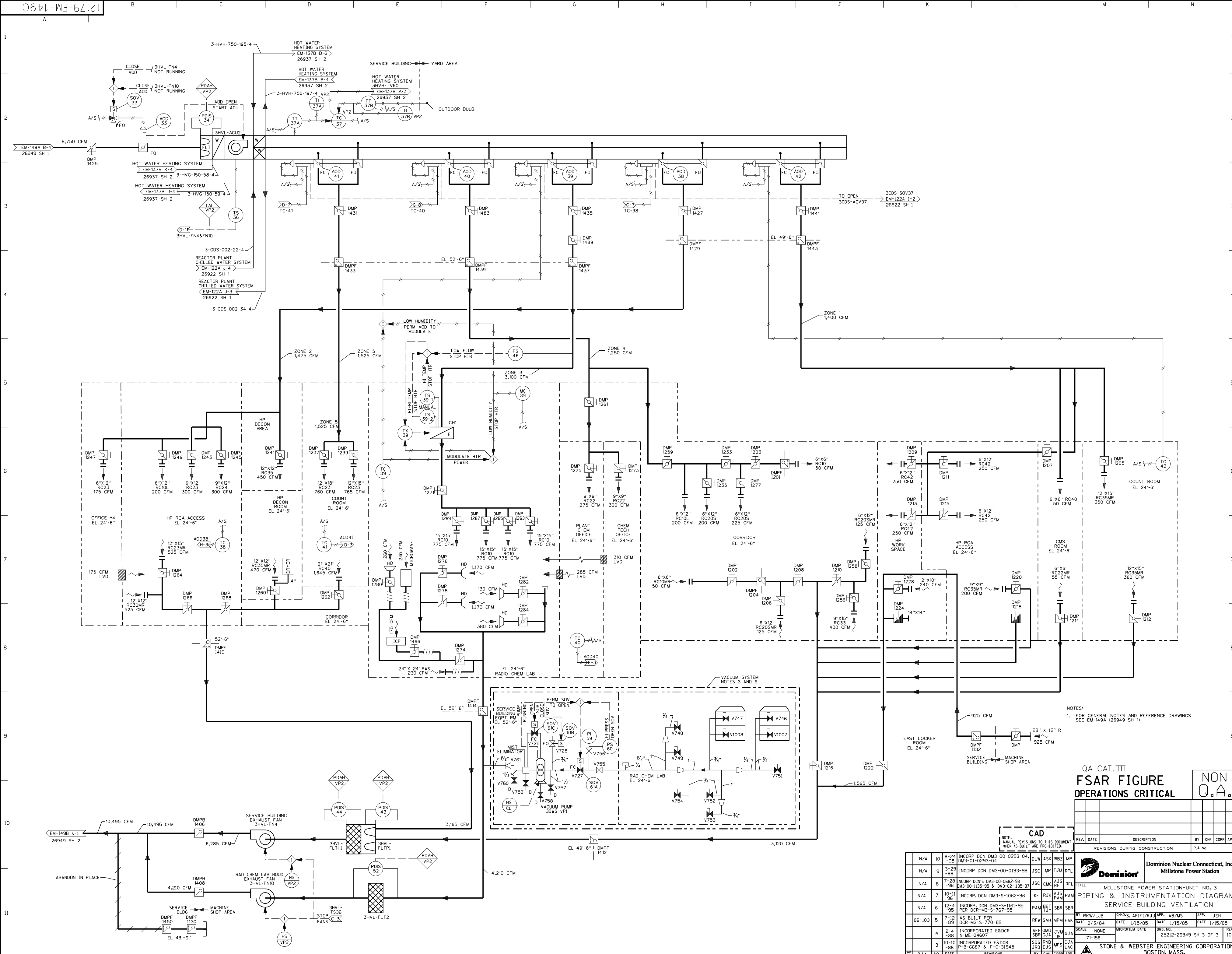
NOTE:

- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-149A (26949 SH 1)
- TOTAL FAN DESIGN RATE SHOWN, POST MODIFICATION INDIVIDUAL HOOD RESULTS SHOWN, ARE LESS THAN OR GREATER THAN +10% DESIGN FLOW, BUT THE CUMULATIVE RESULTS AND TOTAL FLOW AT FAN TRAVEL WERE +10% AND ACCEPTABLE. REF. M300 M3-96604 AND AWO M3-98-10824. HOOD EXHAUST FLOW WILL VARY AS MANUAL RELIEF DAMPER AND SLIDE GATE ARE ADJUSTED.
- MAINTENANCE BREAK ROOM FLOW RATES AND TEMPERATURES ARE ADJUSTED AS NECESSARY FOR PERSONNEL COMFORT.

FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
SERVICE BUILDING VENTILATION PIPING & INSTRUMENTATION DIAGRAM			
REVISION DESCRIPTION & DUR 19-800242	SIGNATURES ON FILE CAD NO: C26949.DWG	DRAWING NO: 25212-26949	REV 19
DSGN JCV		SCALE: NONE	
UNLESS OTHERWISE NOTED SH 2			



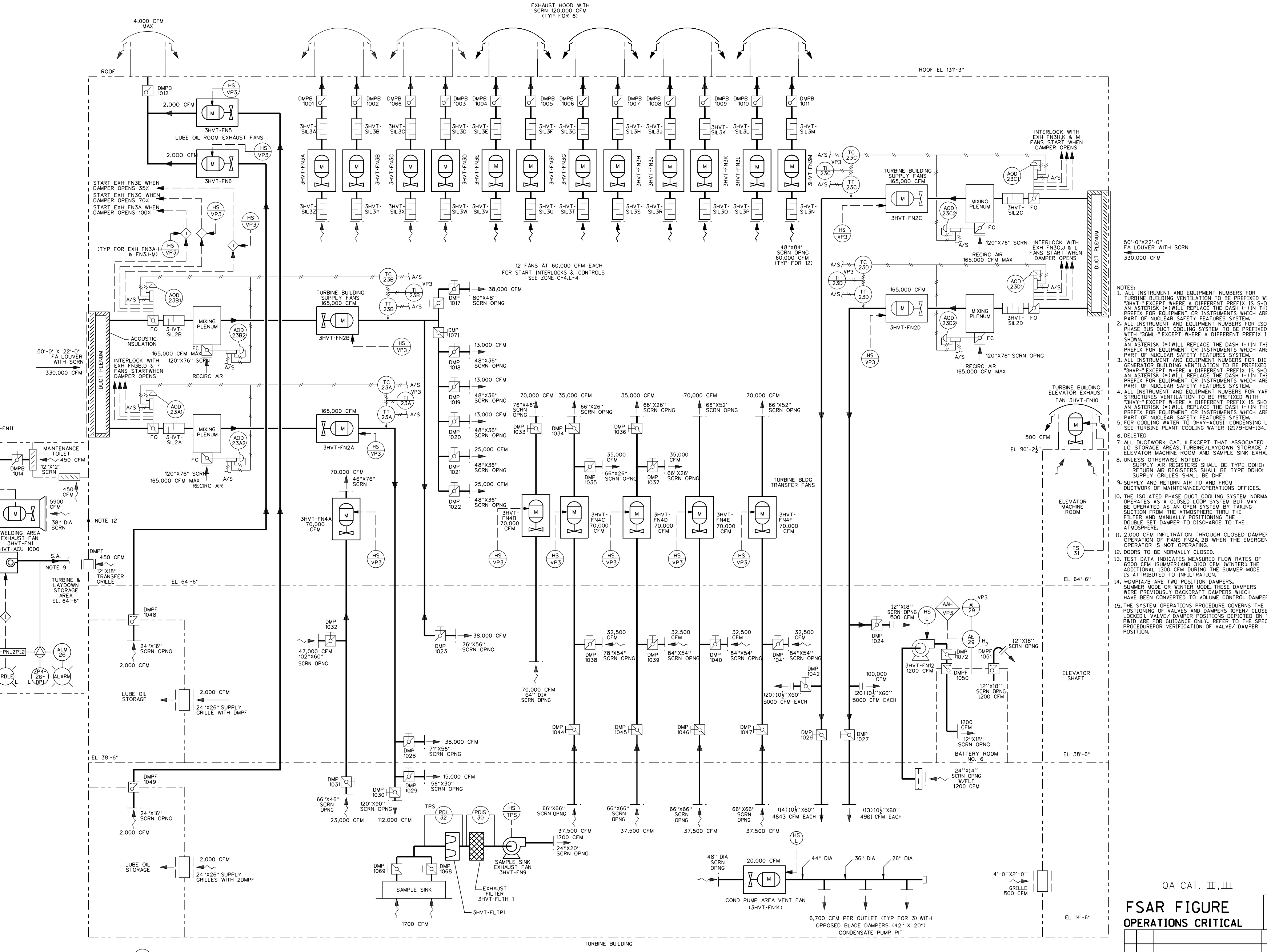
NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-149A (26949 SH 1)

QA CAT. III
FSAR FIGURE
OPERATIONS CRITICAL

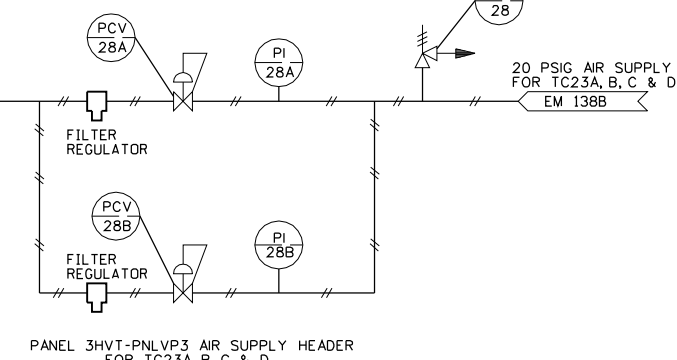
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

DOMINION Dominion Nuclear Connecticut, Inc. Millstone Power Station	
TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM SERVICE BUILDING VENTILATION	
BY: RWK/LJB DATE: 2/3/84	CMB-S, AF/PL/RJJ DATE: 1/15/85
APP: JEH DATE: 1/15/85	INCORPORATED E&DCR DATE: 7-1-86
REV: 10 DATE: 10-10-86	DWG. NO.: 25212-26949 SH 3 OF 3 REV: 10

NO.	DATE	REVISIONS
N/A	10	8-24-05 INCORP DCM DM3-00-0293-04
N/A	9	3-29-99 INCORP DCM DM3-00-0193-99
N/A	8	7-28-98 INCORP DCM DM3-00-0682-98
N/A	7	10-11-96 INCORP DCM DM3-00-1135-95 & DM3-02-1135-97
N/A	6	12-4-95 INCORP DCM DM3-5-1062-96
86-103	5	7-12-89 AS BUILT PER DCR-M3-5-770-89
4	2-4-88	INCORPORATED E&DCR N-NE-04607
3	10-10-86	INCORPORATED E&DCR P-B-6687 & F-C-31945



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TURBINE BUILDING VENTILATION TO BE PREFIXED WITH "3HVT-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR ISOLATED PHASE BUS DUCT COOLING SYSTEM TO BE PREFIXED WITH "3DML-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 3. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 4. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR DIESEL GENERATOR BUILDING VENTILATION TO BE PREFIXED WITH "3HVT-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 5. FOR COOLING WATER TO 3HVT-ACUS1 CONDENSING UNIT, SEE TURBINE PLANT COOLING WATER 12179-EM-134.
 6. DELETED
 7. ALL DUCTWORK CAT. II EXCEPT THAT ASSOCIATED WITH THE L.O. STORAGE AREAS, TURBINE/LAYDOWN STORAGE AREA, ELEVATOR MACHINE ROOM AND SAMPLE SINK EXHAUST.
 8. UNLESS OTHERWISE NOTED: SUPPLY AIR REGISTERS SHALL BE TYPE DD00; RETURN AIR REGISTERS SHALL BE TYPE DD00; SUPPLY GRILLES SHALL BE DHF.
 9. SUPPLY AND RETURN AIR TO AND FROM DUCTWORK OF MAINTENANCE/OOPERATIONS OFFICES.
 10. THE ISOLATED PHASE DUCT COOLING SYSTEM NORMALLY OPERATES AS A CLOSED LOOP SYSTEM BUT MAY BE OPERATED AS AN OPEN SYSTEM BY TAKING SUCTION FROM THE ATMOSPHERE THRU THE FILTER AND MANUALLY POSITIONING THE DOUBLE SET DAMPER TO DISCHARGE TO THE ATMOSPHERE.
 11. 2,000 CFM INFILTRATION THROUGH CLOSED DAMPERS FOR OPERATOR IS NOT OPERATING.
 12. DOORS TO BE NORMALLY CLOSED.
 13. TEST DATA INDICATES MEASURED FLOW RATES OF 6900 CFM (SUMMER) AND 3100 CFM (WINTER) THE ADDITIONAL 1300 CFM DURING THE SUMMER MODE IS ATTRIBUTED TO INFILTRATION.
 14. *MOP1A/B ARE TWO POSITION DAMPERS, SUMMER MODE OR WINTER MODE. THESE DAMPERS WERE PREVIOUSLY BACKDRAFT DAMPERS WHICH HAVE BEEN CONVERTED TO VOLUME CONTROL DAMPERS.
 15. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS OPEN/CLOSED/LOCKED. VALVE/DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.



QA CAT. II, III
FSAR FIGURE
OPERATIONS CRITICAL

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP

Dominion Dominion Nuclear Connecticut, Inc. Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT VENTILATION

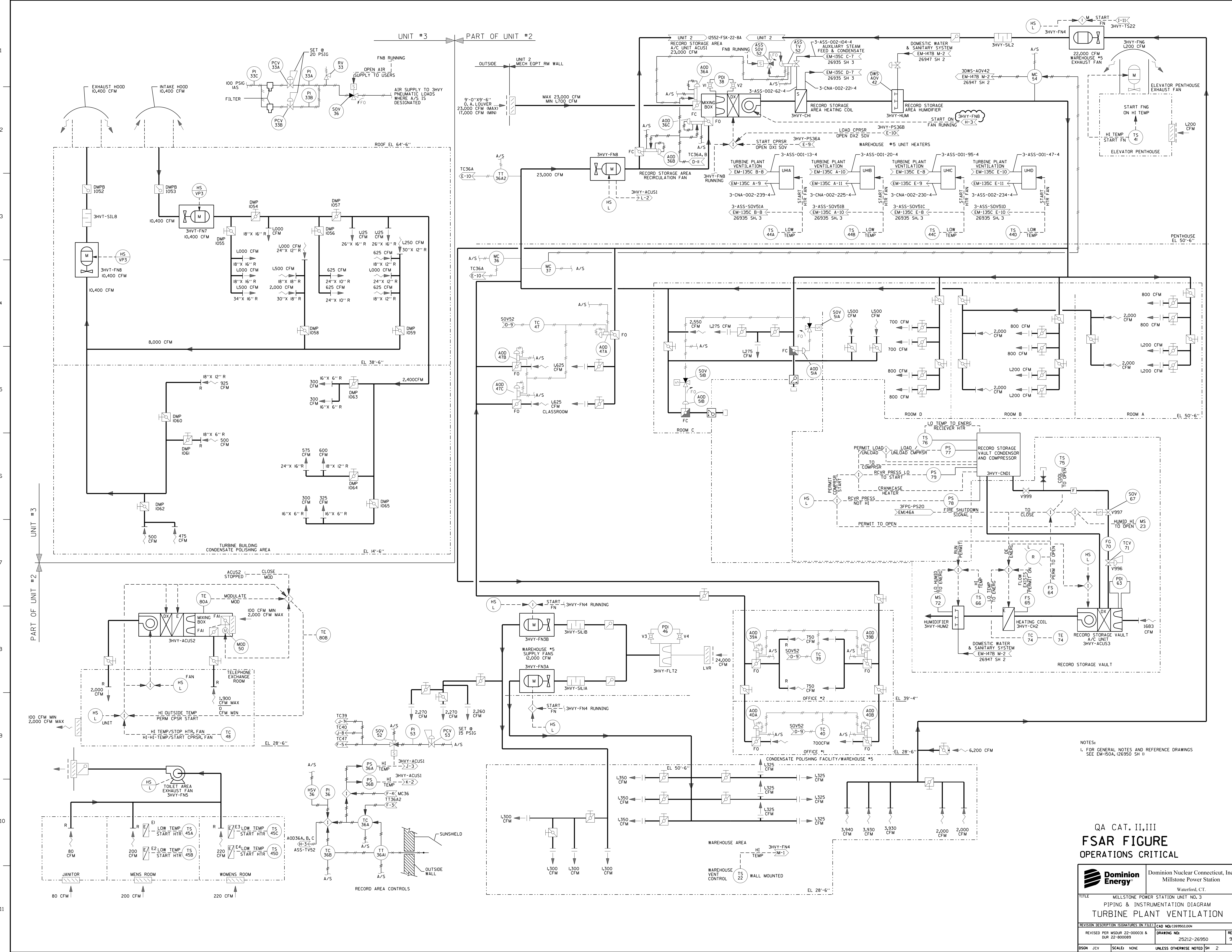
DATE: 5-13-82
 SCALE: NONE
 71-155

BY: RLK/RTL
 DATE: 5-13-82
 SCALE: NONE
 71-155

APP. W/WM/DEK/WS
 DATE: 6-1-82
 DWG. NO.: 25212-26950 SH 1

GOB
 DATE: 6-3-82
 REV: 14

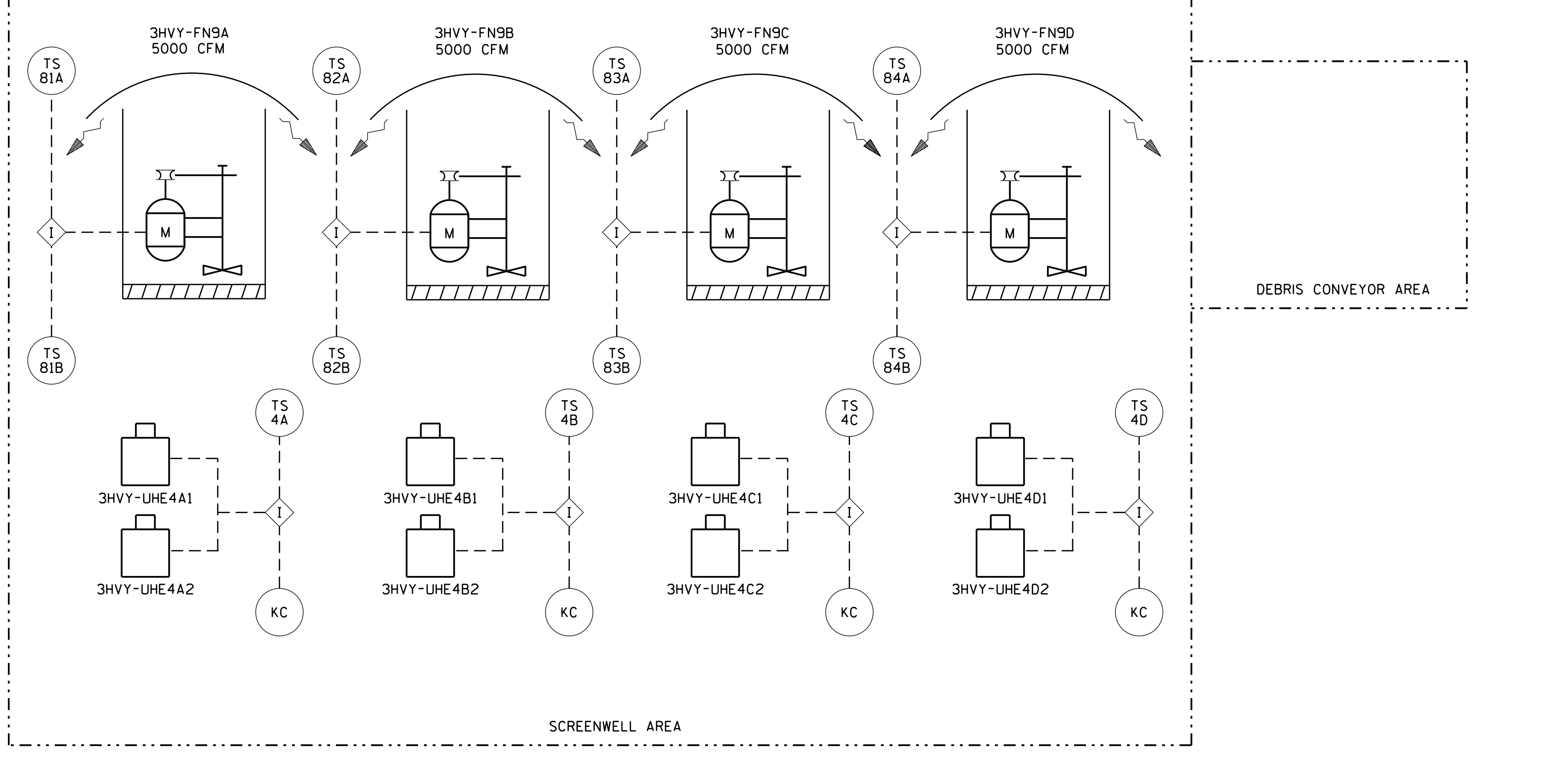
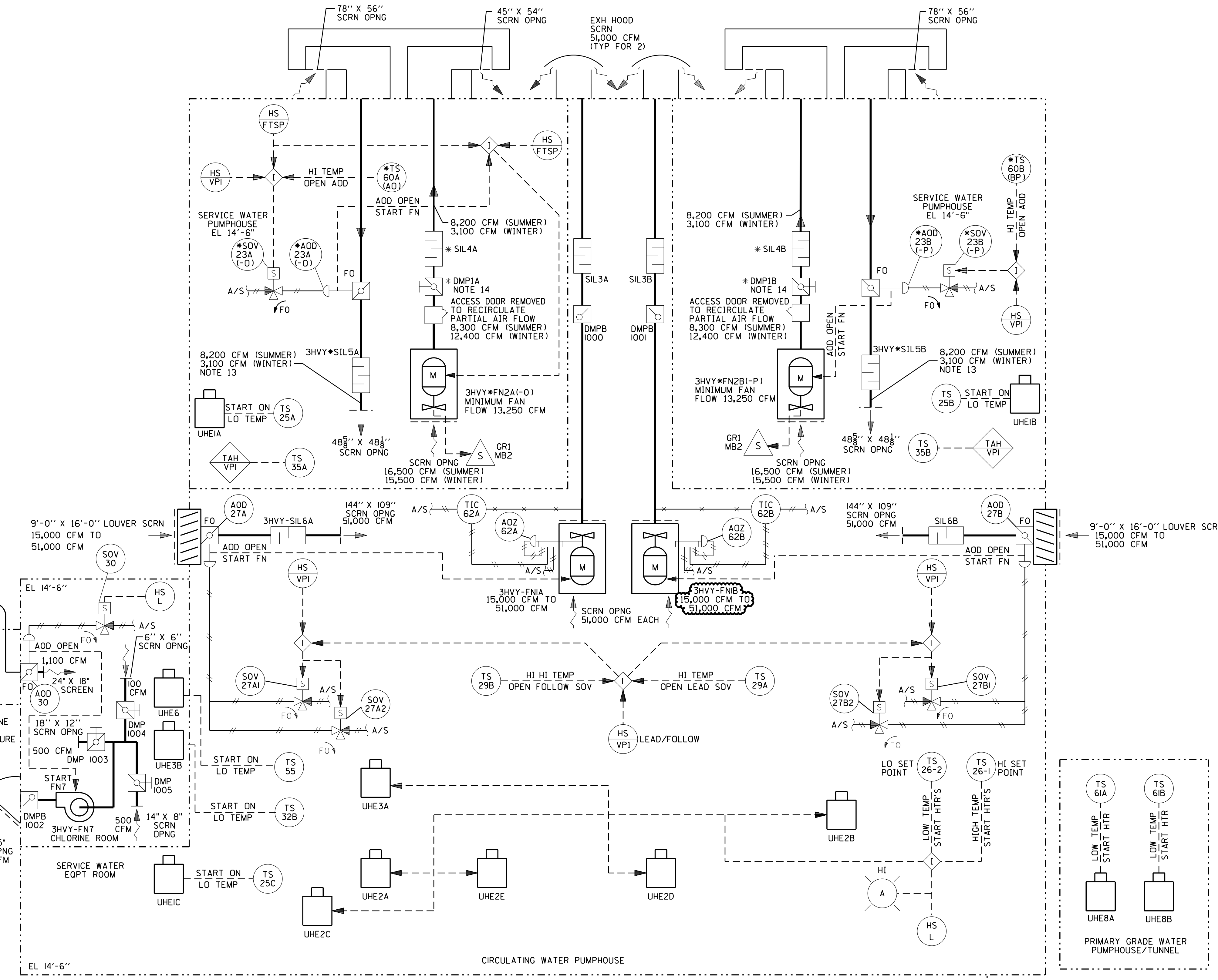
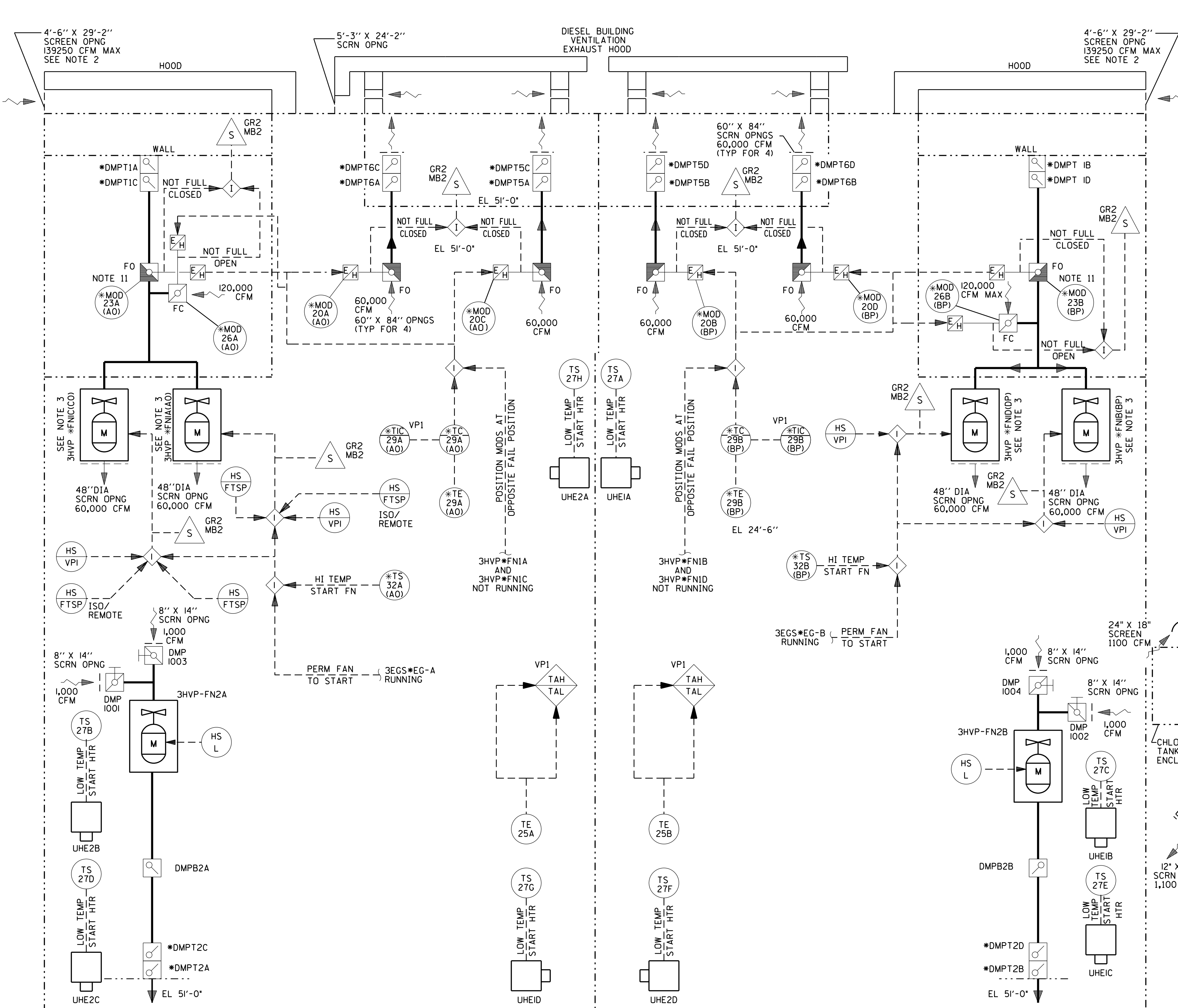
STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-150A, (26950 SH 1)

QA CAT. II,III
FSAR FIGURE
 OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE: MILLSTONE POWER STATION UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT VENTILATION			
REVISION DESCRIPTION 22-000031 & 22-000039	SIGNATURES ON FILE CAD NO: 1269502.DWG	DRAWING NO: 25212-26950	REV 9
DSGN JCV	SCALE: NONE	UNLESS OTHERWISE NOTED SH 2	



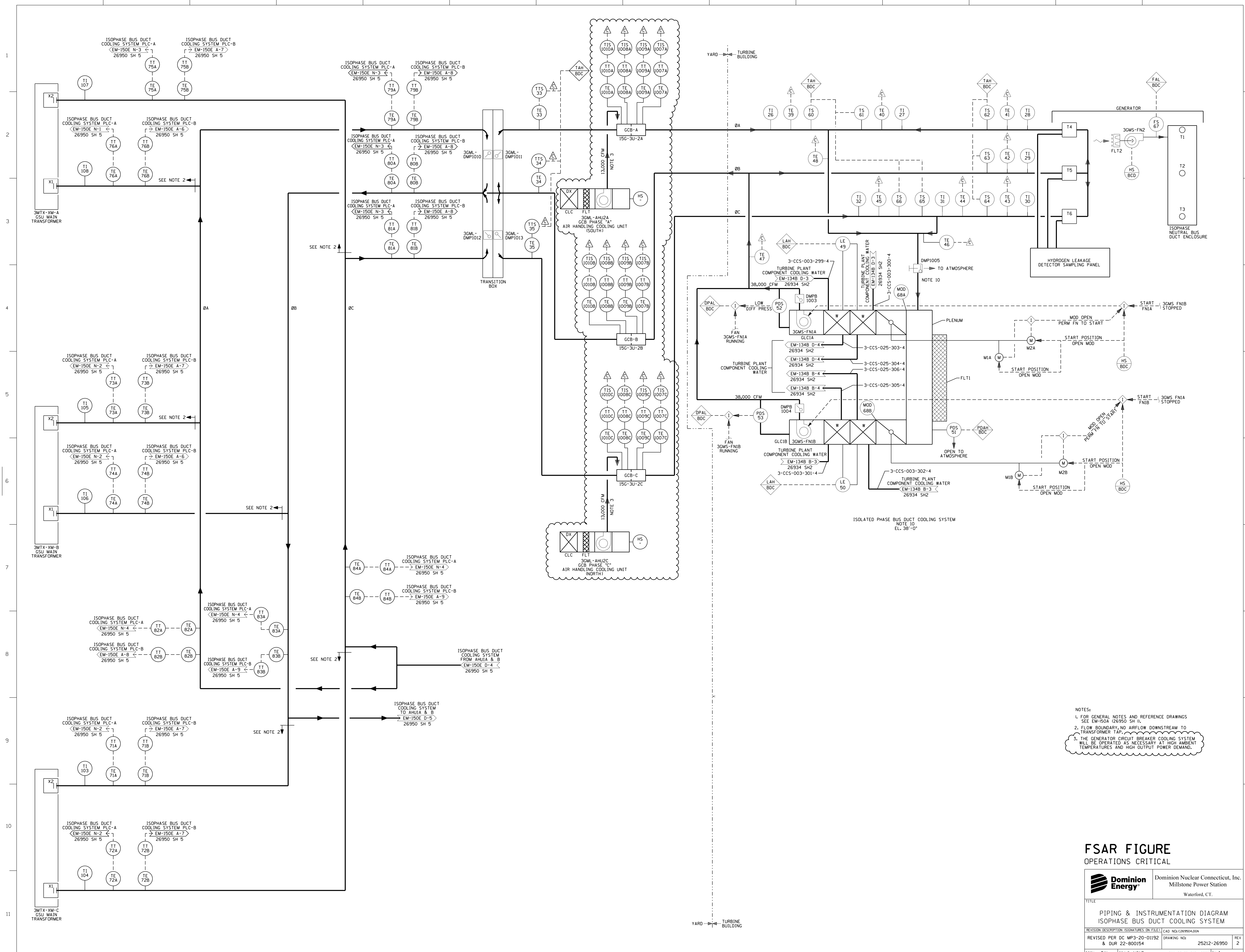
- NOTES:
- FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-150A (26950 SH 1).
 - 139250 CFM MAX FLOW: 120000 CFM VENTILATION AND 19250 CFM ENGINE COMBUSTION AIR.
 - THE SUCTION SIDE OF THESE FANS HAVE MISSILE SHIELDS DESIGNATED AS FOLLOWS:

FAN MARK NUMBERS	MISSILE SHIELD MARK NUMBERS
3HVP-FN9A	3HVP-MMS9A
3HVP-FN9B	3HVP-MMS9B
3HVP-FN9C	3HVP-MMS9C
3HVP-FN9D	3HVP-MMS9D

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE

OPERATIONS CRITICAL

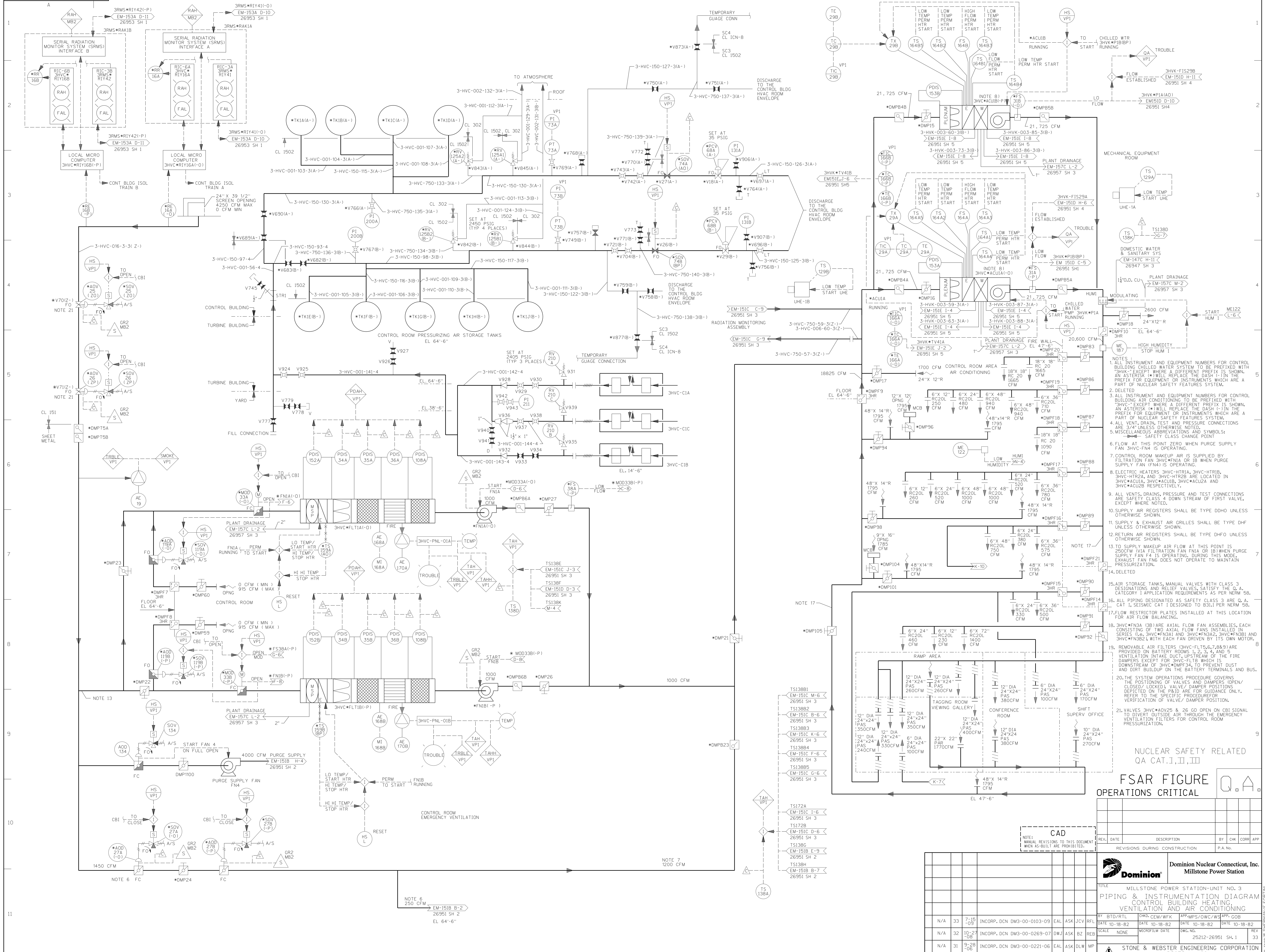
		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM TURBINE PLANT VENTILATION			
REVISION DESCRIPTION AND DUR	SIGNATURES ON FILE CAD NO: 1269503.DGN	DRAWING NO: 25212-26950	REV 26
DSGN DWJ		SCALE: NONE	UNLESS OTHERWISE NOTED SH 3



NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-150A (26950 SH 1).
 2. FLOW BOUNDARY, NO AIRFLOW DOWNSTREAM TO TRANSFORMER TAP.
 3. THE GENERATOR CIRCUIT BREAKER COOLING SYSTEM WILL BE OPERATED AS NECESSARY AT HIGH AMBIENT TEMPERATURES AND HIGH OUTPUT POWER DEMAND.

FSAR FIGURE
 OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING & INSTRUMENTATION DIAGRAM ISOPHASE BUS DUCT COOLING SYSTEM			
REVISION DESCRIPTION & DUR 22-800154	SIGNATURES ON FILE DRAWING NO. 25212-26950	CAD NO. 1269504.DGN	REV 2
DSGN EAL	SCALE: NONE	UNLESS OTHERWISE NOTED SH 4	



- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONTROL BUILDING CHILLED WATER SYSTEM TO BE PREFIXED WITH "3HVC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - DELETED.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONTROL BUILDING AIR CONDITIONING TO BE PREFIXED WITH "3HVC" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL VENT, DRAIN, TEST AND PRESSURE CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 - MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - SAFETY CLASS CHANGE POINT
 - FLOW AT THIS POINT ZERO WHEN PURGE SUPPLY FAN 3HVC-FN4 IS OPERATING.
 - CONTROL ROOM MAKEUP AIR IS SUPPLIED BY FILTRATION FAN 3HVC-FN1A OR 1B WHEN PURGE SUPPLY FAN F4 IS OPERATING. DURING THIS MODE, EXHAUST FAN FNB DOES NOT OPERATE TO MAINTAIN PRESSURIZATION.
 - DELETED.
 - CONTROL ROOM MAKEUP AIR IS SUPPLIED BY FILTRATION FAN 3HVC-FN1A OR 1B WHEN PURGE SUPPLY FAN F4 IS OPERATING. DURING THIS MODE, EXHAUST FAN FNB DOES NOT OPERATE TO MAINTAIN PRESSURIZATION.
 - DELETED.
 - ELECTRIC HEATERS 3HVC-HTR1A, 3HVC-HTR1B, 3HVC-HTR2A, AND 3HVC-HTR2B ARE LOCATED IN 3HVC-ACU2A, 3HVC-ACU2B, 3HVC-ACU2A, AND 3HVC-ACU2B RESPECTIVELY.
 - ALL VENTS, DRAINS, PRESSURE AND TEST CONNECTIONS ARE SAFETY CLASS 3 DOWN STREAM OF FIRST VALVE, EXCEPT WHERE NOTED.
 - SUPPLY AIR REGISTERS SHALL BE TYPE DDHO UNLESS OTHERWISE SHOWN.
 - SUPPLY & EXHAUST AIR GRILLES SHALL BE TYPE DHF UNLESS OTHERWISE SHOWN.
 - RETURN AIR REGISTERS SHALL BE TYPE DHFO UNLESS OTHERWISE SHOWN.
 - TO SUPPLY MAKEUP AIR FLOW AT THIS POINT IS 250CFM (VIA FILTRATION FAN FNB OR 1B) WHEN PURGE SUPPLY FAN F4 IS OPERATING. DURING THIS MODE, EXHAUST FAN FNB DOES NOT OPERATE TO MAINTAIN PRESSURIZATION.
 - DELETED.
 - AIR STORAGE TANKS, MANUAL VALVES WITH CLASS 3 DESIGNATIONS AND RELIEF VALVES, SATISFY THE CATEGORY 1 APPLICATION REQUIREMENTS AS PER NERM 5B.
 - ALL PIPING DESIGNATED AS SAFETY CLASS 3 ARE A CAT 1, SEISMIC CAT 1 DESIGNED TO B3.1 PER NERM 5B.
 - FLOW RESTRICTOR PLATES INSTALLED AT THIS LOCATION FOR AIR FLOW BALANCING.
 - 3HVC-FN3A (1B) ARE AXIAL FLOW FAN ASSEMBLIES, EACH CONSISTING OF TWO AXIAL FLOW FANS INSTALLED IN SERIES (i.e., 3HVC-FN3A1 AND 3HVC-FN3A2, 3HVC-FN3B1 AND 3HVC-FN3B2), WITH EACH FAN DRIVEN BY ITS OWN MOTOR.
 - REMOVABLE AIR FILTERS (3HVC-FLT5, 6, 7, 8) ARE PROVIDED ON BATTERY ROOMS 1, 2, 3, 4, AND 5 VENTILATION INTAKE DUCT, UPSTREAM OF THE FIRE DAMPERS EXCEPT FOR 3HVC-FLT5 WHICH IS DOWNSTREAM OF 3HVC-DMPF34, TO PREVENT DUST AND DIET BUILDUP ON THE BATTERY TERMINALS AND BUS.
 - THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/CLOSED/LOCKED) VALVE/DAMPER POSITIONS DEPICTED ON THE PAID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/DAMPER POSITION.
 - VALVES 3HVC-ADV25 & 26 GO OPEN ON CBI SIGNAL TO DIVERT OUTSIDE AIR THROUGH THE EMERGENCY VENTILATION FILTERS FOR CONTROL ROOM.

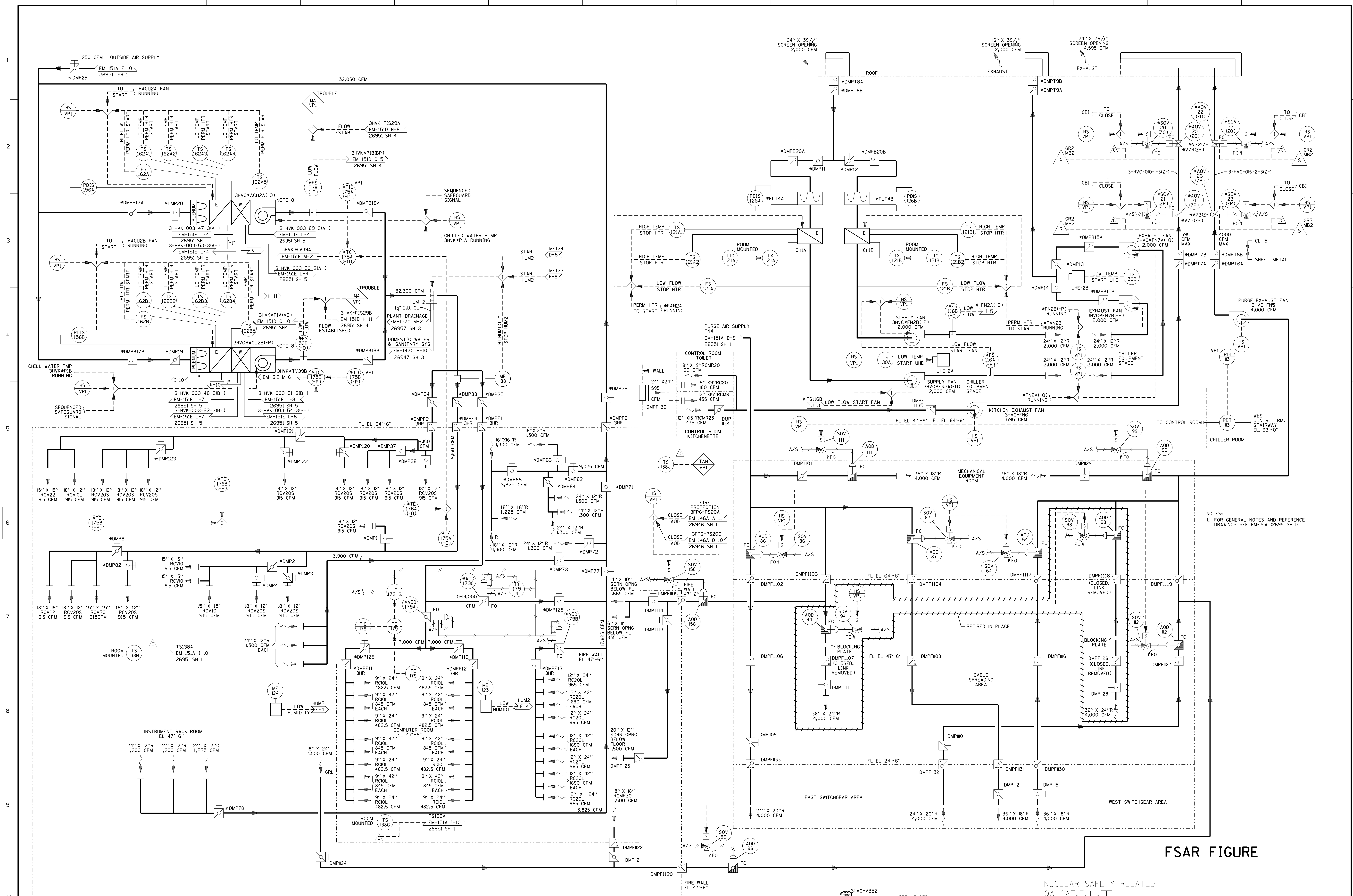
NUCLEAR SAFETY RELATED
QA CAT. I, II, III

FSAR FIGURE Q.A
OPERATIONS CRITICAL

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. NO.						

Domion Nuclear Connecticut, Inc.
Millstone Power Station
 TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 CONTROL BUILDING HEATING,
 VENTILATION AND AIR CONDITIONING
 DWN: JEM/WFK APP: MPM/OWC/WB
 DATE 10-18-82 DATE 10-18-82 DATE 10-18-82
 SCALE: NONE MICROFILM DATE: 25212-26951 SH.1
 REV: 33
STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



FSAR FIGURE

NUCLEAR SAFETY RELATED
QA CAT. I, II, III

OPERATIONS CRITICAL

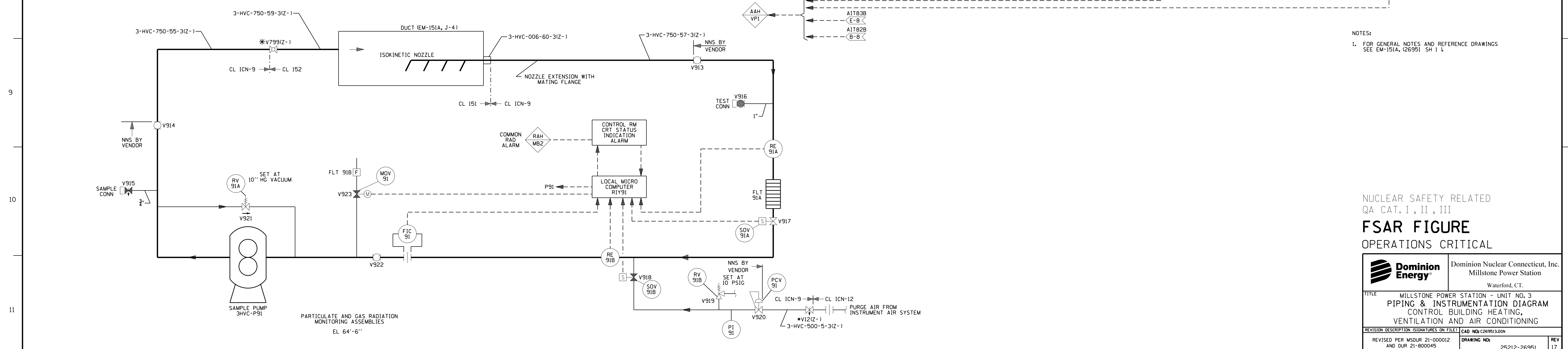
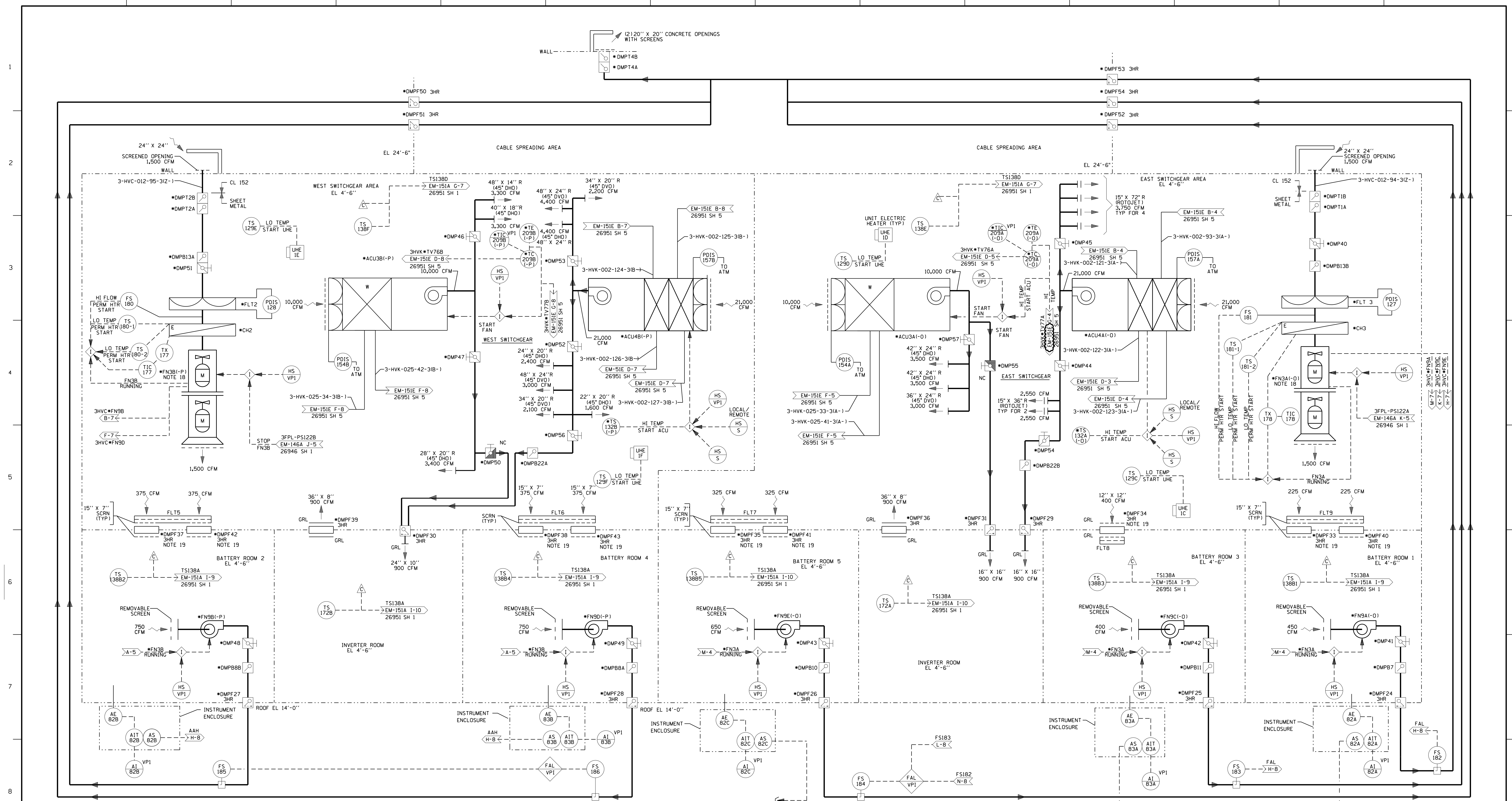
Dominion Energy Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
CONTROL BUILDING HEATING,
VENTILATION AND AIR CONDITIONING

REVISION DESCRIPTION SIGNATURES ON FILE | **CAD NO.** 1269512.00N

REVISED PER EC MP3-18-01076 AND DLR 20-000220 | **DRAWING NO.** 25212-26951 | **REV** 23

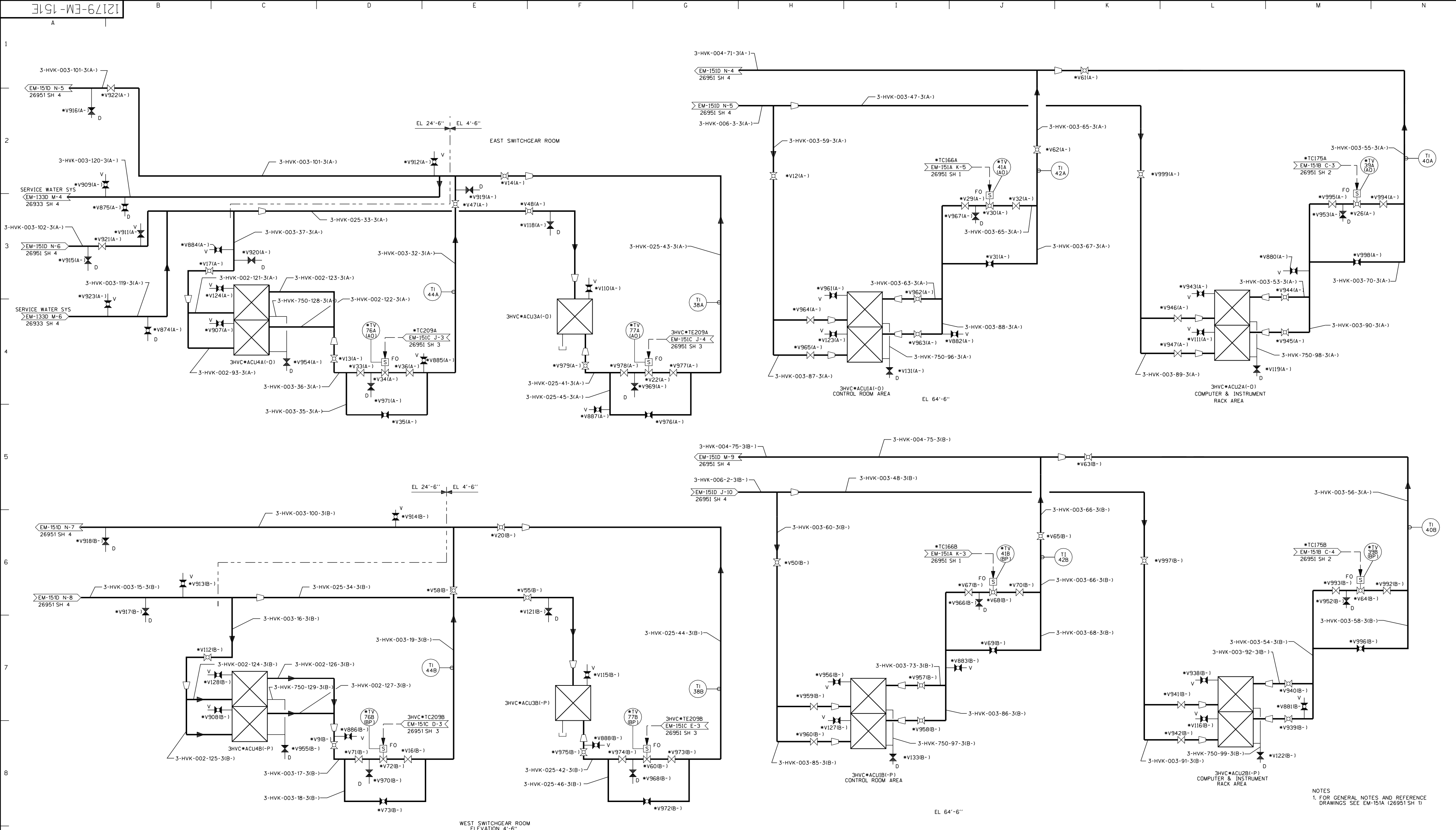
DSGN DJW | **SCALE:** NONE | **UNLESS OTHERWISE NOTED** SH 2



NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-151A, (26951 SH 1)

NUCLEAR SAFETY RELATED
QA CAT. I, II, III
FSAR FIGURE
OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE: MILLSTONE POWER STATION - UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM CONTROL BUILDING HEATING, VENTILATION AND AIR CONDITIONING			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: C26951.004	
REVISED PER MSQR 21-000012 AND DIR 21-000045		DRAWING NO: 25212-26951 REV 17	
DSON W/P		SCALE: NONE UNLESS OTHERWISE NOTED SH 3	



NOTES
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-151A (26951 SH 1)

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE OPERATIONS CRITICAL

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

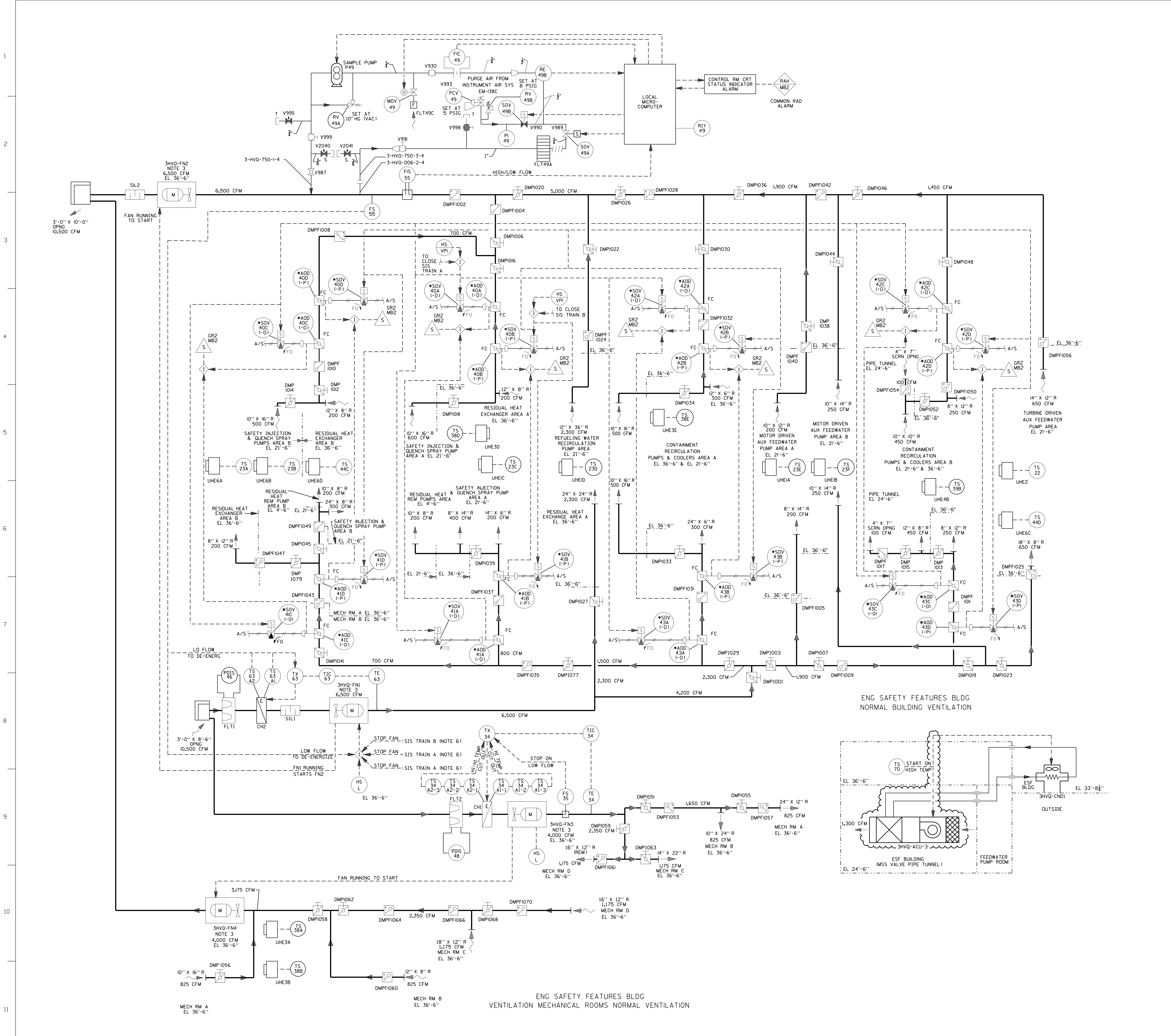
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	11-10-27-99	INCORP. DCN DM3-00-0491-99	KF	RFL	AJS	MP
N/A	10-7-98	INCORP. DCN DM3-00-0682-98	JSC	CMC	RFL	RFL
N/A	9-1-97	INCORP. DCN DM3-00-1168-97	KF	RFL	AJS	MP
N/A	8-31-97	INCORP. DCN DM3-00-1015-97	AC	MP	PAM	PAM
N/A	7-10-96	INCORP. DCN DM3-S-809-96	KF	TMS	TJY	PAM
N/A	7-3-96	INCORP. DCN DM3-S-235-96 PER DCR-M3-S-383-96	KF	BET	AJS	PAM
N/A	5-12-87	INCORPORATED E&DCR N-ME-03755.	SDS	CJR	MFS	FJL
BY	CHK	CORR	APP			

Dominion
Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
CONTROL BUILDING HEATING,
VENTILATION AND AIR CONDITIONING

DATE: 10/15/82
SCALE: NONE
DWG. NO.: 25212-26951 SH 5 OF 5
REV. DATE: 10/15/82

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.

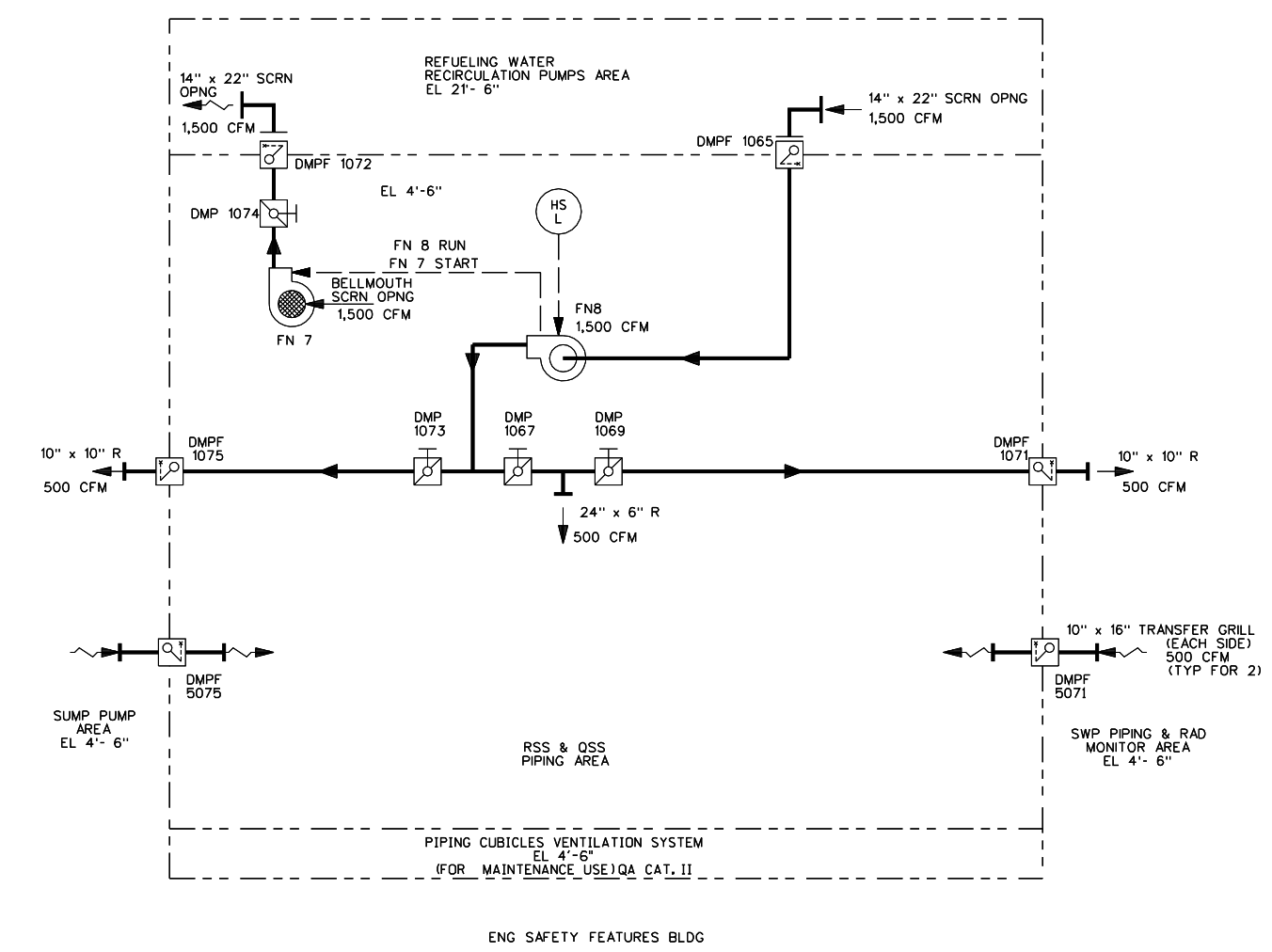
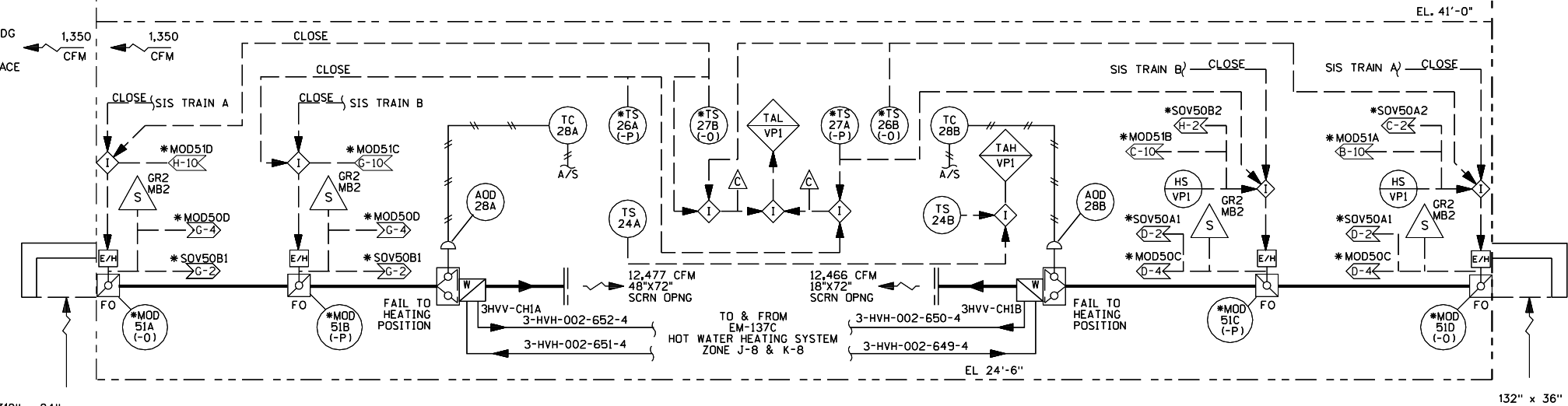
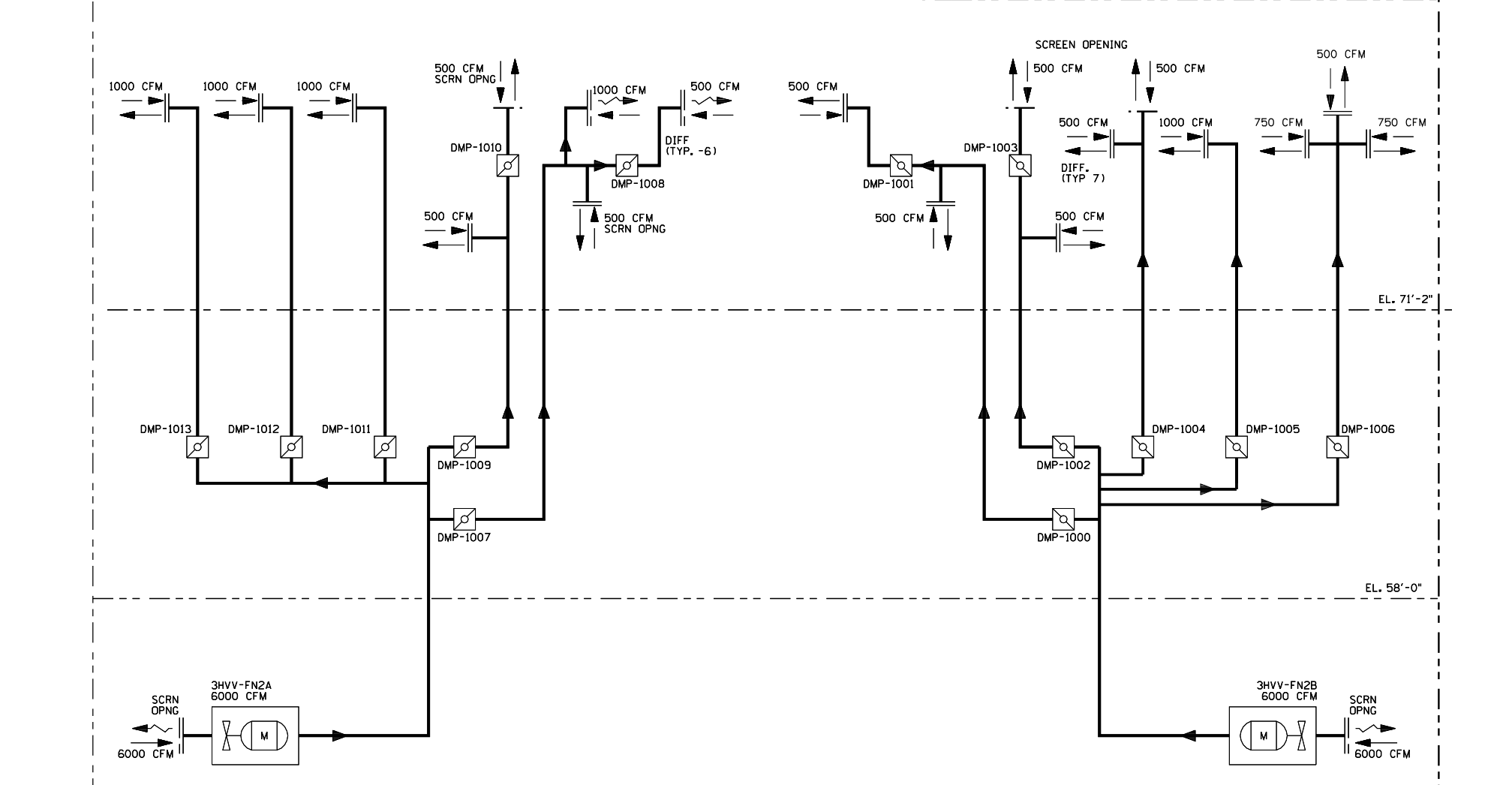
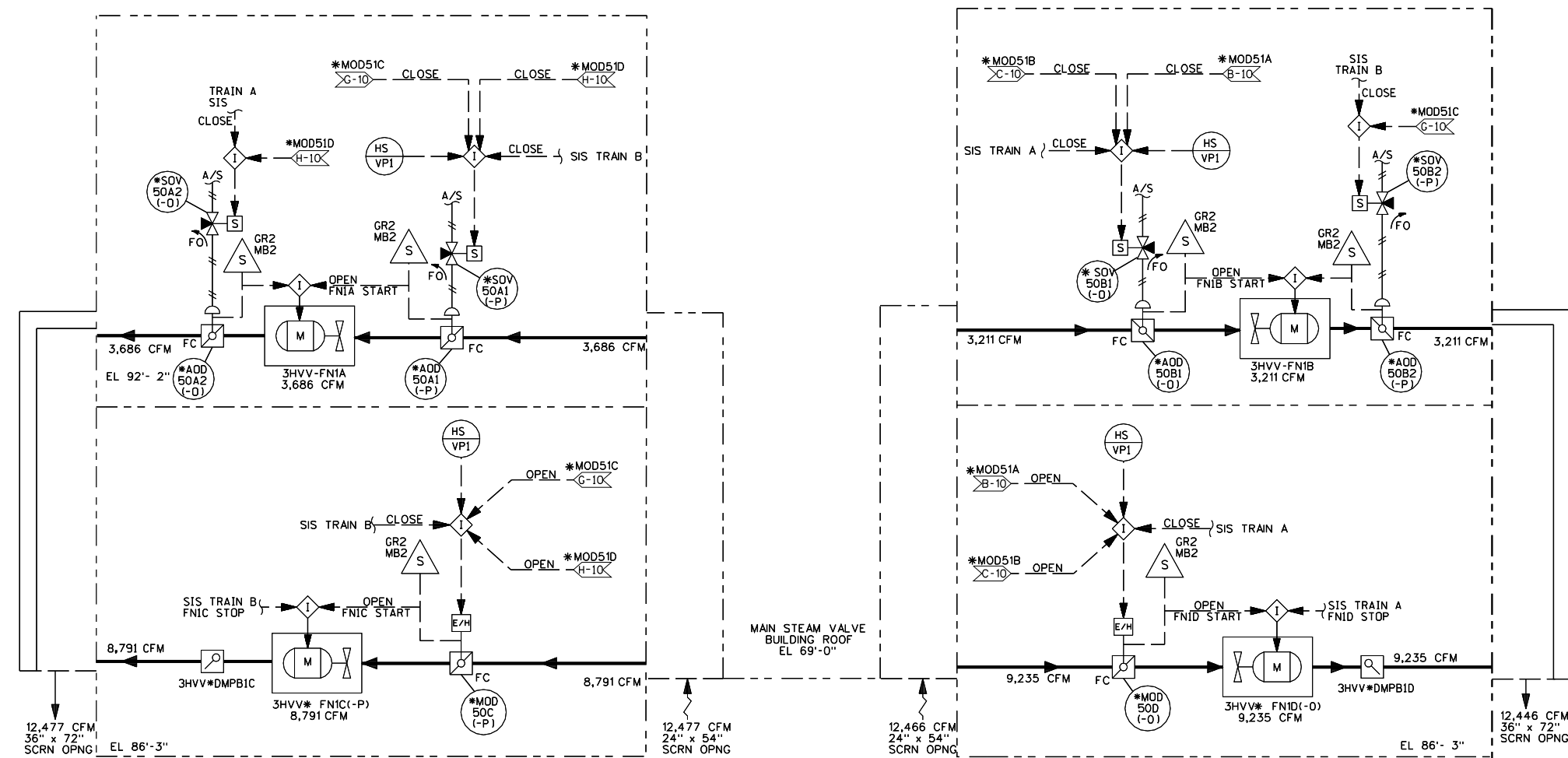


- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR ESF BUILDING VENTILATION TO BE PREFIXED WITH "3HVQ" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF NUCLEAR SAFETY RELATED FEATURES SYSTEM.
 - UNLESS OTHERWISE NOTED: SUPPLY AIR REGISTERS SHALL BE TYPE DDH0; RETURN AIR REGISTERS SHALL BE TYPE DHF0; TRANSFER GRILLES SHALL BE TYPE DMF.
 - THE SUCTION SIDE OF FAN HAS A MISSILE SHIELD DESIGNATED AS FOLLOWS.
- | FAN MARK NUMBER | MISSILE SHIELD MARK NUMBER |
|-----------------|----------------------------|
| 3HVQ-FN1 | 3HVQ-MISS1 |
| 3HVQ-FN2 | 3HVQ-MISS2 |
| 3HVQ-FN3 | 3HVQ-MISS3 |
| 3HVQ-FN4 | 3HVQ-MISS4 |
| 3HVQ-FNSA | 3HVQ-MISS5A |
| 3HVQ-FNSB | 3HVQ-MISS5B |
| 3HVQ-FNSA | 3HVQ-MISS6A |
| 3HVQ-FNSB | 3HVQ-MISS6B |
- MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - - - FREON LINE
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR THE MSVB VENTILATION SYSTEM TO BE PREFIXED WITH "3HVQ" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE PART OF NUCLEAR SAFETY RELATED FEATURES SYSTEM.
 - TRAIN A OR B SIGNALS ARE ELECTRICALLY ISOLATED. ANY SIGNAL STOPS FAN.
 - THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 - ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE 3/4 INCH UNLESS OTHERWISE NOTED.

NUCLEAR SAFETY RELATED
 QA CAT. I, II, III
FSAR FIGURE

OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE PIPING AND INSTRUMENTATION DIAGRAM ESF AND MSV BUILDINGS VENTILATION			
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER EC MP3-20-01123 & DUR 22-800152		CAD NO: C269521.DWG DRAWING NO: 25212-26952 REV 22	
DSON: EAL		SCALE: NONE UNLESS OTHERWISE NOTED SH 1	



NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-152A/26952 SH 1.

NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE
OPERATIONS CRITICAL

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
N/A	16	2-12-08	INCRP DCN DM3-00-0029-08	DWJ	MP	DLW ASK
N/A	15	10-15-04	INCRP DCN DM3-00-0294-04	EAL	MP	DLW DED
N/A	14	9-3-04	INCRP DCN DM3-00-0252-04	JCV	MP	DLW DED
N/A	13	11-9-99	INCRP DCN DM3-00-0443-99	RJK	RFL	AJS MP
N/A	12	7-28-98	INCRP DCN DM3-00-0682-98	JSC	CMC	RFL RFL
N/A	11	10-29-97	INCRP DCN DM3-00-1016-97	AC	MP	PAM PAM
N/A	10	6-27-96	INCRP DCN DM3-S-706-96 PER DCR-M3-S-374-96	KF	RJM	AJS PAM
N/A	9	1-17-96	INCRP DCN DM3-S-0012-96 PER DCR-M3-S-031-96	PAM	BET	LM LM
P.A.	NO.	DATE	REVISIONS	BY	CHK	CORR APP.

Domain
Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
PIPING & INSTRUMENTATION DIAGRAM
ESF AND MSV BUILDINGS
VENTILATION

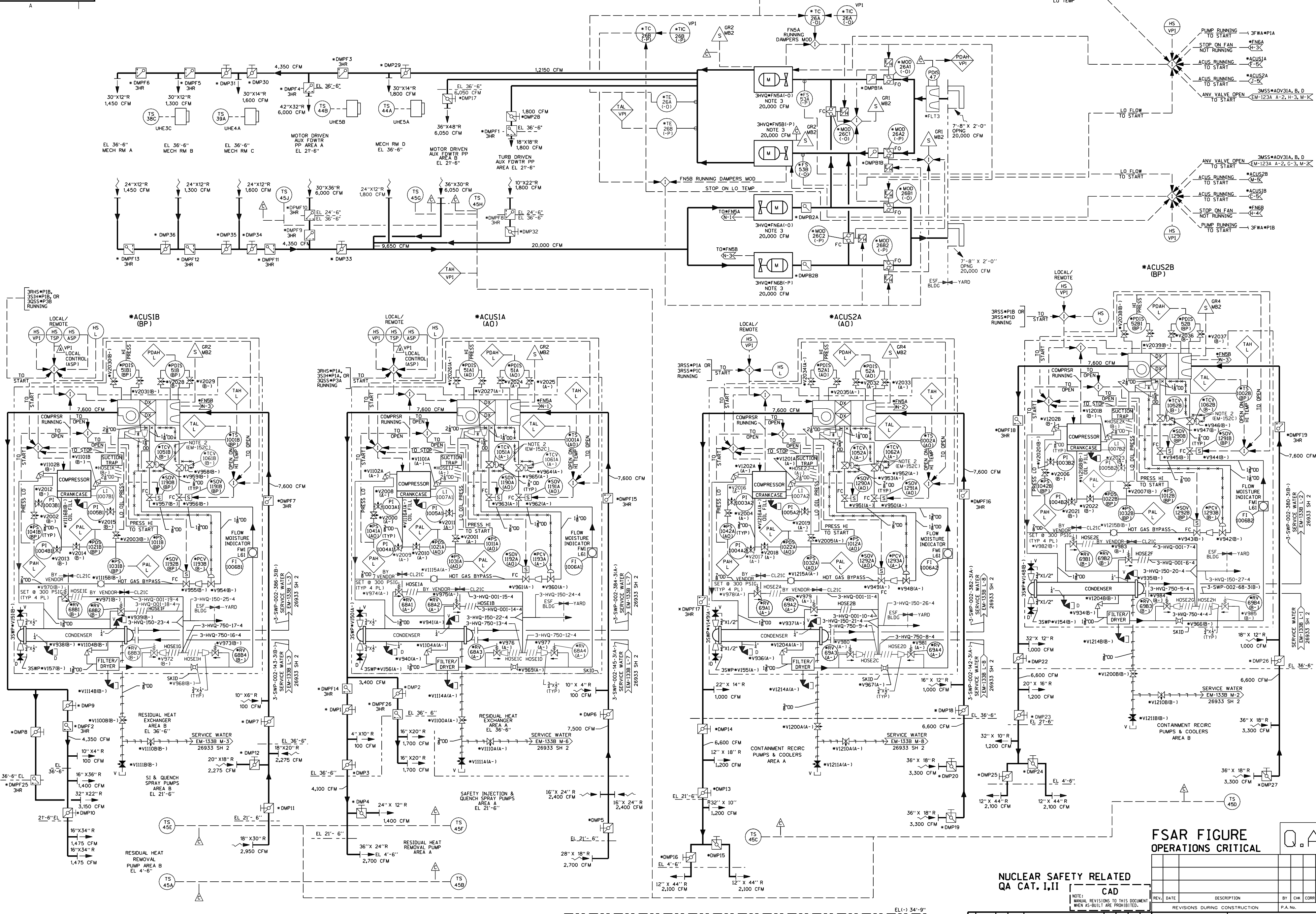
BY: BTD/RTL
DATE: 6-21-82
SCALE: NONE

CHKD: CEM/WFK
DATE: 6-22-82
MICROFILM DATE: NONE

APP: FK/WS
DATE: 6-24-82
DWG. NO.: 25212-26952 SH 2

REV: GB
DATE: 6-28-82
REV: 16

STONE & WEBSTER ENGINEERING CORPORATION
BOSTON, MASS.



FSAR FIGURE OPERATIONS CRITICAL

NUCLEAR SAFETY RELATED QA CAT. I, II CAD

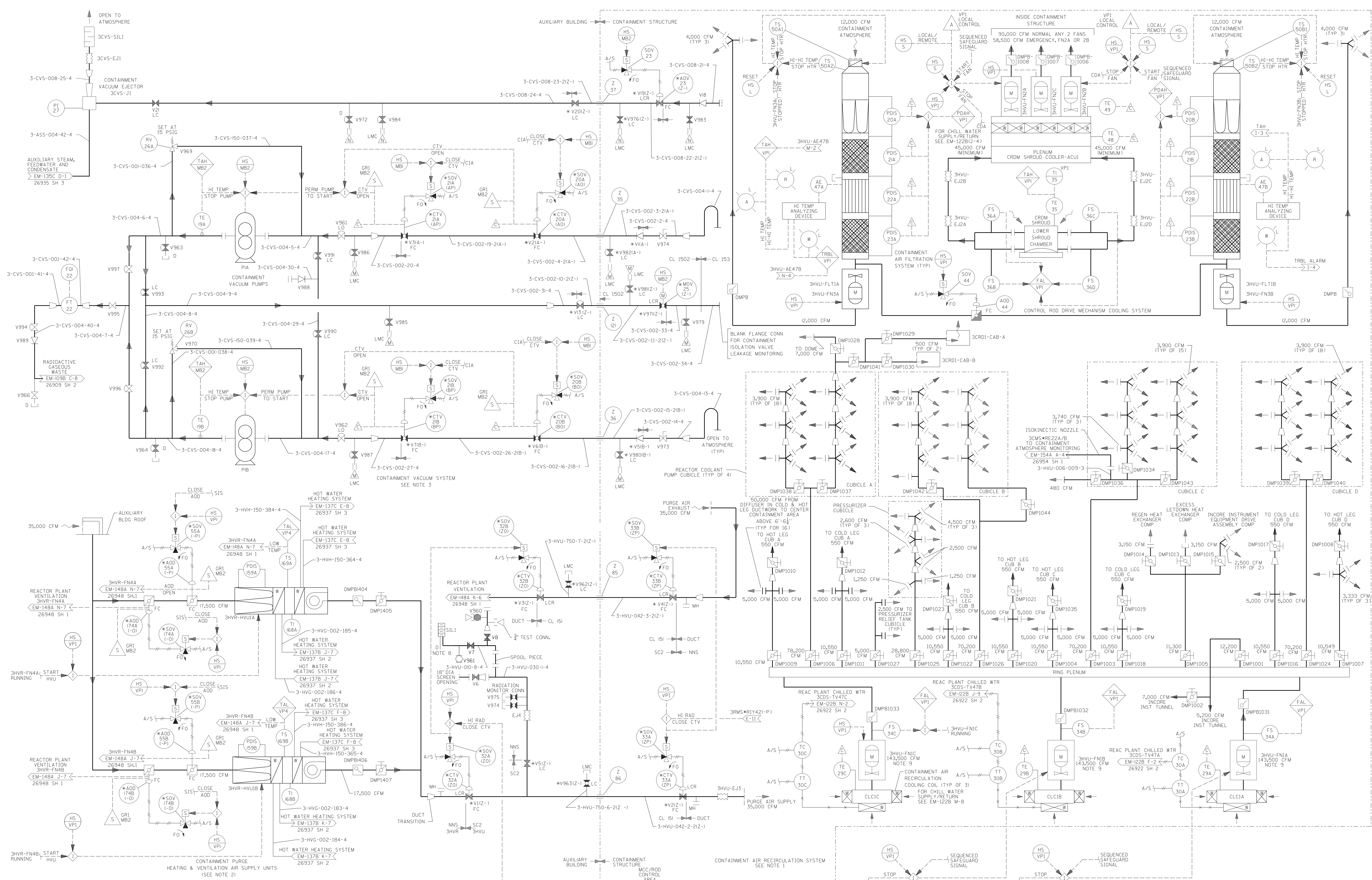
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REV. NO.	DATE	DESCRIPTION	BY	CHK	CORR	APP

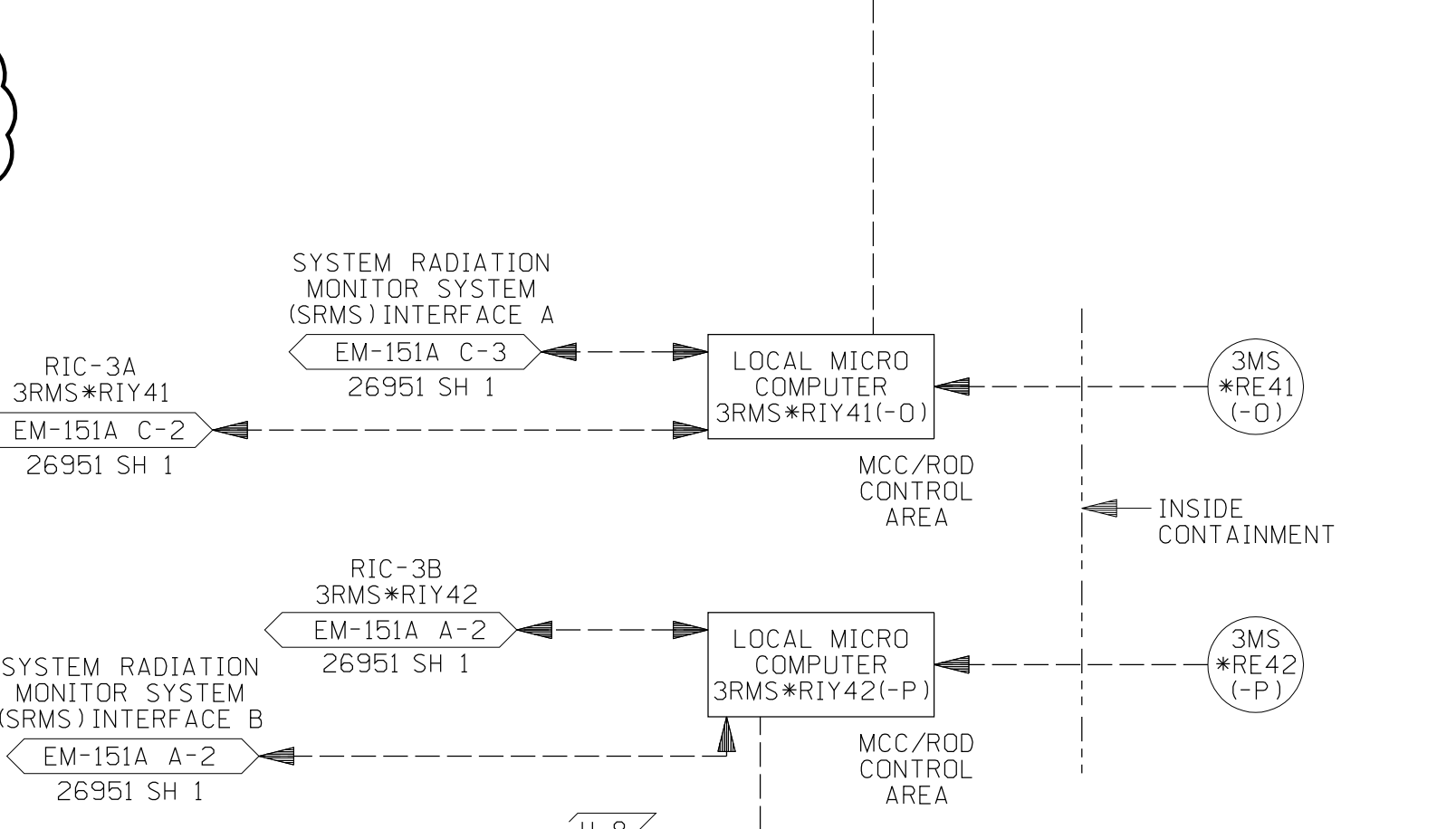
NOTES:
 1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE EM-152A (26952 SH 11)
 2. TUBING TO 3HVQ-TCV1051A, 3HVQ-TCV1051B, 3HVQ-TCV1052A, 3HVQ-TCV1052B, 3HVQ-TCV1053A, 3HVQ-TCV1053B, 3HVQ-TCV1062A AND 3HVQ-TCV1062B IS SURFACE MOUNTED TO THE INTAKE LINE OF THE SUCTION TRAP.

NO.	DATE	REVISIONS	BY	CHK	CORR	APP
18	6-8-06	INCRP. DCN DM3-00-0137-06	JMS	ASK	DLW	MP
17	8-23-00	INCRP. DCN DM3-00-0137-00	MP	RFL	AJS	PFL
N/A	11-9-99	INCRP. DCN DM3-00-0443-99	RJK	RFL	AJS	MP

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONTAINMENT STRUCTURE VENTILATION TO BE PREFIXED WITH "3HUV-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR REACTOR PLANT VENTILATION TO BE PREFIXED WITH "3HVR-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR CONTAINMENT VACUUM SYSTEM TO BE PREFIXED WITH "3CVS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) WILL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 - DELETED.
 - DELETED.
 - UNLESS OTHERWISE NOTED: DIFFUSERS SHALL BE ROTO-JET WITH INTEGRAL DAMPERS. GRILLES SHALL BE TYPE DHP. SUPPLY REGISTERS SHALL BE TYPE DDH.
 - FN4 WILL BE INSTALLED BUT NOT USED.
 - DRAIN LINE TO BE LEFT OPEN NORMALLY.

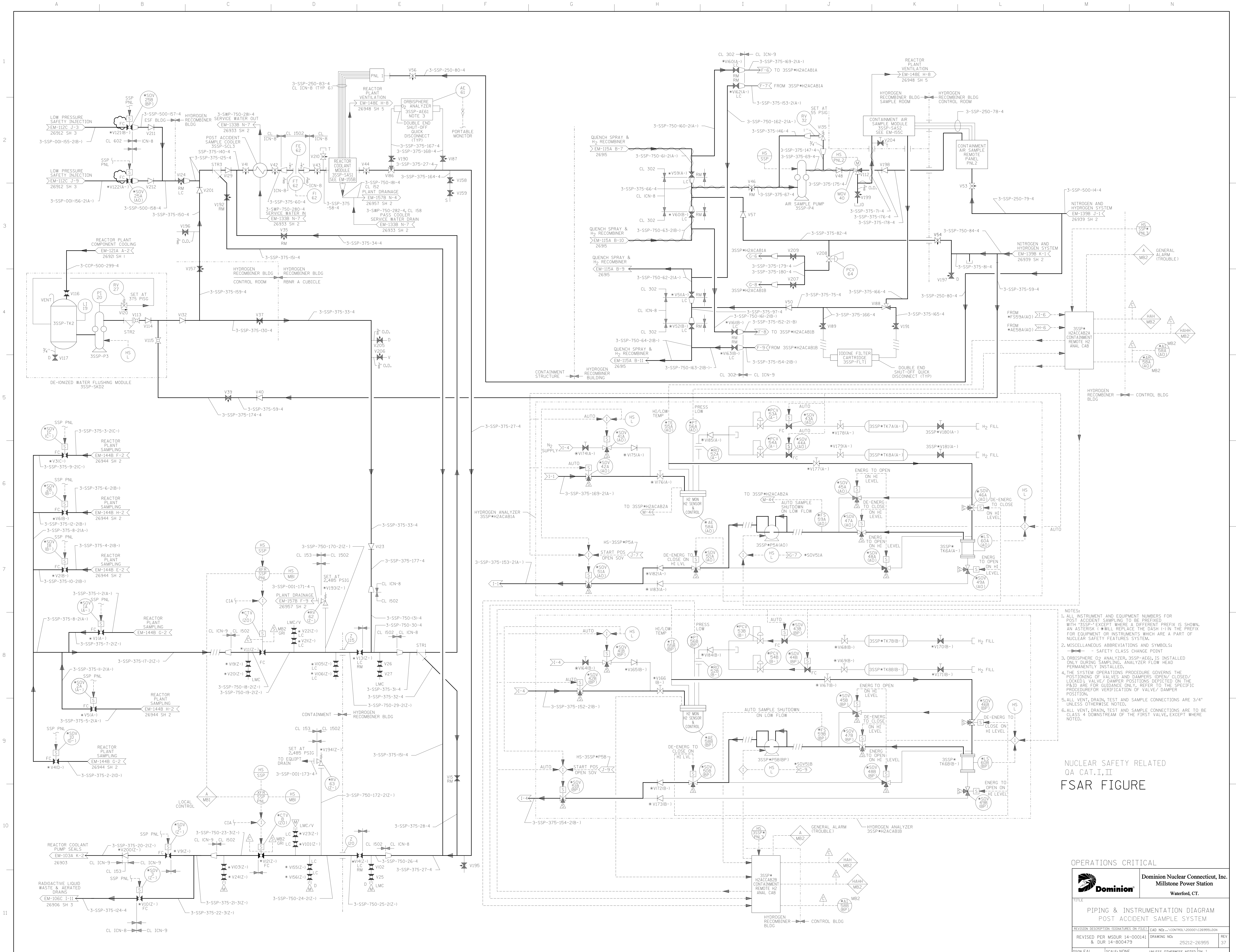


**NUCLEAR SAFETY RELATED
QA CAT. I,II**

OPERATIONS CRITICAL

FSAR FIGURE
SAFETY EVALUATION
MAY BE REQUIRED
PRIOR TO CHANGES

Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
PIPING & INSTRUMENTATION DIAGRAM CONTAINMENT STRUCTURE VENTILATION	
REVISION DESCRIPTION (SIGNATURES ON FILE)	CAD NO: E11-FMS321-mp001-1-206931-001
REVISED PER MSDUR 12-800181 & DUR 12-800521	DRAWING NO: 25212-26953
DSGN: MKN	SCALE: NONE
UNLESS OTHERWISE NOTED SH 1	REV: 2/9



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR POST ACCIDENT SAMPLING TO BE PREFIXED WITH 3SSP- EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN. AN ASTERISK (*) SHALL REPLACE THE DASH (-) IN THE PREFIX FOR EQUIPMENT OR INSTRUMENTS WHICH ARE A PART OF NUCLEAR SAFETY FEATURES SYSTEM.
 2. MISCELLANEOUS ABBREVIATIONS AND SYMBOLS:
 - SAFETY CLASS CHANGE POINT
 3. ORBISPHERE O₂ ANALYZER, 3SSP-AE61, IS INSTALLED ONLY DURING SAMPLING. ANALYZER FLOW HEAD PERMANENTLY INSTALLED.
 4. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED) VALVE/ DAMPER POSITIONS DEPICTED ON THE P&ID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 5. ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE 3/4" UNLESS OTHERWISE NOTED.
 6. ALL VENT, DRAIN, TEST AND SAMPLE CONNECTIONS ARE TO BE CLASS 4 DOWNSTREAM OF THE FIRST VALVE, EXCEPT WHERE NOTED.

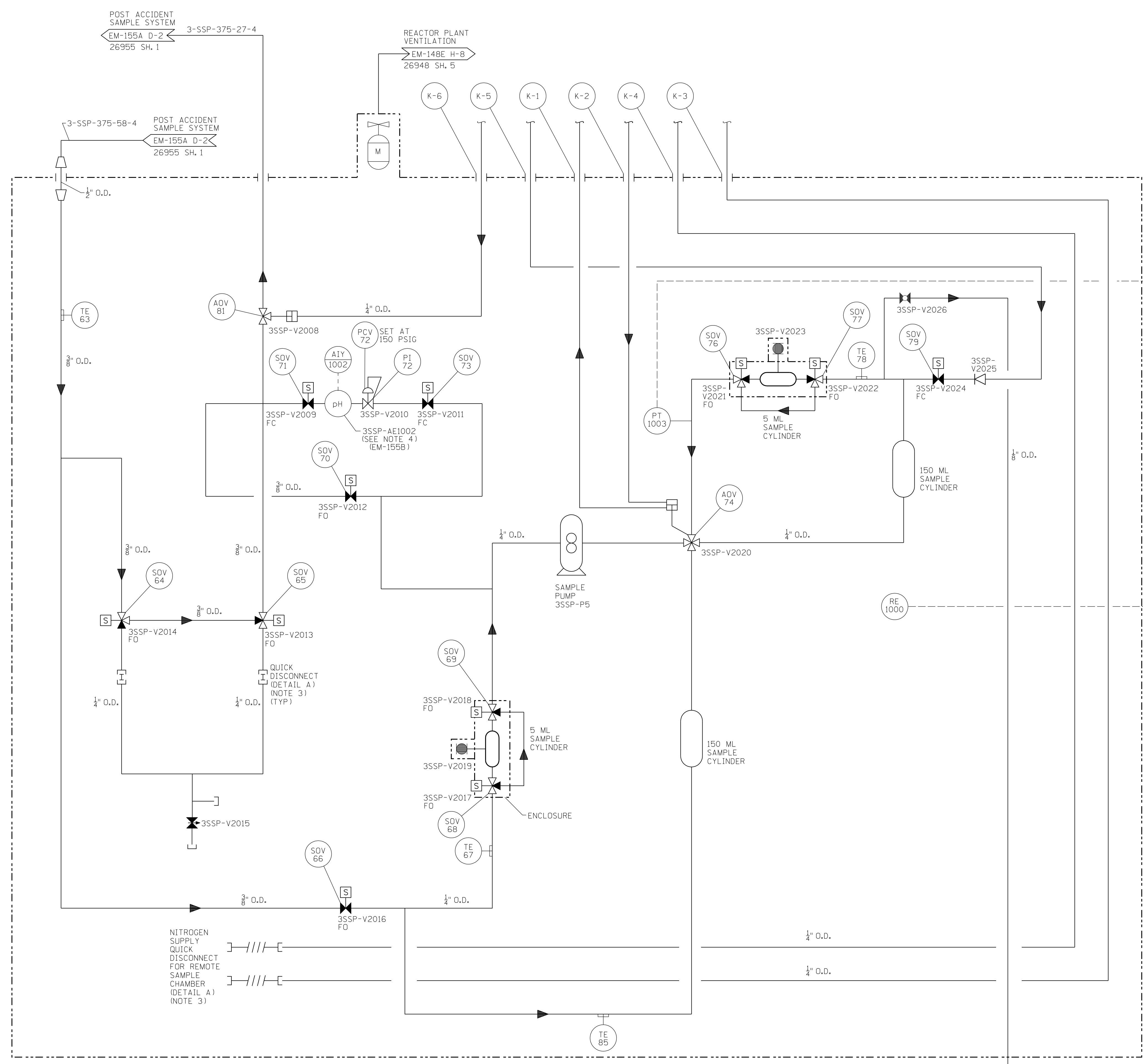
NUCLEAR SAFETY RELATED
QA CAT. I, II
FSAR FIGURE

OPERATIONS CRITICAL

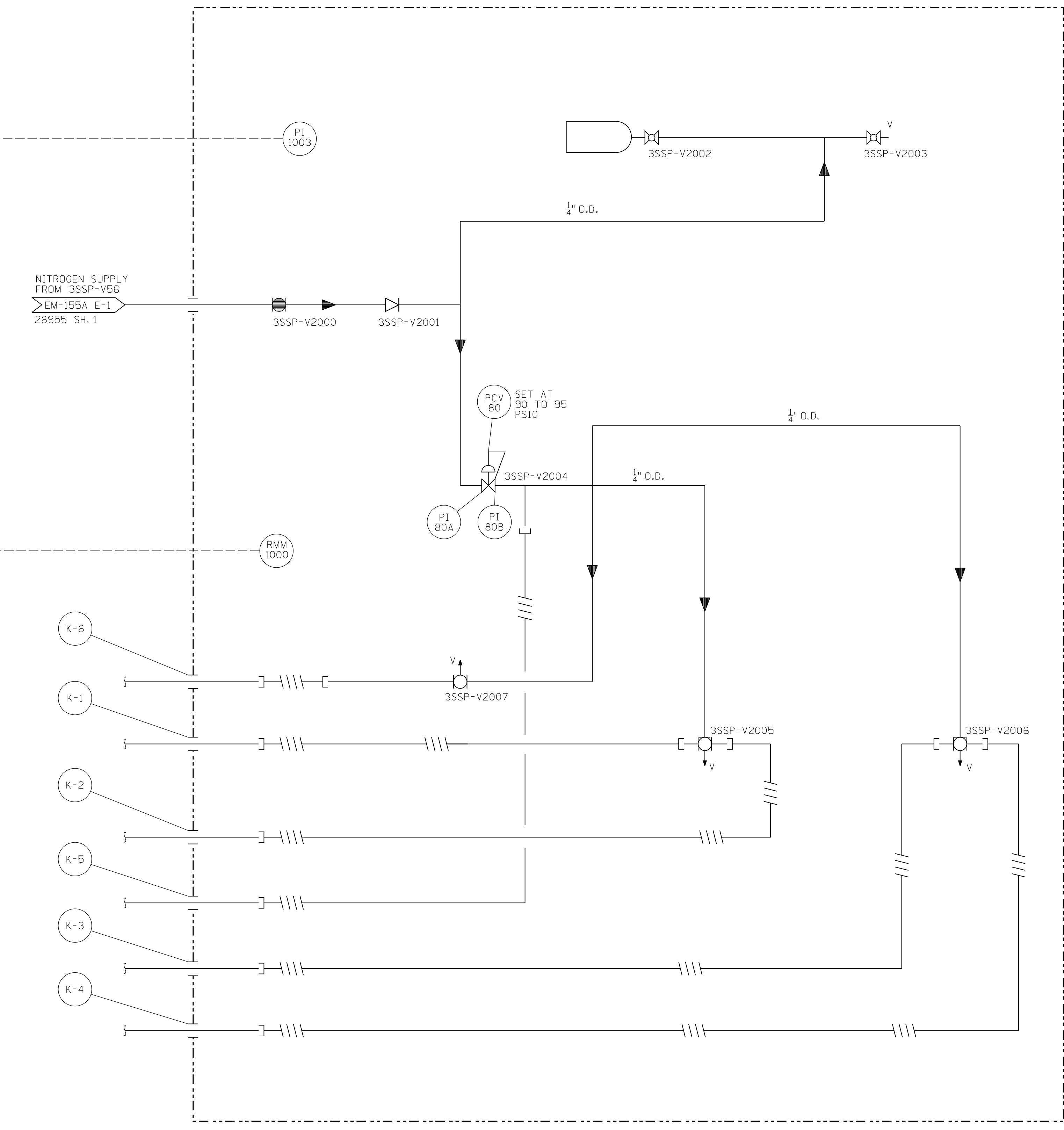
Dominion Nuclear Connection, Inc.
Millstone Power Station
Waterford, CT.

TITLE
PIPING & INSTRUMENTATION DIAGRAM
POST ACCIDENT SAMPLE SYSTEM

REVISION DESCRIPTION	DATE	BY	APP'D
REVISED PER MSUR 14-000141	2512-26955		
DRAWING NO.	2512-26955	REV	37
ISSN EAL	SCALE: NONE	UNLESS OTHERWISE NOTED	SH 1

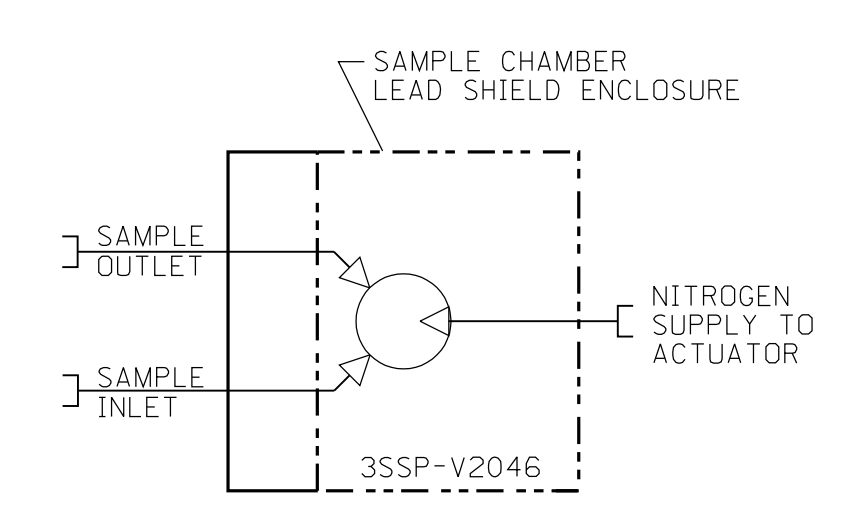


POST ACCIDENT SAMPLE MODULE
3SSP-SAS1



REMOTE OPERATING MODULE (3SSP-PNL1)
FOR 3SSP-SAS1

- NOTES:
- FOR GENERAL NOTES & REFERENCE DRAWINGS SEE EM-155A (26955 SH. 1).
 - ALL EQUIPMENT ARE VENDOR SUPPLIED, DRAWING 25212-39000 SH. 6.
 - OPERATION OF REMOTE SAMPLE CHAMBER REQUIRES REMOVAL OF VALVE 3SSP-V2015 AT QUICK DISCONNECTS AND ATTACHMENT OF SAMPLE CHAMBER AT INLET AND OUTLET CONNECTIONS. SAMPLE CHAMBER VALVE 3SSP-V2046 (DETAIL A) OPERATION REQUIRES NITROGEN CONNECTION FROM REMOTE OPERATING MODULE.
 - PH PROBE, 3SSP-AE1002, IS INSTALLED ONLY DURING SAMPLING.



DETAIL A
REMOTE SAMPLE CHAMBER
(NOTE 3)

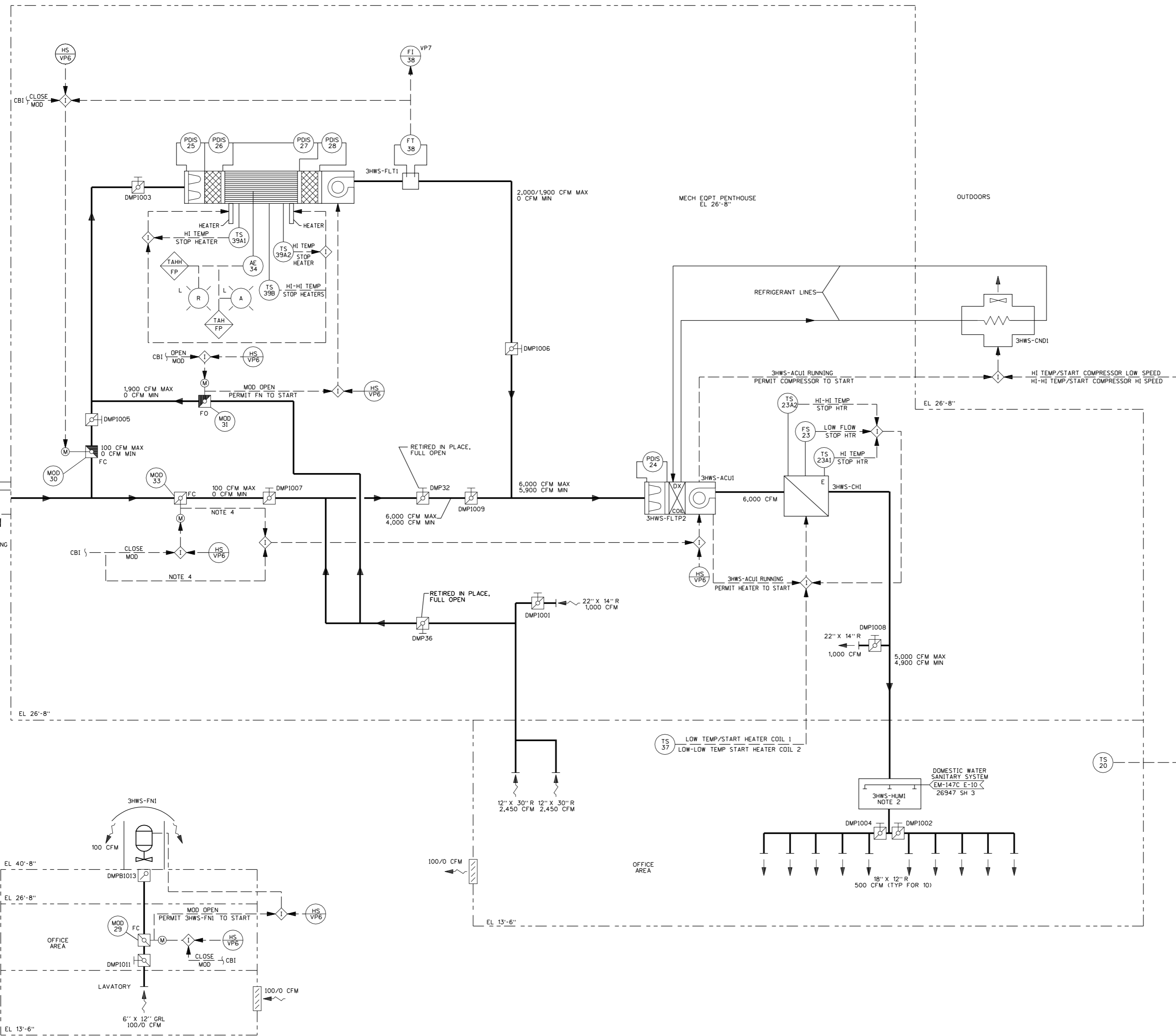
QA CAT. II
FSAR FIGURE
OPERATIONS CRITICAL

NON
Q.A.

CAD
NOTES:
MANUAL REVISIONS TO THIS DOCUMENT
WHEN AS-BUILT ARE PROHIBITED.

REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP
REVISIONS DURING CONSTRUCTION						
P.A. No.						

		Dominion Nuclear Connecticut, Inc. Millstone Power Station	
TITLE: MILLSTONE POWER STATION-UNIT NO. 3 PIPING & INSTRUMENTATION DIAGRAM POST ACCIDENT SAMPLE SYSTEM WATERFORD, CONN.			
DWG. NO. 12179-EM-1558 DATE: 8-18-95 SCALE: NONE	INCORP. NO. 007-00 DATE: 8-25-10 SCALE: NONE	DWG. NO. 25212-26955 SH. 2 DATE: 9-28-95 SCALE: NONE	REV. 11 DATE: 9-28-95
STONE & WEBSTER ENGINEERING CORPORATION BOSTON, MASS.			



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS FOR TECHNICAL SUPPORT CENTER VENTILATION TO BE PREFIXED WITH "3HWS-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
 2. HUMIDIFIER AND RELATED CONTROLS ARE RETIRED IN PLACE.
 3. THE SYSTEM OPERATIONS PROCEDURE GOVERNS THE POSITIONING OF VALVES AND DAMPERS (OPEN/ CLOSED/ LOCKED). VALVE/ DAMPER POSITIONS DEPICTED ON THE PAID ARE FOR GUIDANCE ONLY. REFER TO THE SPECIFIC PROCEDURE FOR VERIFICATION OF VALVE/ DAMPER POSITION.
 4. MOD33 POSITION INTERLOCK WILL STOP 3HWS-ACUI IF A CBI OCCURS AND MOD33 DOES NOT CLOSE WITHIN A SET TIME.

QA CAT. III
FSAR FIGURE
OPERATIONS CRITICAL

CAD
 NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

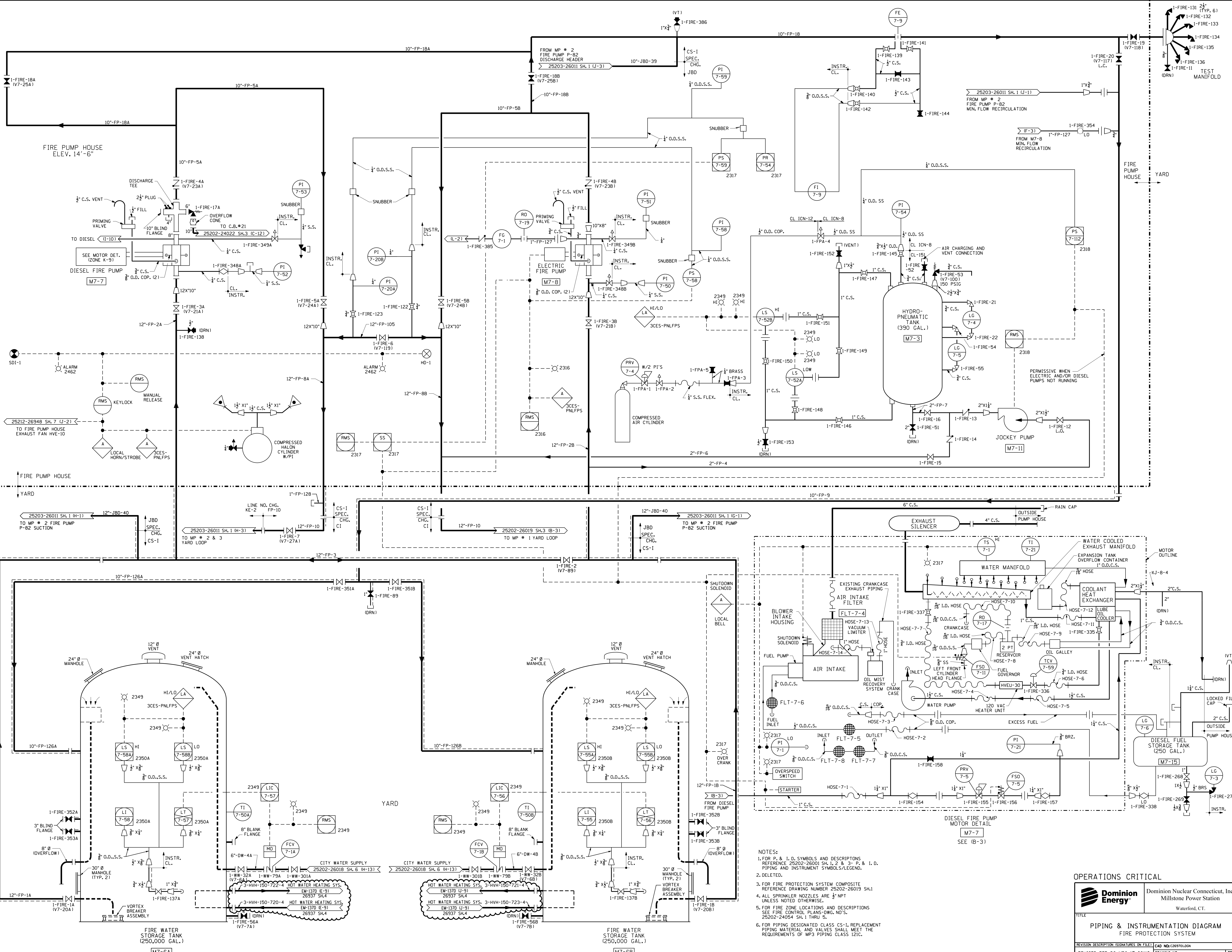
REV.	DATE	DESCRIPTION	BY	CHK	CORR	APP	P.A. No.
8	3-11-05	INCORP DCN DM3-00-0093-05	DLW	ASK	DED	DED	
7	5-9-01	INCORP DCN DM3-00-0013-01	JCV	JSJ	DLW	RJY	
6	11-2-00	INCORP DCN DM3-00-0394-00	RFL	CSJ	AJS	PFL	
N/A	7-28-98	INCORP DCN DM3-00-0682-98	JSC	CNC	RFL	RFL	
91-051	4	INCORP DCN DM3-S-0063-93 PER DCR-M3-S-2037-93	KF	JPP			
12-23-87		INCORPORATED E&DCR N-ME-04563	ASK	CJ	MFS	CJA	

Dominion Nuclear Connecticut, Inc.
Millstone Power Station

TITLE: MILLSTONE POWER STATION-UNIT NO. 3
 PIPING & INSTRUMENTATION DIAGRAM
 TECH SUPPORT CNTR
 HEATING, VENT & AIR CONDITIONING

DATE: 10/17/84
 SCALE: NONE
 MICROFILM DATE: 10/18/84
 DWG. NO.: 25212-26956 SH 1 OF 1

STONE & WEBSTER ENGINEERING CORPORATION
 BOSTON, MASS.



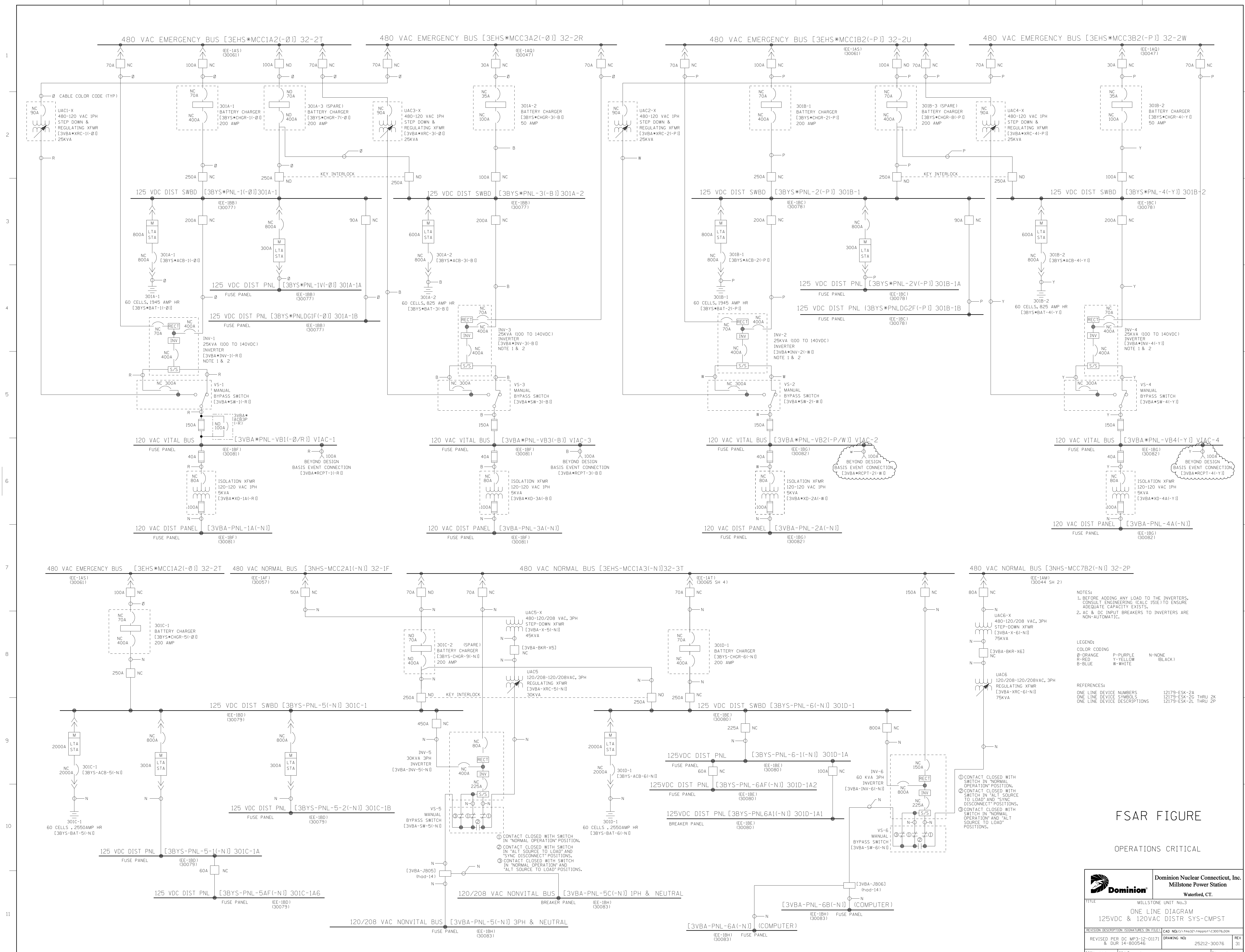
- NOTES:
- FOR P & I.D. SYMBOLS AND DESCRIPTIONS REFERENCE 25202-26001 SH. 1, 2 & 3- P. & I.D. PIPING AND INSTRUMENT SYMBOLS/LEGEND.
 - DELETED.
 - FOR FIRE PROTECTION SYSTEM COMPOSITE REFERENCE DRAWING NUMBER 25202-26019 SH.1
 - ALL SPRINKLER NOZZLES ARE 1/2" NPT UNLESS NOTED OTHERWISE.
 - FOR FIRE ZONE LOCATIONS AND DESCRIPTIONS SEE FIRE CONTROL PLANS-DWG. NO. S. 25202-24054 SH. 1 THRU 5.
 - FOR PIPING DESIGNATED CLASS CS-1, REPLACEMENT PIPING MATERIAL AND VALVES SHALL MEET THE REQUIREMENTS OF MP3 PIPING CLASS 121C.

OPERATIONS CRITICAL

Dominion Energy Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.

PIPING & INSTRUMENTATION DIAGRAM
FIRE PROTECTION SYSTEM

REVISION DESCRIPTION SIGNATURES ON FILE CAD NO: 1269701.DGN
 REVISED PER DC MPC-17-00116 DRAWING NO: 25212-26970 REV 14
 DSN EAL SCALE: NONE UNLESS OTHERWISE NOTED SH 1



NOTES:
 1. BEFORE ADDING ANY LOAD TO THE INVERTERS, CONSULT ENGINEERING TO ENSURE ADEQUATE CAPACITY EXISTS.
 2. AC & DC INPUT BREAKERS TO INVERTERS ARE NON-AUTOMATIC.

LEGEND:
 COLOR CODING
 Ø-ORANGE P-PURPLE
 R-RED Y-YELLOW
 B-BLUE W-WHITE
 N-NONE (BLACK)

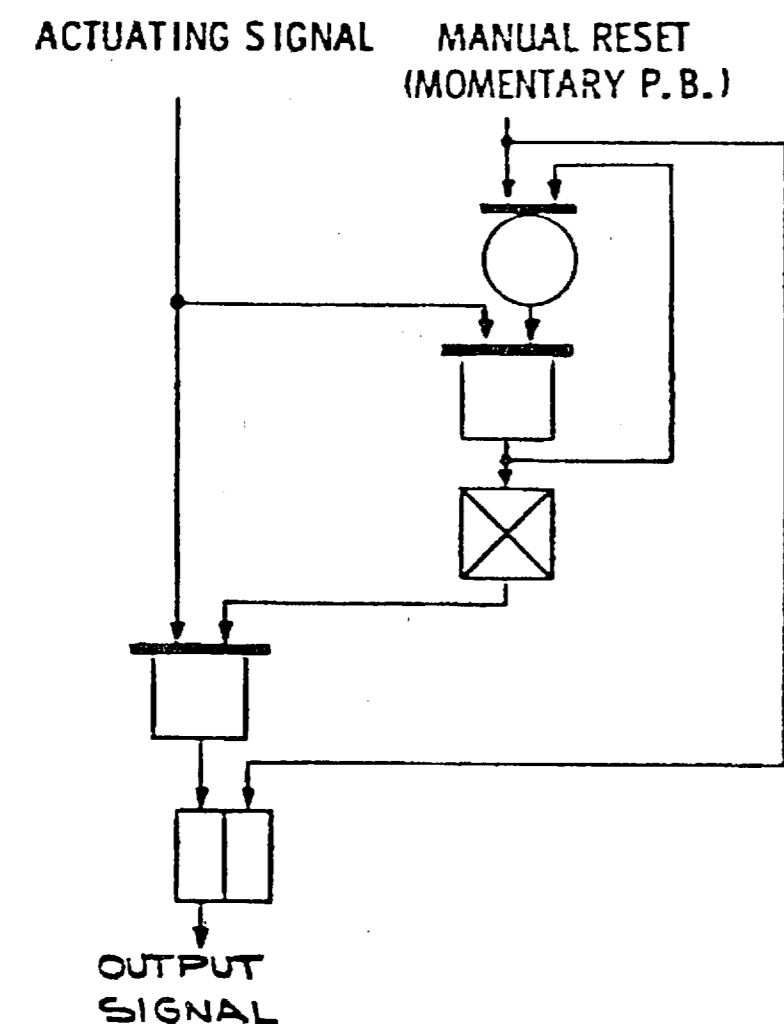
REFERENCES:
 ONE LINE DEVICE NUMBERS 12179-ESK-2A
 ONE LINE DEVICE SYMBOLS 12179-ESK-2B THRU 2K
 ONE LINE DEVICE DESCRIPTIONS 12179-ESK-2L THRU 2P

FSAR FIGURE
 OPERATIONS CRITICAL

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
		TITLE: MILLSTONE UNIT No.3 ONE LINE DIAGRAM 125VDC & 120VAC DISTR SYS-CMPST	
REVISION DESCRIPTION & DUR 14-800546	SIGNATURES ON FILE 25212-30076	CAD NO: 12179-ESK-2L THRU 2K 25212-30076	REV 31
DSGN J.S.J.	SCALE: N/A	UNLESS OTHERWISE NOTED SH 0	REV 31

LOGIC SYMBOLS

SYMBOL	LOGIC FUNCTION	LOGIC FUNCTION
	AND	A DEVICE WHICH PRODUCES AN OUTPUT ONLY WHEN EVERY INPUT EXISTS.
	NOT	A DEVICE WHICH PRODUCES AN OUTPUT ONLY WHEN THE INPUT DOES NOT EXIST.
	OR	A DEVICE WHICH PRODUCES AN OUTPUT WHEN ONE INPUT (OR MORE) EXISTS.
	OFF RETURN MEMORY	A DEVICE WHICH RETAINS THE CONDITION OF OUTPUT CORRESPONDING TO THE LAST ENERGIZED INPUT, EXCEPT UPON INTERRUPTION OF POWER IT RETURNS TO THE OFF CONDITION.
	RETENTIVE MEMORY	A DEVICE WHICH RETAINS THE CONDITION OF OUTPUT CORRESPONDING TO THE LAST ENERGIZED INPUT (ALSO UPON INTERRUPTION OF POWER).
	ADJUSTABLE TIME DELAY ENERGIZING	A DEVICE WHICH PRODUCES AN OUTPUT FOLLOWING DEFINITE INTENTIONAL TIME DELAY AFTER RECEIVING AN INPUT.
	ADJUSTABLE TIME DELAY DE-ACTUATING	A DEVICE WHICH PRODUCES AN OUTPUT COINCIDENT WITH THE INPUT AND MAINTAINS THE OUTPUT FOR A DEFINITE INTENTIONAL TIME DELAY AFTER THE INPUT IS REMOVED.
	COINCIDENCE (2 OUT OF 3 SHOWN)	A DEVICE WHICH PRODUCES AN OUTPUT WHEN THE PRESCRIBED NUMBER OF INPUTS EXIST (EXAMPLE 2 INPUTS MUST EXIST FOR AN OUTPUT)
	RETENTIVE MEMORY WITH MANUAL RESET	A DEVICE HAVING THE LOGICAL FUNCTION AS INDICATED BY THE DIAGRAM BELOW



ADDITIONAL SYMBOLS

	INSTRUMENT CHANNEL BISTABLE
	INDICATES THAT THE DEVICE OR INSTRUMENT CHANNEL HAS A BISTABLE LOGIC "1" OUTPUT WHEN: - THE PARAMETER MEASURED IS GREATER THAN A PRESET VALUE - THE PARAMETER MEASURED IS LESS THAN A PRESET VALUE - THE PARAMETER MEASURED DEVIATES FROM A PRESET VALUE BY MORE THAN A PRESET AMOUNT.
	SAME AS ABOVE EXCEPT WITH AN AUTOMATICALLY SET VARIABLE VALUE
	SAME AS ABOVE EXCEPT WITH REQUIRED HYSTERESIS BETWEEN TURN ON AND TURN OFF.
	NON-INSTRUMENT BISTABLE
	OUTPUT INDICATOR SAME AS EXPLAINED ABOVE
	ALARM ANNUNCIATOR (ALARMS ON THE SAME SHEET WITH THE SAME SUBSCRIPT SHARE A COMMON ANNUNCIATOR WINDOW)
	REACTOR TRIP "FIRST OUT" ANNUNCIATOR
	TURBINE TRIP "FIRST OUT" ANNUNCIATOR
	INDICATOR LAMP
	A ACTUATION SIGNAL LIGHTS
	T TRIP STATUS LIGHTS
	P PERMISSIVE STATUS LIGHTS
	B BYPASS STATUS LIGHTS
	COMPUTER INPUT
	LOGIC INFORMATION TRANSMISSION
	ANALOG INFORMATION TRANSMISSION
	ANALOG DISPLAY
	I ANALOG INDICATOR
	R RECORDER
	R2 RECORDER 2 PEN
	R3 RECORDER 3 PEN
	R8 RECORDER 8 POINT
	ANALOG SUMMER



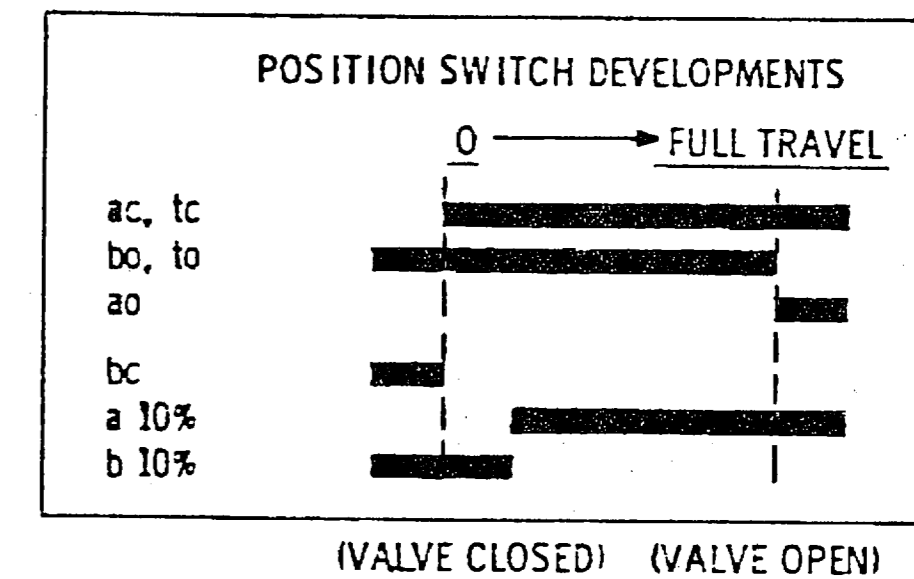
- NOTES:
- IN ALL LOGIC CIRCUITS, THE INDICATED ACTUATION OF A SYSTEM OR DEVICE OCCURS WHEN A LOGIC "1" SIGNAL IS PRESENT. EXCEPT WHERE INDICATED OTHERWISE, ALL BISTABLES ARE "DE-ENERGIZE TO ACTUATE" SUCH THAT A LOGIC 1 SIGNAL IS DEFINED TO BE PRESENT WHEN THE BISTABLE OUTPUT VOLTAGE IS OFF.
 - EXCEPT WHERE INDICATED OTHERWISE, THE FOLLOWING IS TRUE:
ALL LOGIC CIRCUITS ARE REDUNDANT. ALL INSTRUMENT CHANNELS, BISTABLES, ANNUNCIATORS, COMPUTER INPUTS, AND INDICATOR LAMPS ARE NOT REDUNDANT. MANUAL CONTROLS DO NOT HAVE REDUNDANT ACTUATORS, BUT DO HAVE REDUNDANT CONTACTS WHERE LOGIC IS REDUNDANT. ALL INDICATOR LAMPS, ANNUNCIATORS, AND COMPUTER INPUTS ARE CONNECTED TO BOTH TRAINS (WHERE LOGIC IS REDUNDANT) SO THAT A SIGNAL IN EITHER TRAIN WILL ACTUATE.
 - WHENEVER A PROCESS SIGNAL IS USED FOR CONTROL AND IS DERIVED FROM A PROTECTION CHANNEL, ISOLATION MUST BE PROVIDED.
 - THIS SET OF DRAWINGS ILLUSTRATES THE FUNCTIONAL REQUIREMENTS OF THE REACTOR CONTROL AND PROTECTION SYSTEM, INCLUDING ENGINEERED SAFEGUARDS. THESE DRAWINGS DO NOT REPRESENT ACTUAL HARDWARE IMPLEMENTATION. FOR HARDWARE IMPLEMENTATION, REFER TO THE FOLLOWING LIST:

FUNCTIONAL DIAGRAM	BLOCK OR WIRING DIAGRAM
REACTOR PROTECTION SYSTEM (SHEETS 1 TO 8, 15 AND 17)	DRAWING NUMBERS: 5655D49, 1083H68, 5655D50, 7244D66, 5655D51, 7244D80, 271C796, 1189E15
REACTOR CONTROL SYSTEM (SHEETS 9 TO 14 AND 16, 18, 19)	DRAWING NUMBERS: 5655D52, 7244D80, 271C796

DEVICE FUNCTION LETTERS AND NUMBERS

FB	FLOW CHANNEL
LB	LEVEL CHANNEL
NC	NUCLEAR CHANNEL
PB	PRESSURE CHANNEL
RC	RADIATION CHANNEL
SB	SPEED CHANNEL
TB	TEMPERATURE CHANNEL
ZB	POSITION CHANNEL
20	ELECTRIC OPERATED VALVE
27	UNDervOLTAGE RELAY
33	POSITION SWITCH

SUFFIX LETTER:
ac, aq, bc, bo - LIMIT SWITCH
tc, to - TORQUE SWITCH



52	AC CIRCUIT BREAKER
	SUFFIX LETTER:
a	AUXILIARY CONTACT - OPEN WHEN MAIN CONTACTS ARE OPEN
b	AUXILIARY CONTACT - CLOSED WHEN MAIN CONTACTS ARE OPEN
H	CELL SWITCH - CLOSED WHEN BREAKER IS IN OPERATE POSITION.
63	PRESSURE SWITCH
71	LEVEL SWITCH
80	FLOW SWITCH
81	UNDERFREQUENCY RELAY

TITLE INDEX SHEET NO. SUBS

INDEX AND SYMBOLS	1	1	2	3	4	5	6	7	8	9	10								
REACTOR TRIP SIGNALS	2	1	2	3	4	4	5	6	7	8									
NUCLEAR INSTR. AND MANUAL TRIP SIGNALS	3	1	2	3	3	3	3	3	3										
NUCLEAR INSTR. PERMISSIVES AND BLOCKS	4	1	2	2	3	3	4	4	4	4									
PRIMARY COOLANT SYSTEM TRIP SIGNALS	5	1	2	3	4	4	5	5	6	6									
PRESSURIZER TRIP SIGNALS	6	1	2	3	3	4	4	4	4	5									
STEAM GENERATOR TRIP SIGNALS	7	1	2	3	4	4	5	5	6	6									
SAFEGUARDS ACTUATION SIGNALS	8	1	2	3	4	4	4	4	5	6									
ROD CONTROLS & ROD BLOCKS	9	1	2	3	4	4	4	4	4	4									
STEAM DUMP CONTROL	10	1	2	3	4	4	4	4	5	6									
PRESSURIZER PRESSURE & LEVEL CONTROL	11	1	2	3	4	5	5	5	5	5									
PRESSURIZER HEATER CONTROL	12	1	2	3	3	3	3	3	3	3									
FEEDWATER CONTROL & ISOLATION	13	1	2	3	4	4	4	4	4	5									
FEEDWATER CONTROL & ISOLATION	14	1	2	3	4	4	4	4	4	4									
AUXILIARY FEEDWATER PUMPS STARTUP	15	1	2	3	4	4	4	4	4	5									
TURBINE TRIPS, RUNBACKS & OTHER SIGNALS	16	1	2	3	4	4	4	4	4	5									
(REQUIREMENTS)																			
LOOP STOP VALVE INTERLOCKS	17	1	2	3	3	3	3	3	4	4									
PRESSURIZER PRESS. RLF SYS. (TRAIN A)	18																		
PRESSURIZER PRESS. RLF SYS. (TRAIN B)	19																		

[3RPS * SYS] "FSAR FIGURE" Q.A.
12179-2472.011-001-001

DATE	3-4-72	WESTINGHOUSE ELECTRIC CORPORATION
CHKD.	GERBER	NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A.
DES. ENG.	...	TITLE: NORTHEAST UTILITIES SERVICE CORP.
MFG. ENG.	...	MILLSTONE NUCLEAR POWER STATION
MTL. ENG.	...	UNIT 3 FUNCTIONAL DIAGRAMS
APP.	...	INDEX AND SYMBOLS
SCALE		108D684
DIMENSIONS IN INCHES		SHEET 1
DO NOT SCALE		SUB X 2345678910

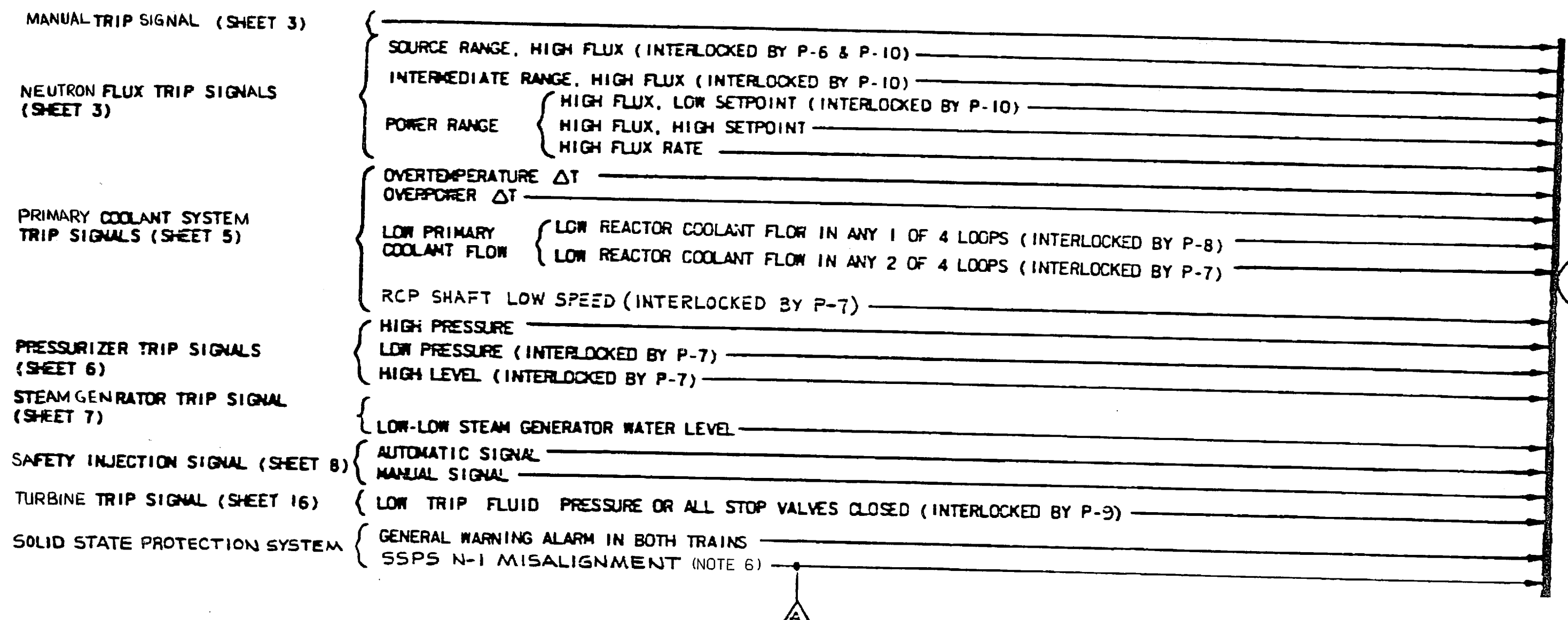
NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
M	5-22-71	INCORP DCN DM3-00-0682-98	RMV
L	3-1-97	INCORP DCN DM3-5-1003-96	DLW	WSP	DED	DED

NO. NEU-300
D 906495
IT CHANGE

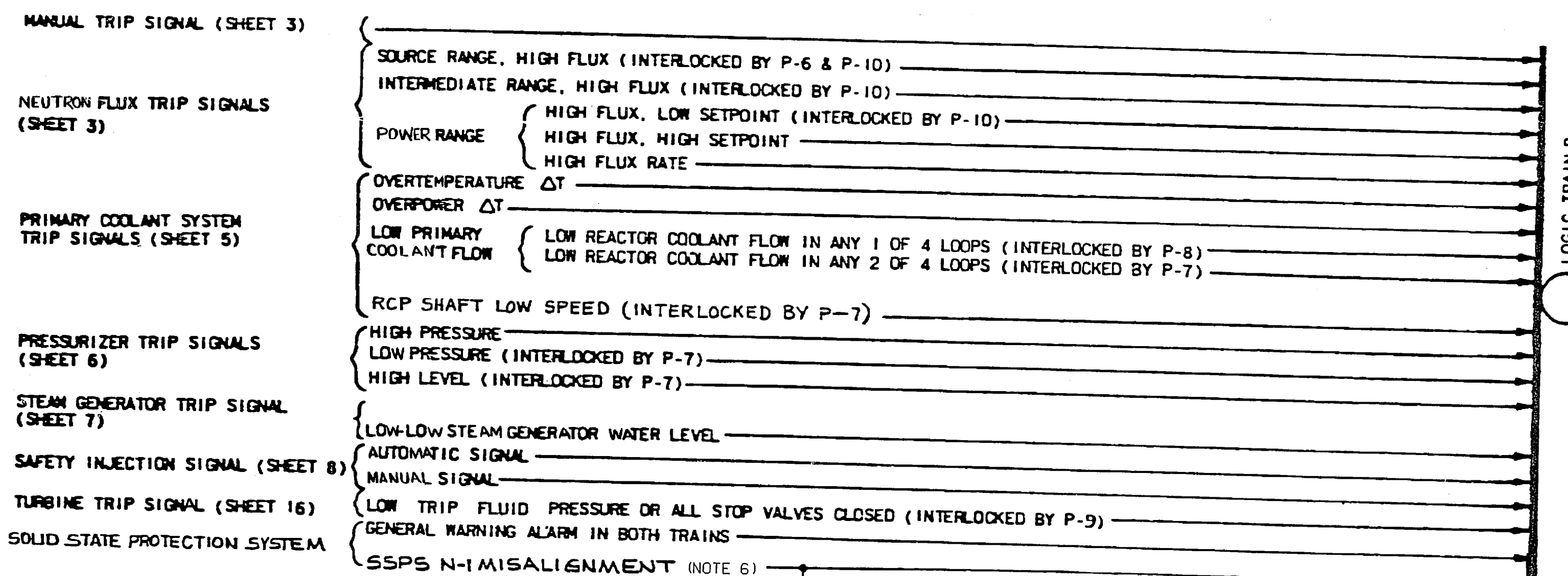
TRAIN A REACTOR SHUNT TRIP SIGNALS

MANUAL REACTOR TRIP SIGNAL (SHEET 3)
 MANUAL SAFETY INJECTION SIGNAL (SHEET 8)

LOGIC TRAIN A REACTOR TRIP SIGNALS

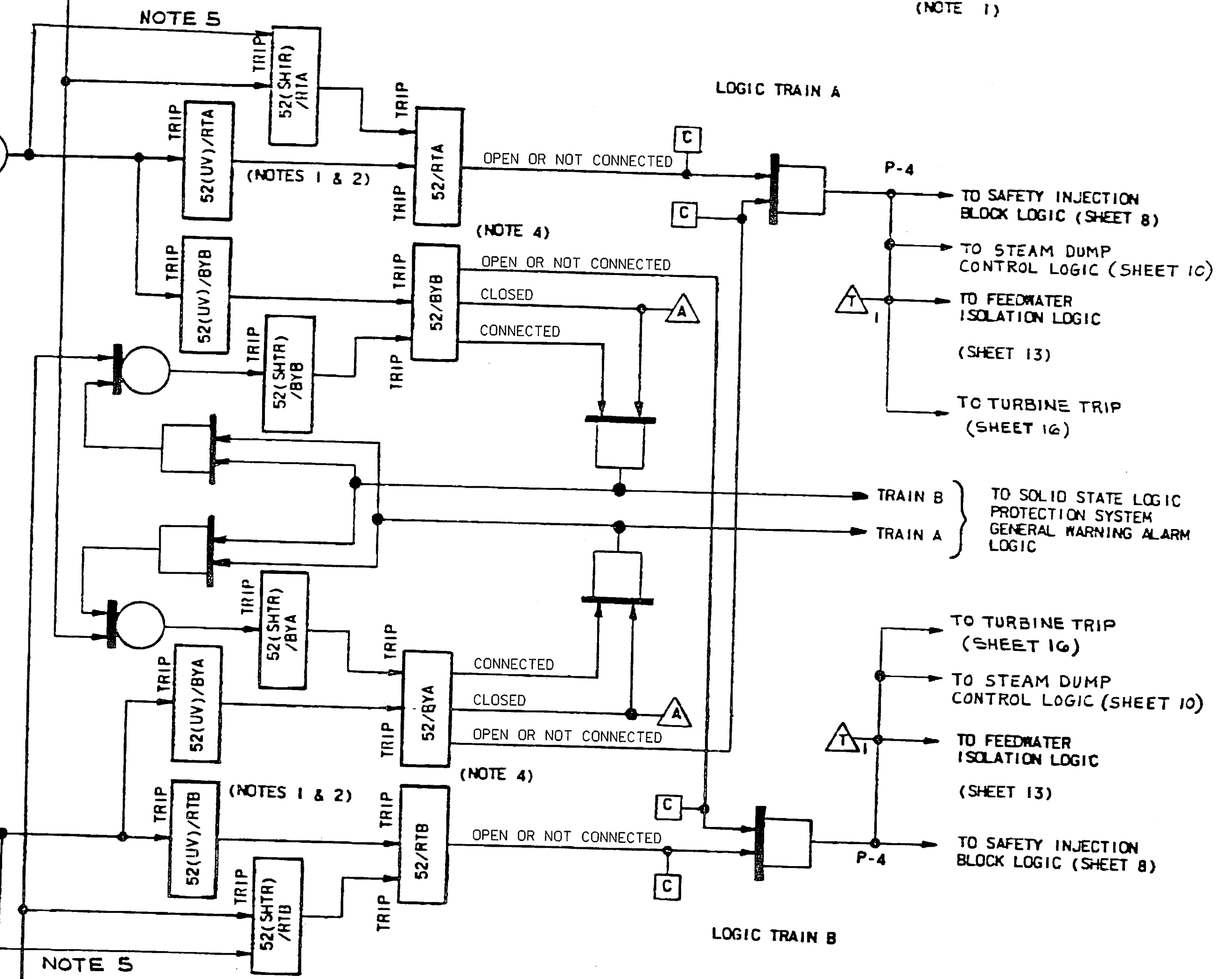
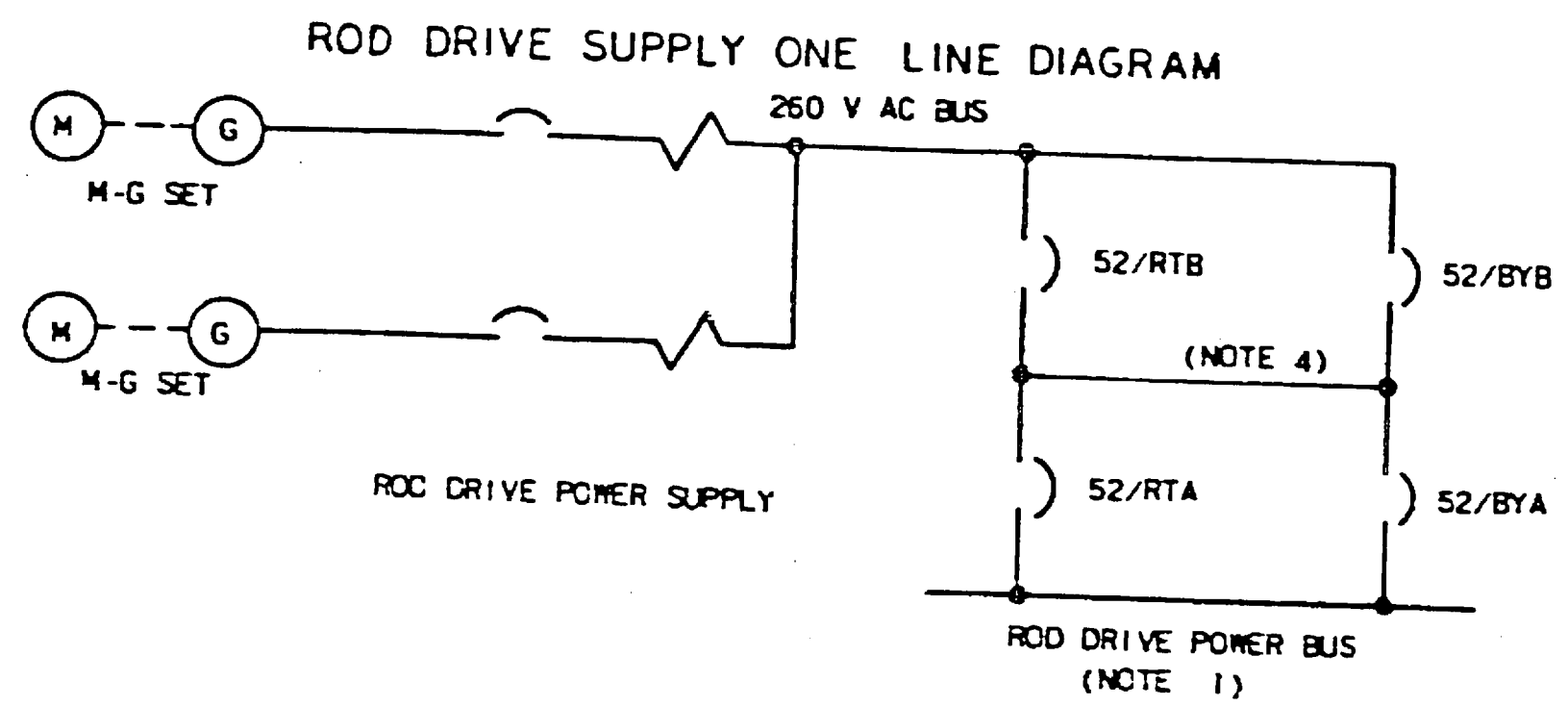


LOGIC TRAIN B REACTOR TRIP SIGNALS



TRAIN B REACTOR SHUNT TRIP SIGNALS

MANUAL REACTOR TRIP SIGNAL (SHEET 3)
 MANUAL SAFETY INJECTION SIGNAL (SHEET 8)



- NOTES:
- TRIPPING THE REACTOR TRIP BREAKERS 52/RTA AND 52/RTB REDUNDANTLY DE-ENERGIZES THE ROD DRIVES. ALL FULL LENGTH CONTROL RODS AND SHUTDOWN RODS ARE THEREBY RELEASED FOR GRAVITY INSERTION INTO THE REACTOR CORE.
 - NORMAL REACTOR OPERATION IS TO BE WITH REACTOR TRIP BREAKERS 52/RTA AND 52/RTB IN SERVICE AND BY-PASS BREAKERS 52/BYA AND 52/BYB WITHDRAWN. DURING TEST, ONE BY-PASS BREAKER IS TO BE PUT IN SERVICE AND THEN THE RESPECTIVE REACTOR TRIP BREAKER IS OPERATED USING A SIMULATED REACTOR TRIP SIGNAL IN THE TRAIN UNDER TEST. THE REACTOR WILL NOT BE TRIPPED BY THE SIMULATED SIGNAL SINCE THE BY-PASS BREAKER IS CONTROLLED FROM THE OTHER TRAIN. ONLY ONE REACTOR TRIP BREAKER IS TO BE TESTED AT A TIME.
 - ALL CIRCUITS ON THIS SHEET ARE NOT REDUNDANT BECAUSE BOTH TRAINS ARE SHOWN.
 - OPEN/CLOSED INDICATION FOR EACH TRIP BREAKER AND EACH BYPASS BREAKER IN CONTROL ROOM.
 - DNOTES ADDITIONAL CIRCUITRY FOR SHUNT COIL BACKUP DESIGN.
 - N-1 OPERATION IS NO LONGER WITHIN THE MILLSTONE UNIT 3 DESIGN BASIS. PREVIOUSLY INSTALLED SSPS EQUIPMENT TO SUPPORT N-1 OPERATION STILL EXISTS WITHIN THE PLANT. THEREFORE, THE MISALIGNMENT SSPS N-1 REACTOR TRIP HAS BEEN MAINTAINED AND REMAINS OPERATIONAL SHOULD THE SELECTOR SWITCHES BE INADVERTENTLY ACTUATED.

"FSAR FIGURE"

Q.A.

11
 10
 9
 8
 7
 6
 5
 4
 3

CAD
 NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
N	8-16-04	INCORP DCN DM3-00-0171-04	KBB			
M	5-23-99	INCORP DCN DM3-00-0682-98	RMV	DLW	DED	DED

[3RPS*SYS]

Westinghouse Electric Corporation
 NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA, U.S.A.
 TITLE: NORTHEAST UTILITIES SERVICE CO. MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS REACTOR TRIP SIGNALS

SCALE: 108D684 SHEET 2
 DIMENSIONS IN INCHES
 DO NOT SCALE

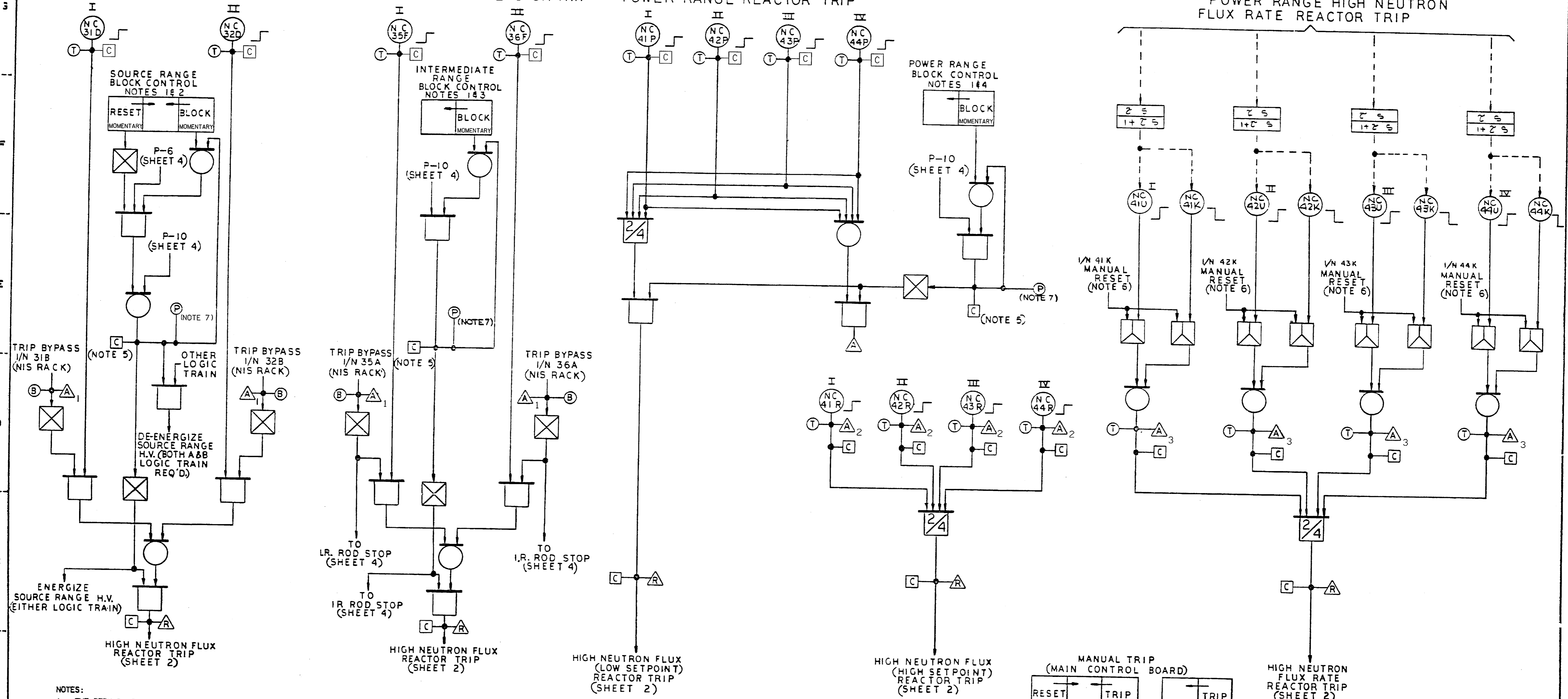
REVISIONS DURING CONSTRUCTION	P.A.#

SOURCE RANGE REACTOR TRIP

INTERMEDIATE RANGE REACTOR TRIP

POWER RANGE REACTOR TRIP

POWER RANGE HIGH NEUTRON FLUX RATE REACTOR TRIP



- NOTES:
1. THE REDUNDANT MANUAL BLOCK CONTROLS CONSIST OF TWO CONTROLS ON THE CONTROL BOARD FOR EACH RANGE, ONE FOR EACH TRAIN. SUPPLIED BY OTHERS.
 2. 1/N 33A IS IN LOGIC TRAIN A.
1/N 33B IS IN LOGIC TRAIN B.
 3. 1/N 38A IS IN LOGIC TRAIN A.
1/N 38B IS IN LOGIC TRAIN B.
 4. 1/N 47A IS IN LOGIC TRAIN A.
1/N 47B IS IN LOGIC TRAIN B.
 5. TWO COMPUTER INPUTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN.
 6. MANUAL RESET CONTROLS CONSIST OF FOUR MOMENTARY CONTROLS IN THE CONTROL ROOM, ONE CONTROL FOR EACH INSTRUMENT CHANNEL.

7. TWO PERMISSIVE STATUS LIGHTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN.
8. SUPPLIED BY OTHERS.

"FSAR FIGURE" Q.A.

REVISIONS DURING CONSTRUCTION	P.A.#

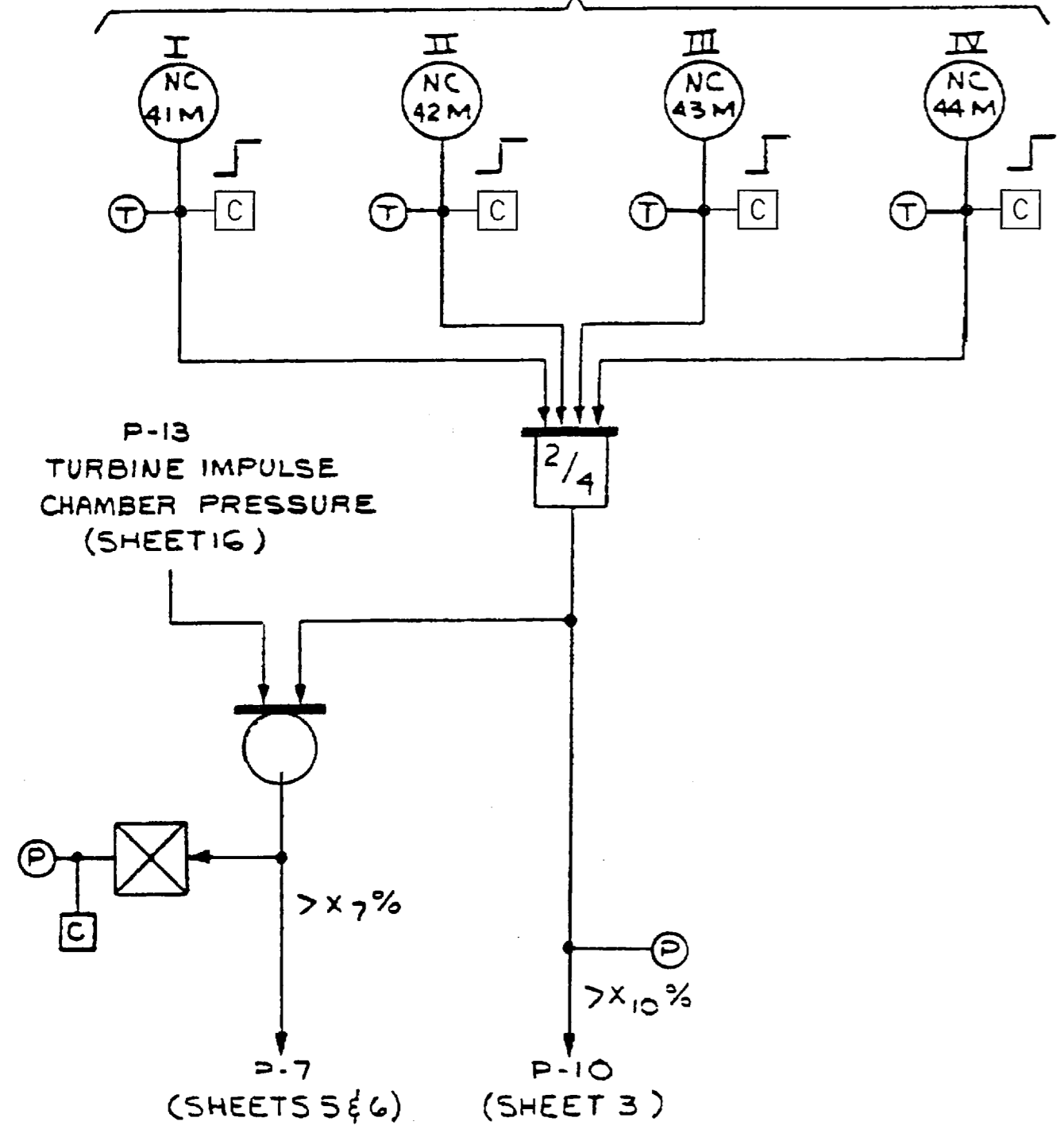
12179-2472.011-001-003

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
G	8-23-99	INCORP DCN DM3-00-0682-98	RMV	PL	Dep	Dep

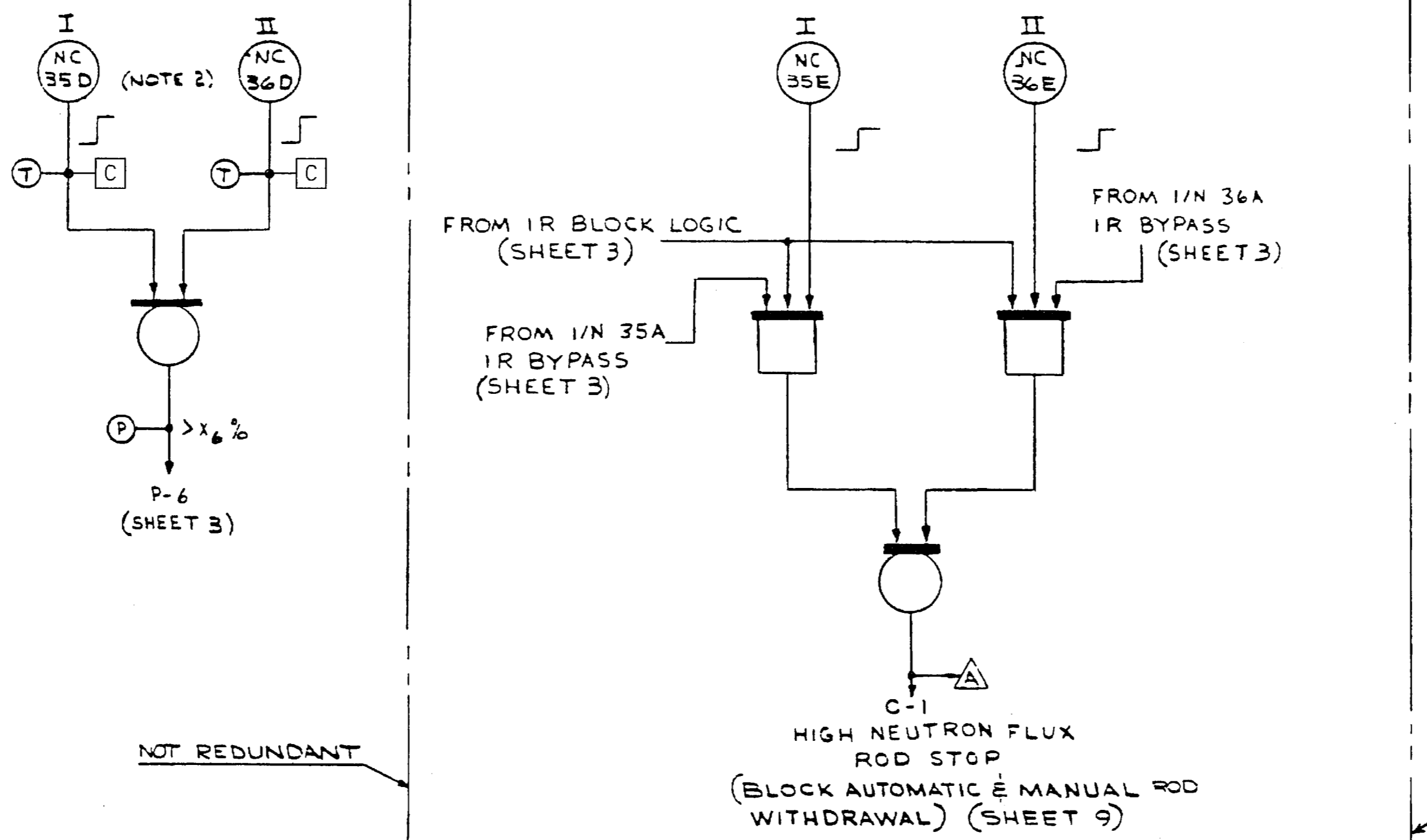
CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

DPTL J. GEEBER CHRL DEL. ENG. <i>Patton</i> MFG. ENG. MTL. ENG. APP. APP. APP. DPTG. SLP. <i>Q. A.</i>	B-5 7-22 7-22 7-22 7-22 7-22 7-22 7-22	Westinghouse Electric Corporation NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A. TITLE: <i>NC THEART UTILITIES SERVICE C</i> MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS NUCLEAR INSTR & MANUAL TRIP SIGNALS SCALE ~ DIMENSIONS IN INCHES DO NOT SCALE
--	---	--

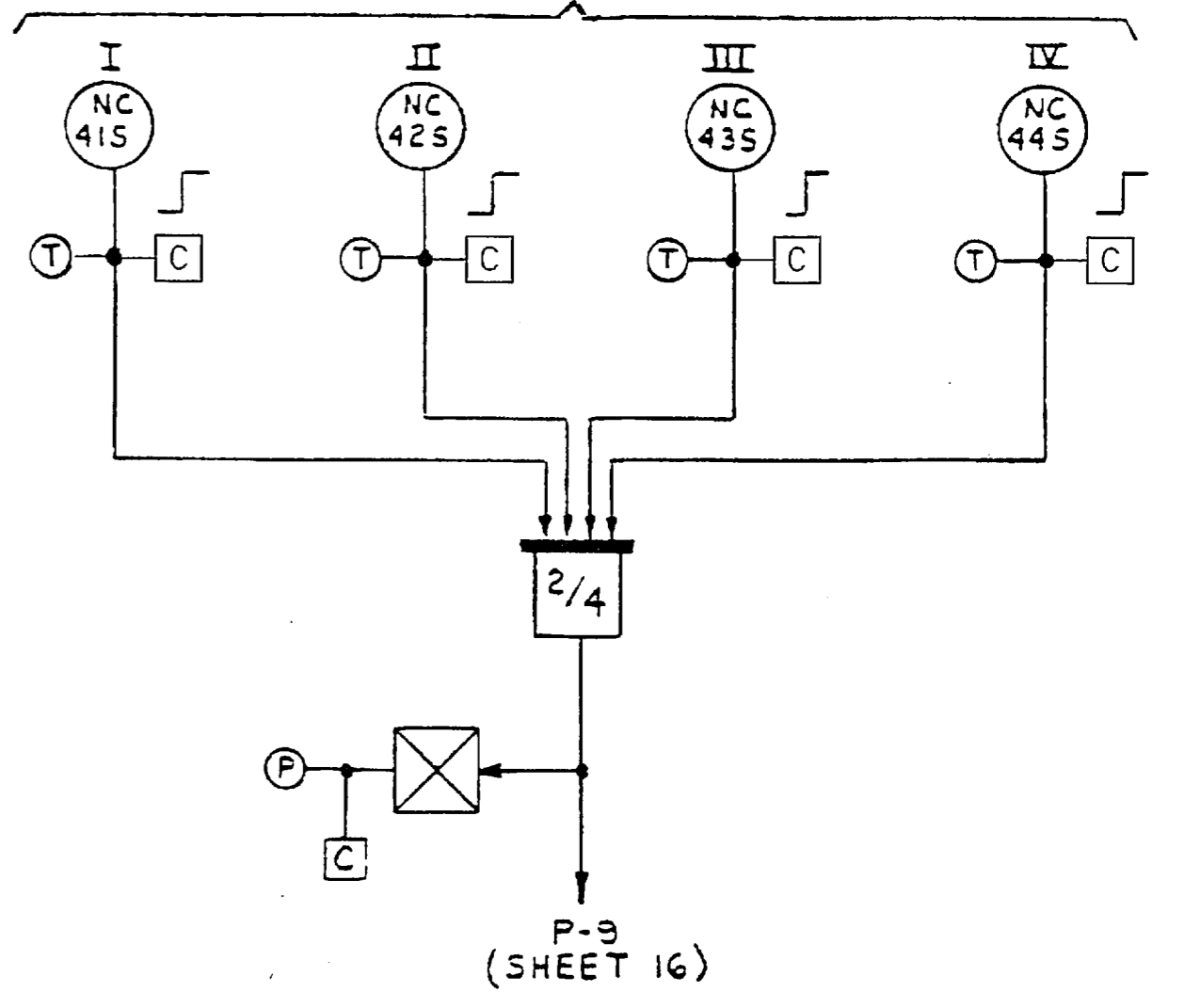
POWER RANGE



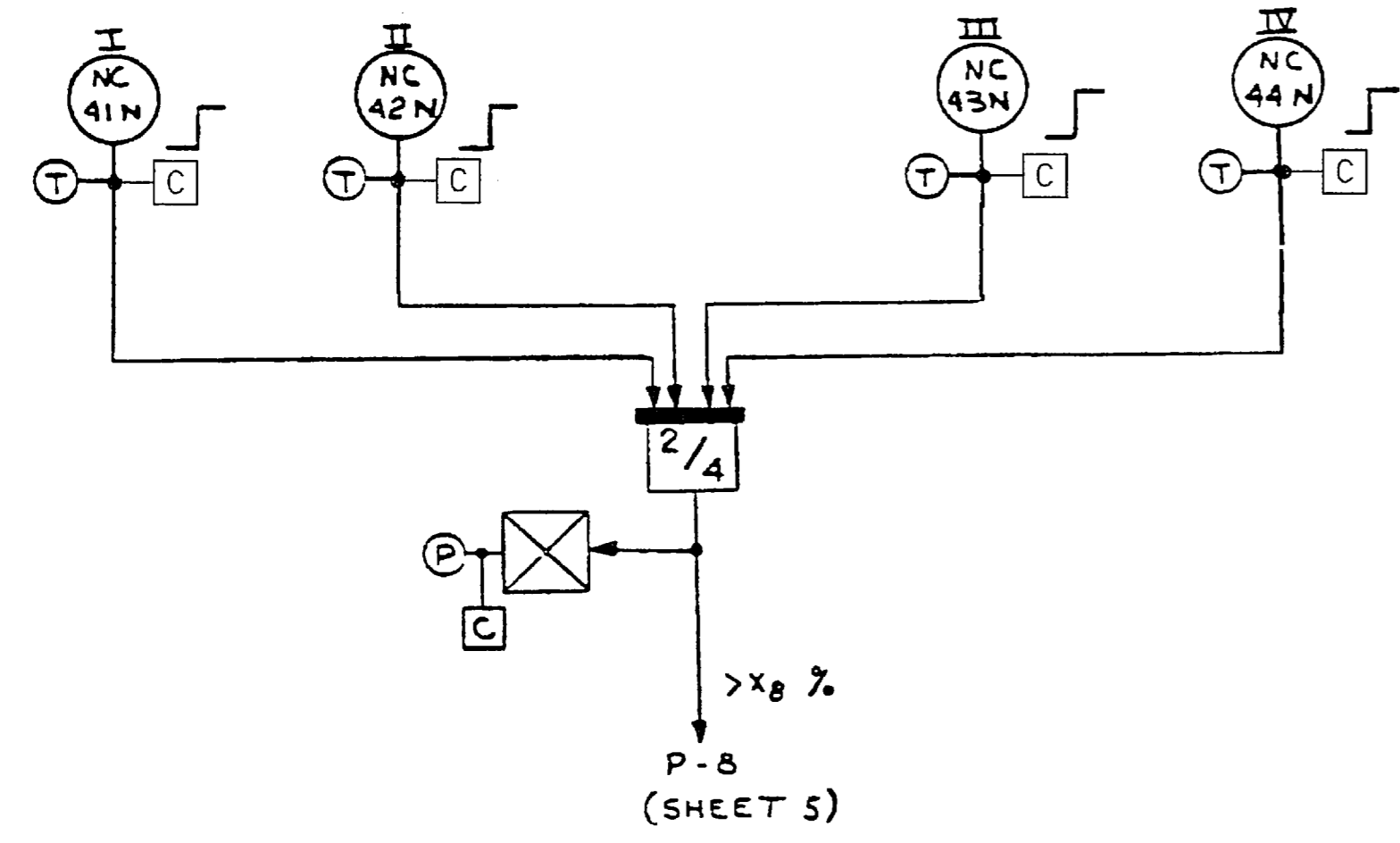
INTERMEDIATE RANGE



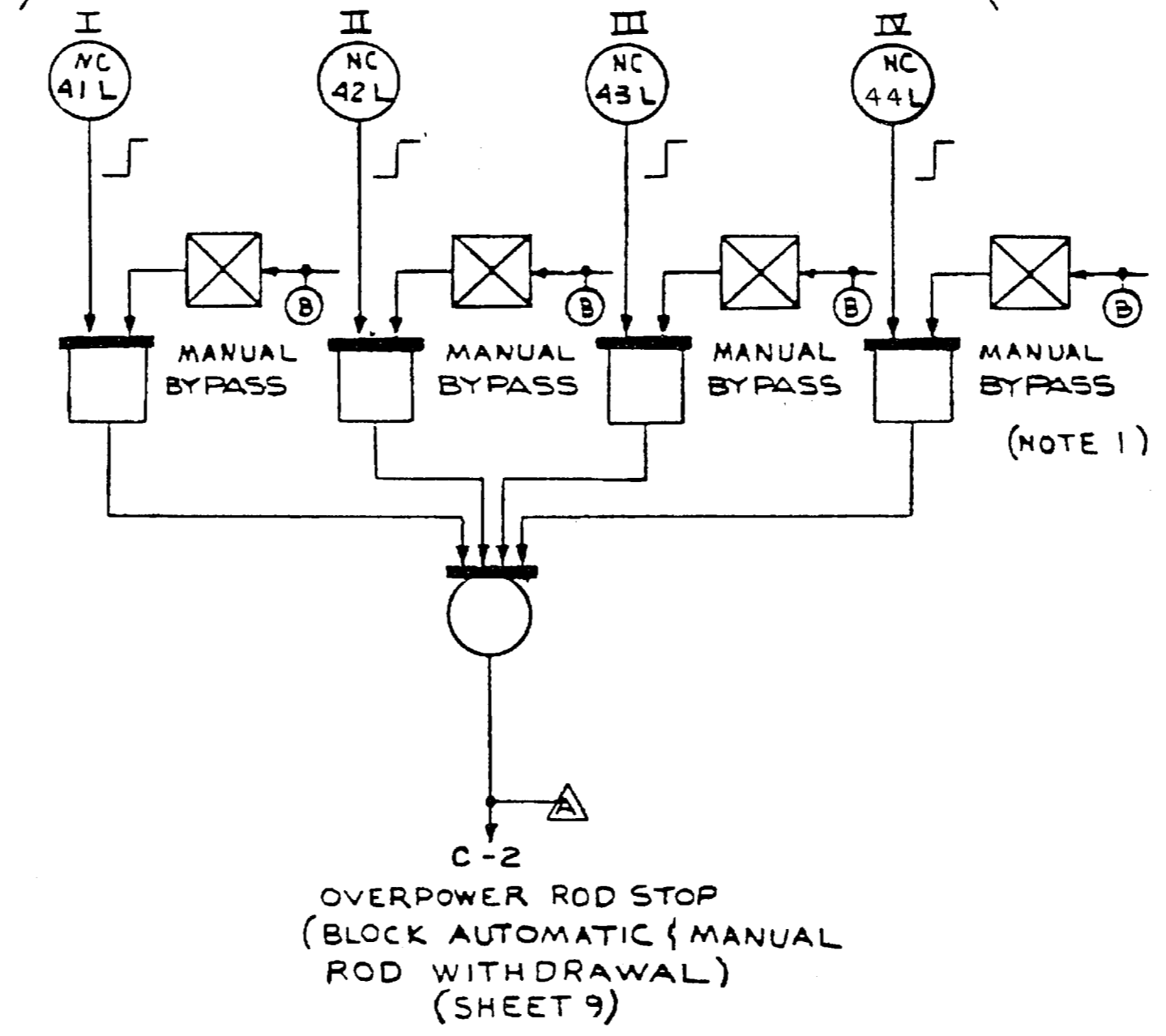
POWER RANGE



POWER RANGE



POWER RANGE



"FSAR FIGURE" Q.A.

[3RPS * SYS]
12179-2472.011-001-004

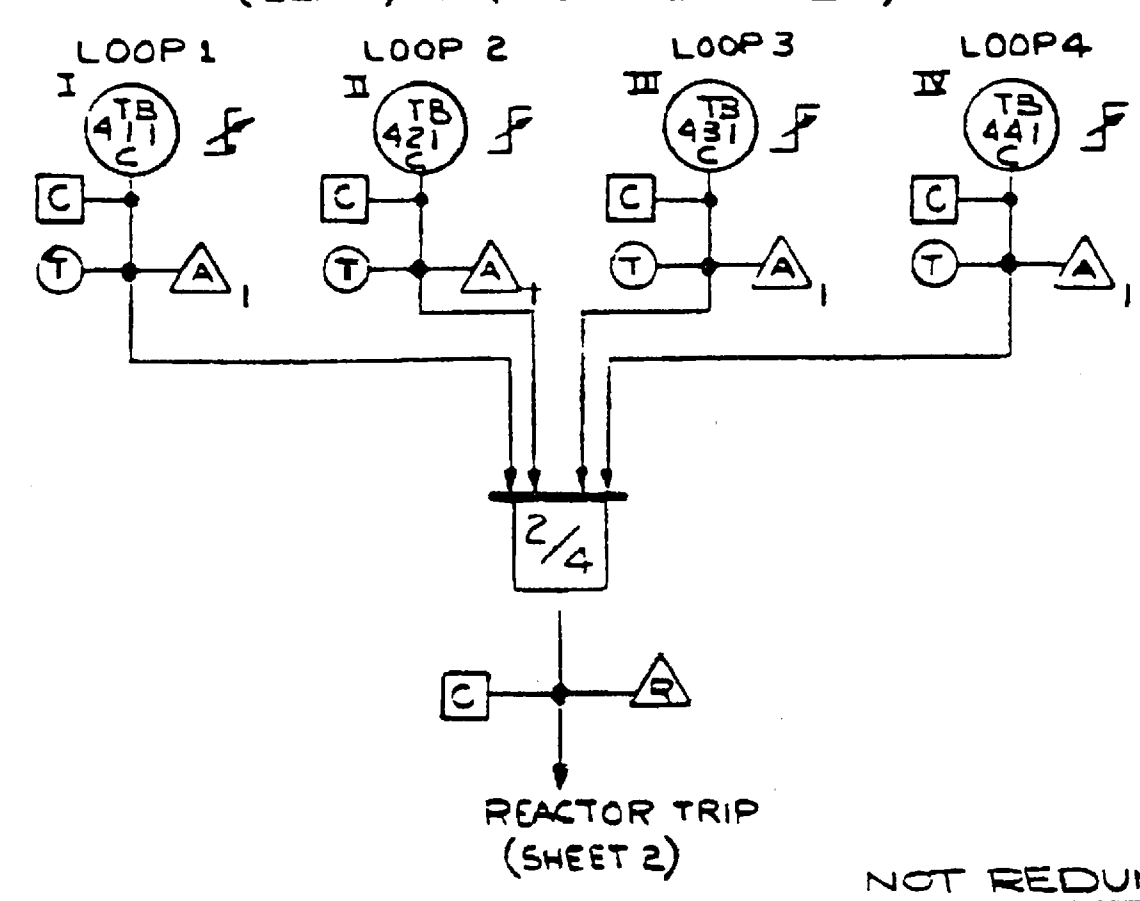
REVISIONS DURING CONSTRUCTION	P.A.#

50 NEU-300 D 906495	CHANGE	11	10	9	8	7	6	5	4	3	
CAD		NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.		G 5-23 09		INCORP DCN DM3-00-0682-98		RMV		DLD	
P.A.#		NO. DATE		REVISIONS		BY		CHK.		CORR. APP.	

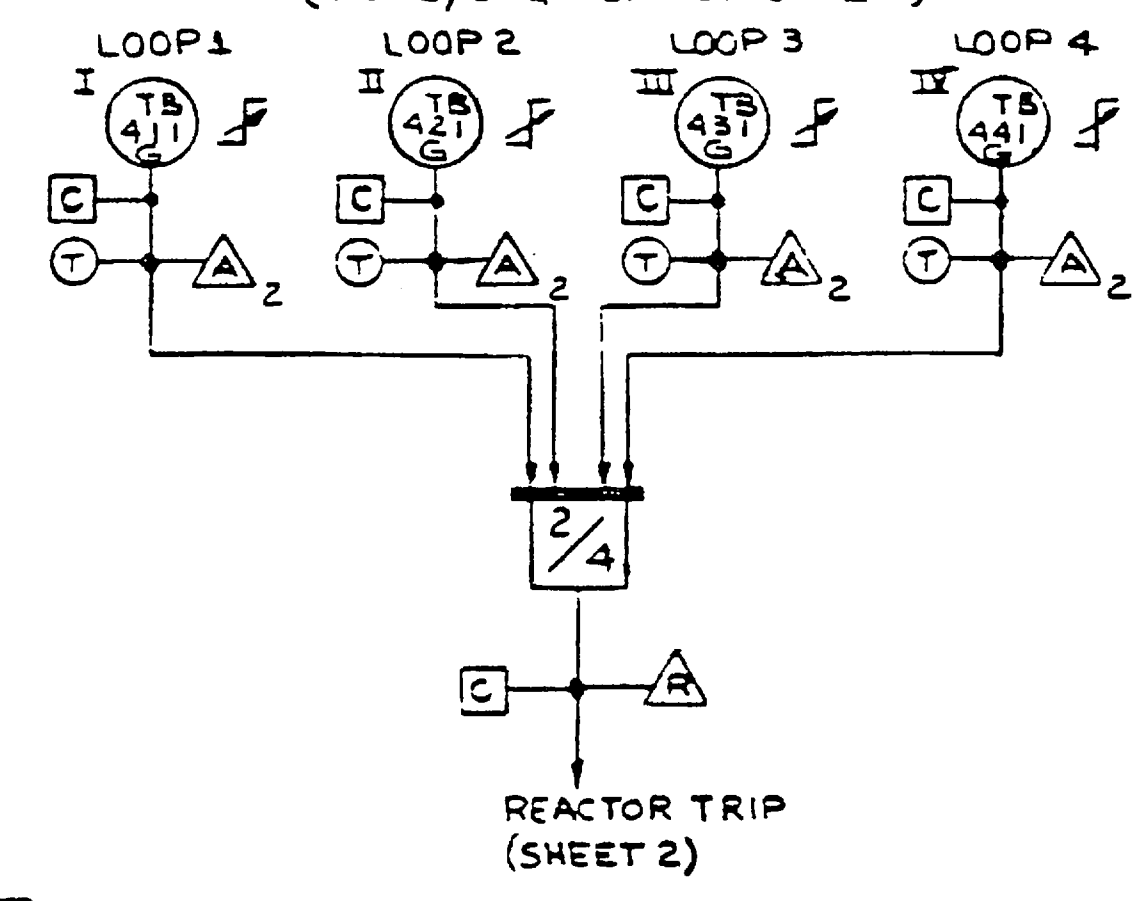
NOTES:
1. THE BYPASS SIGNALS ARE MADE UP BY MEANS OF TWO THREE-POSITION SWITCHES ON A NIS RACK. SWITCH I/N 49A BYPASSES EITHER NC-41L OR NC-43L. SWITCH I/N 49B BYPASSES EITHER NC-42L OR NC-44L.
2. THE TWO P-6 BISTABLE NO. NC-35D AND NC-36D ARE "ENERGIZED TO ACTUATE" SUCH THAT A LOGIC 1 SIGNAL IS DEFINED TO BE PRESENT WHEN THE BISTABLE OUTPUT VOLTAGE IS ON.

DESIGNER	J. GEEBER	DATE	7-92	WESTINGHOUSE ELECTRIC CORPORATION
CHECKER				ATOMIC POWER DIV. PITTSBURGH, PA., U.S.A.
DESIGN				TITLE: WEST. EAST UTILITIES SERVICE CO.
APP. ENGINEER				MILLSTONE NUCLEAR POWER STATION
				UNIT 3 FUNCTIONAL DIAGRAMS
				IN CLEAR INSTR. PERMISSIVES & BLOCKS
				SCALE ~ 108D684
				SHEET 4
				DIMENSIONS IN INCHES
				DO NOT SCALE
				REV # 224

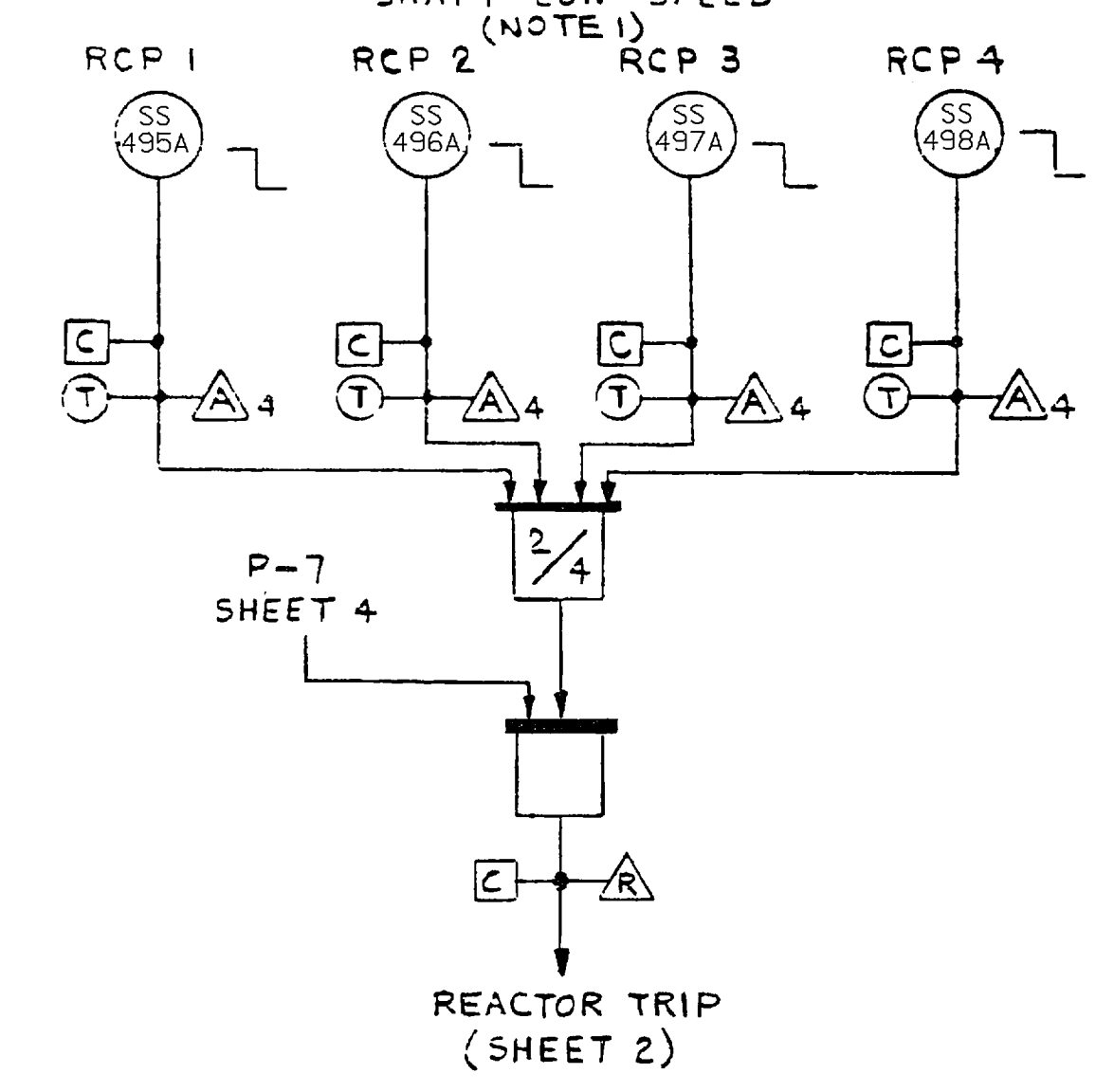
OVERTEMPERATURE ΔT (LEAD/LAG COMPENSATED)



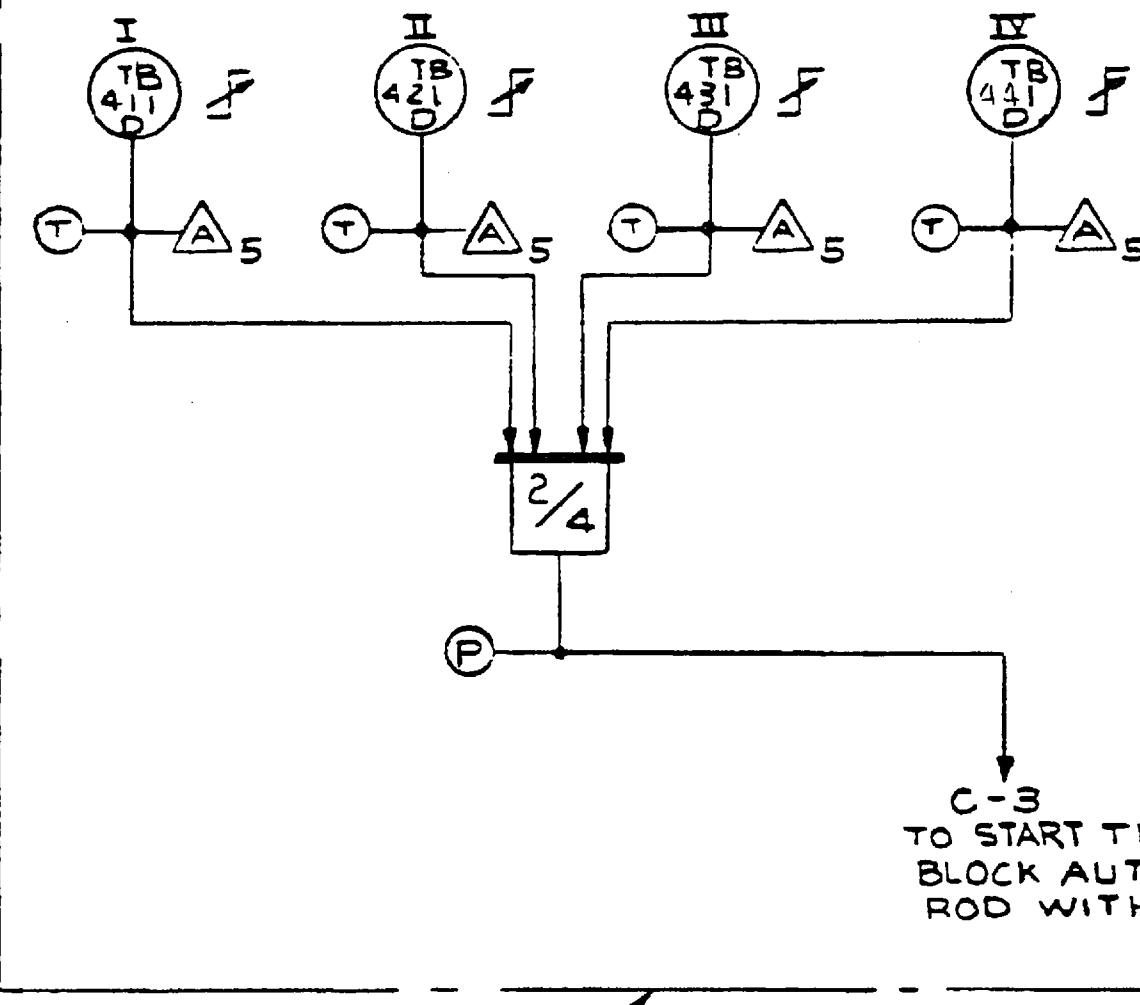
OVERPOWER ΔT (LEAD/LAG COMPENSATED)



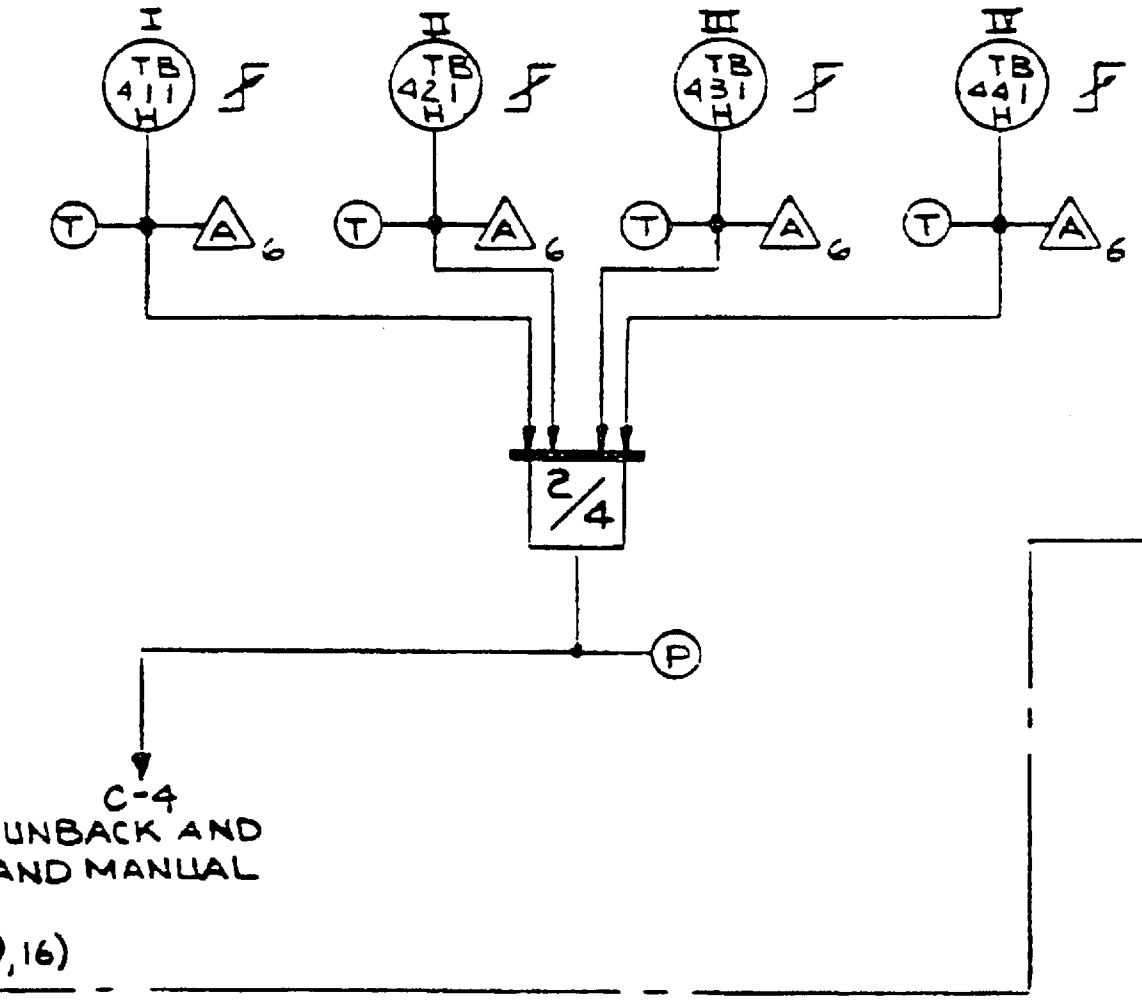
REACTOR COOLANT PUMP SHAFT LOW SPEED (NOTE 1)



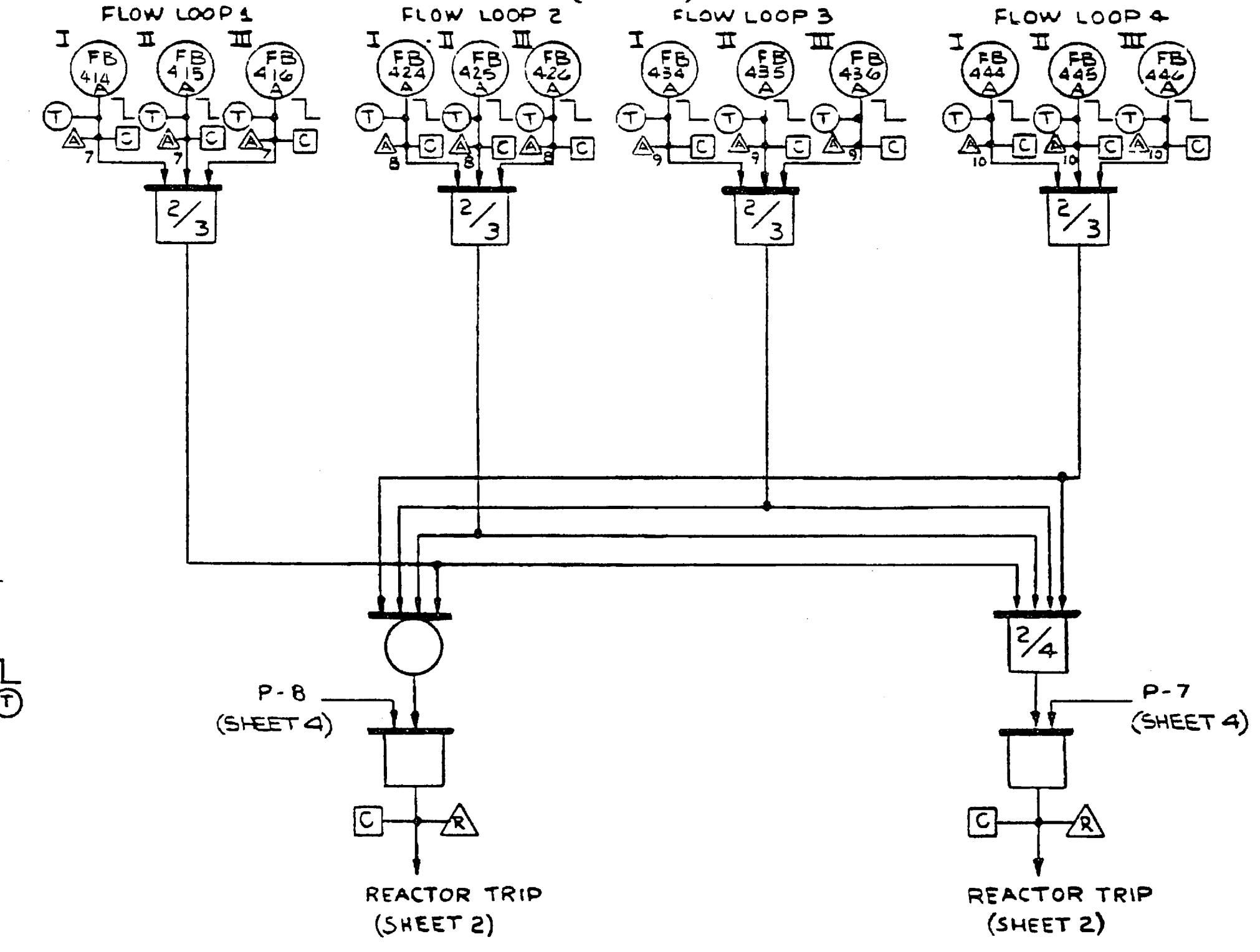
OVERTEMPERATURE ΔT (LEAD/LAG COMPENSATED)



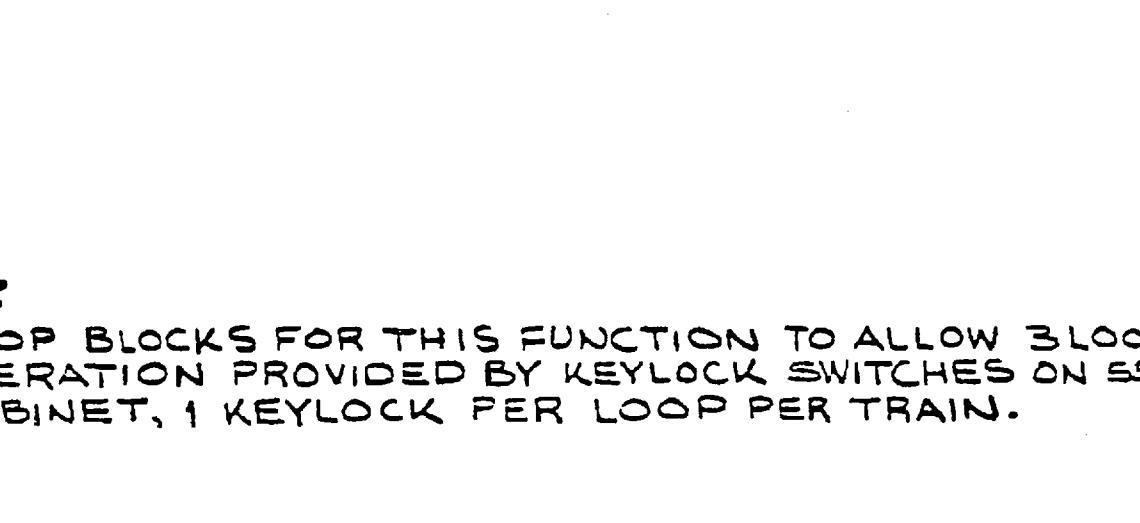
OVERPOWER ΔT (LEAD/LAG COMPENSATED)



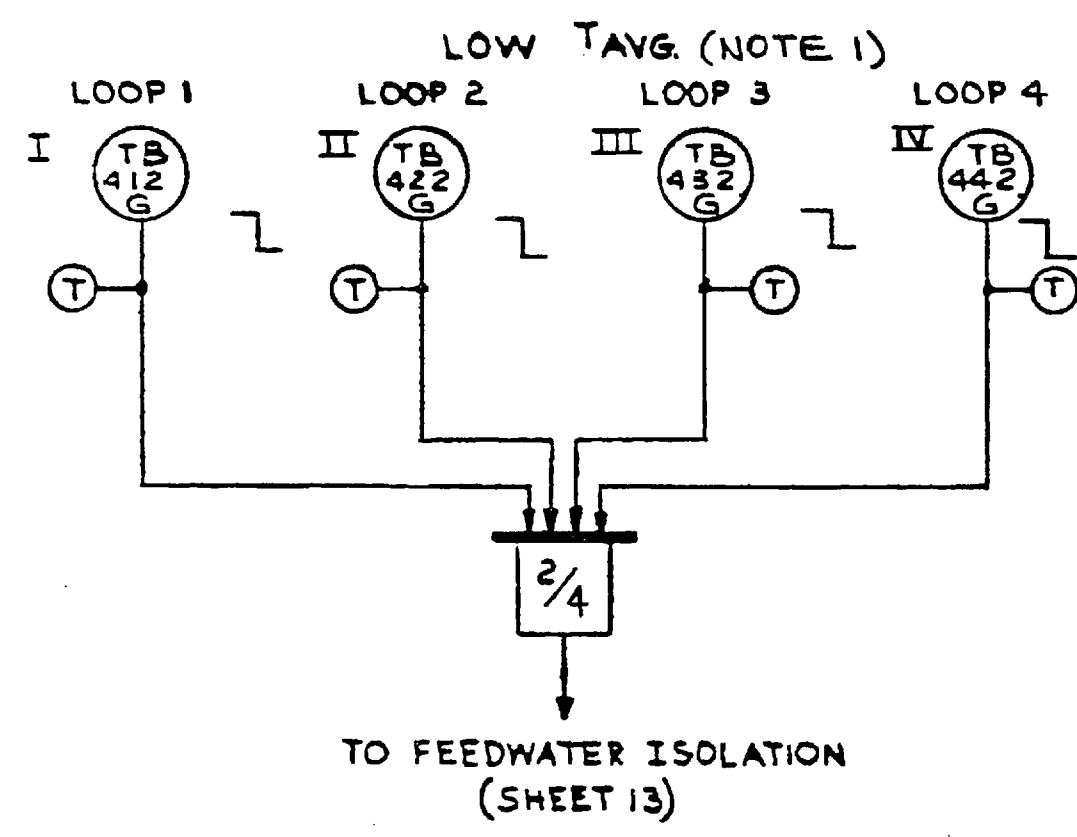
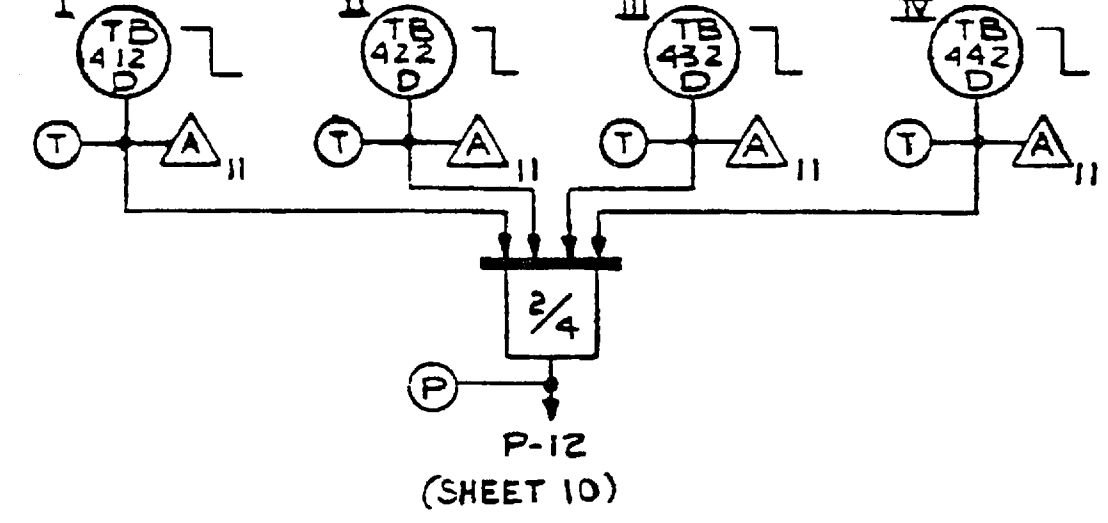
REACTOR COOLANT LOOP LOW FLOW (NOTE 1)



OVERTEMPERATURE ΔT (LEAD/LAG COMPENSATED)



LO-LO TAVG (NOTE 1)



NOTES:
1. LOOP BLOCKS FOR THIS FUNCTION TO ALLOW BLOOD OPERATION PROVIDED BY KEYLOCK SWITCHES ON ESSPS CABINET, 1 KEYLOCK PER LOOP PER TRAIN.

3
F
E
D
C
B

"FSAR FIGURE" Q.A.

[3RPS * SYS]
12179-2472.011-001-005

REVISIONS DURING CONSTRUCTION		P.A.#

80 NEU-300
D 906495
CHANGE

NO.	DATE	REVISIONS	BY	CHK.	CORR	APP.
K	5-23-99	INCORP DCN DM3-00-0682-98	RMV	Dep	Dep	Dep
J	11-1-95	AS BUILT PER DCR-M3-S-0812-94 & INCORP DCN DM3-S-0843-94	DLW	JWL	DED	DED

WESTINGHOUSE DESIGN
MANUFACTURE
CONSTRUCTION

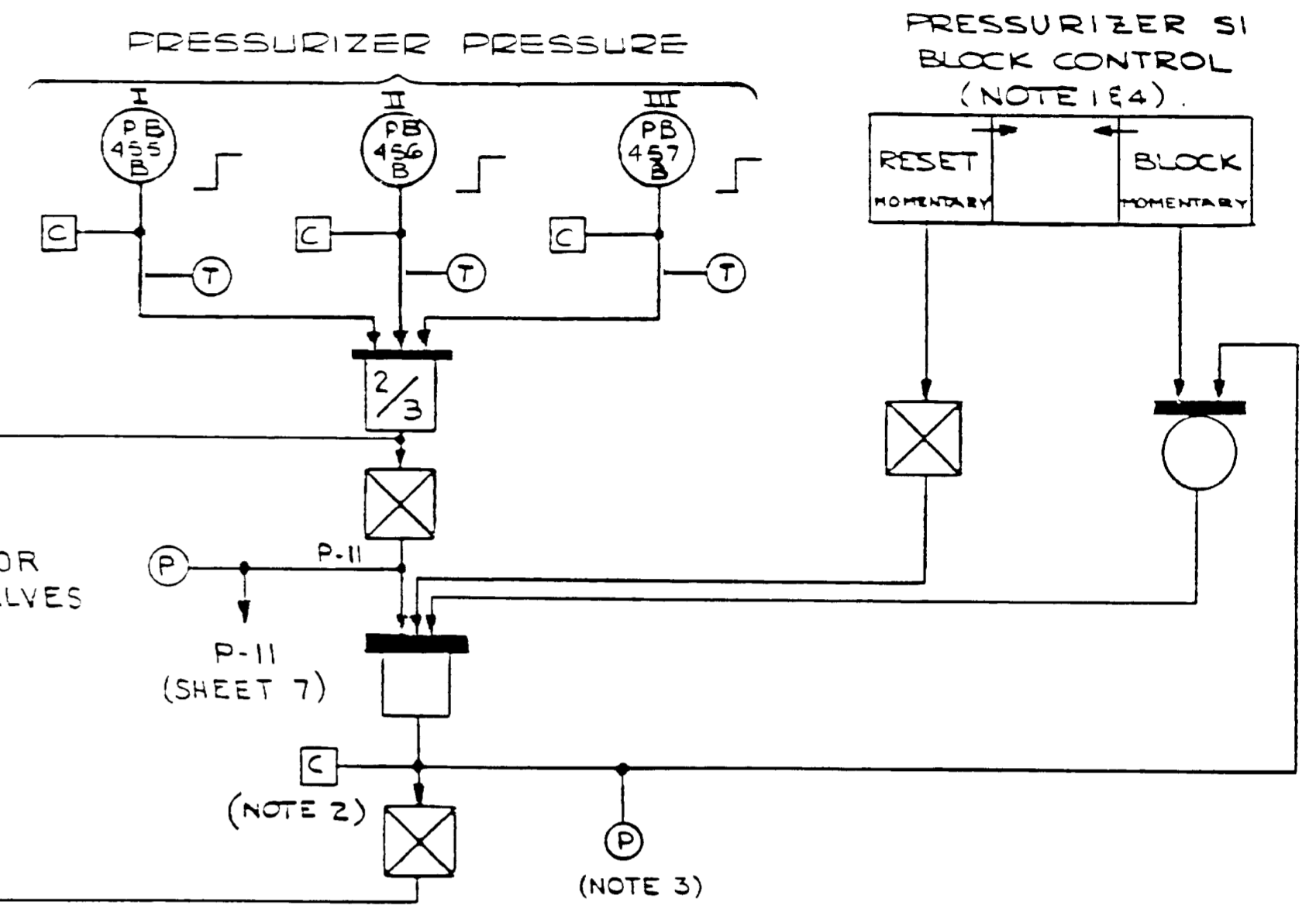
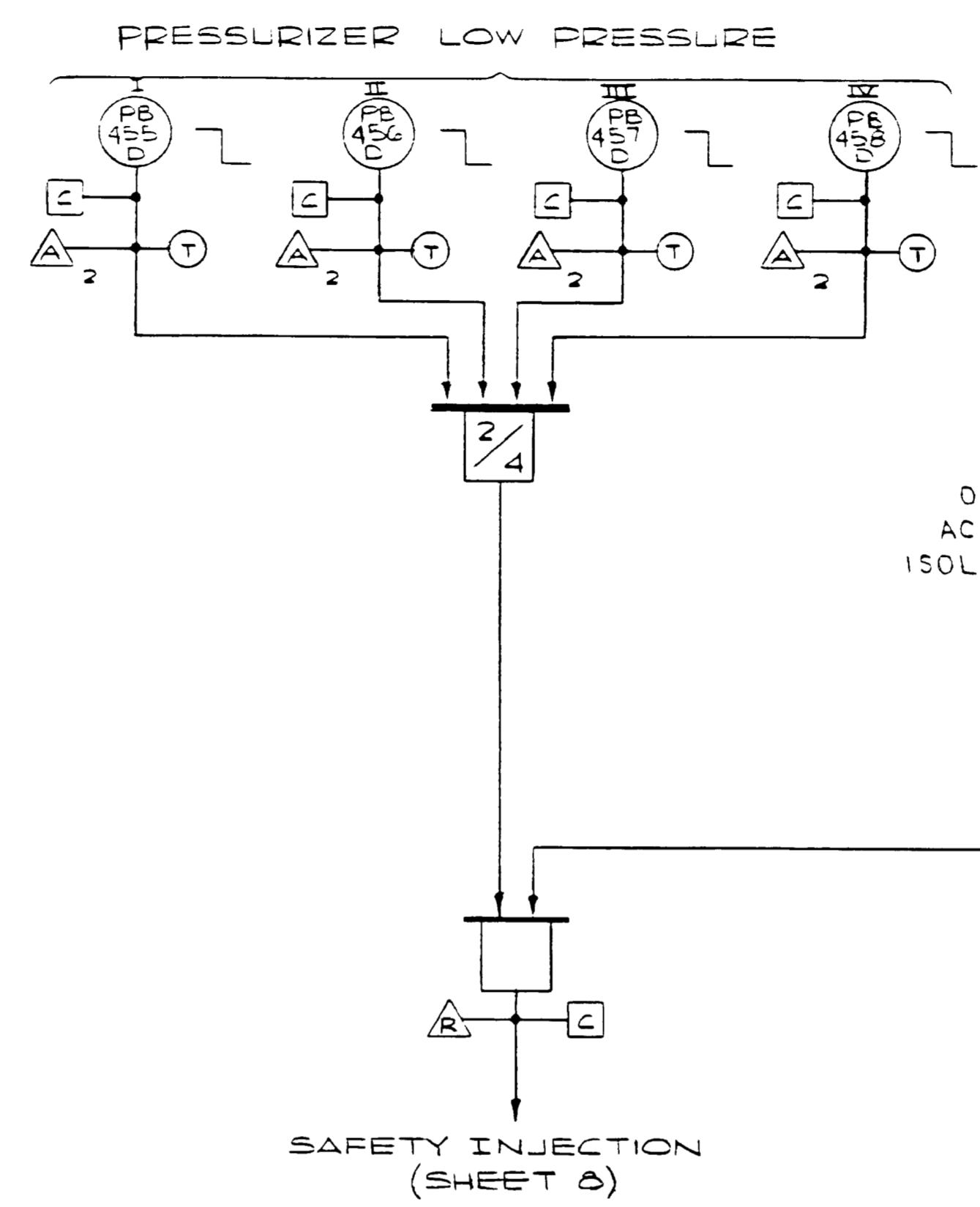
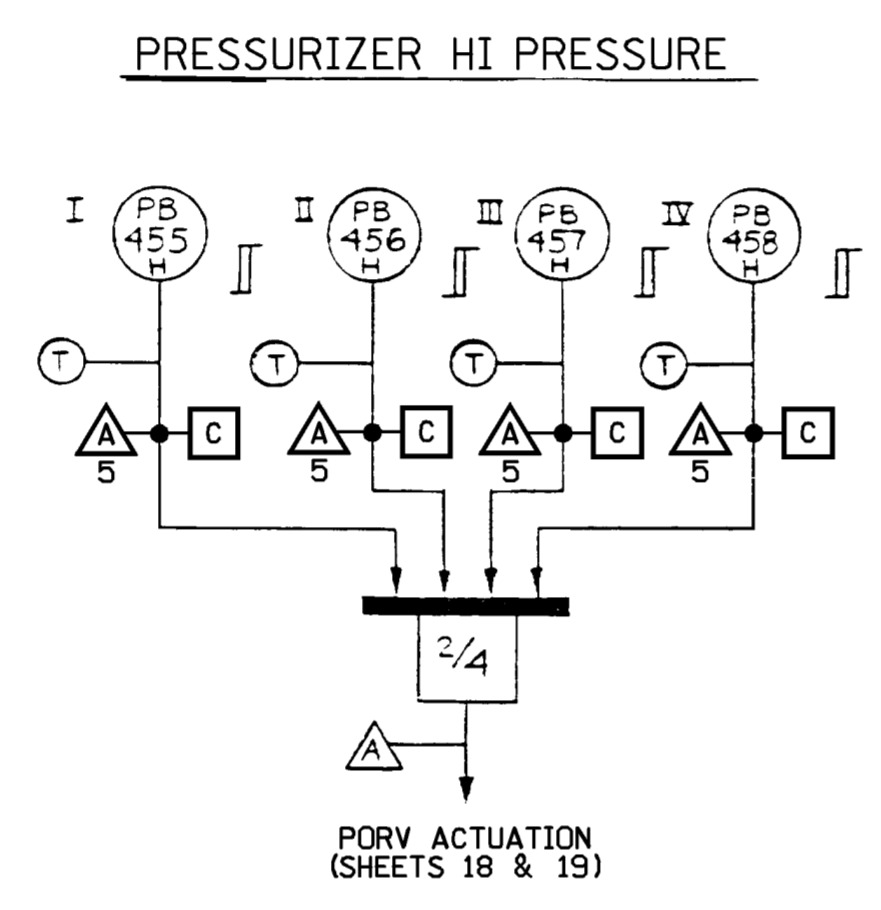
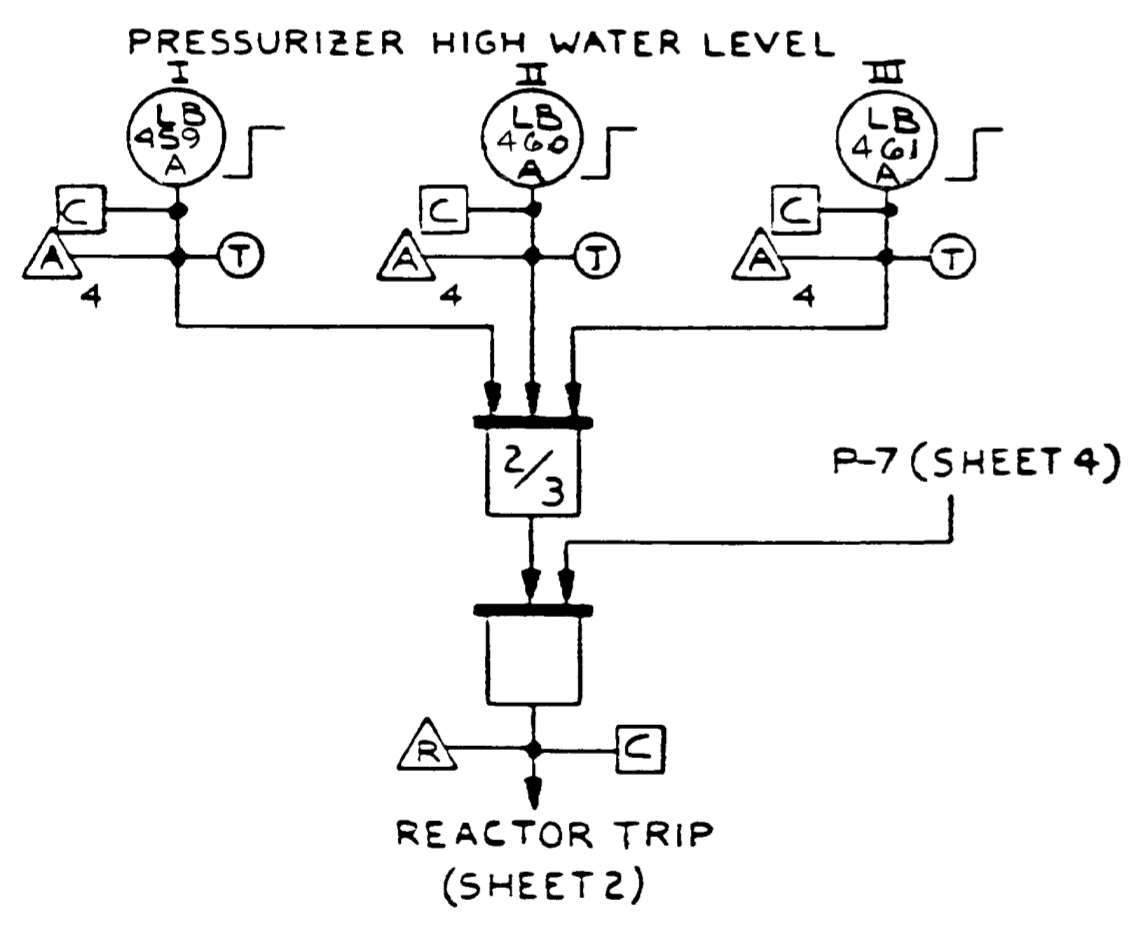
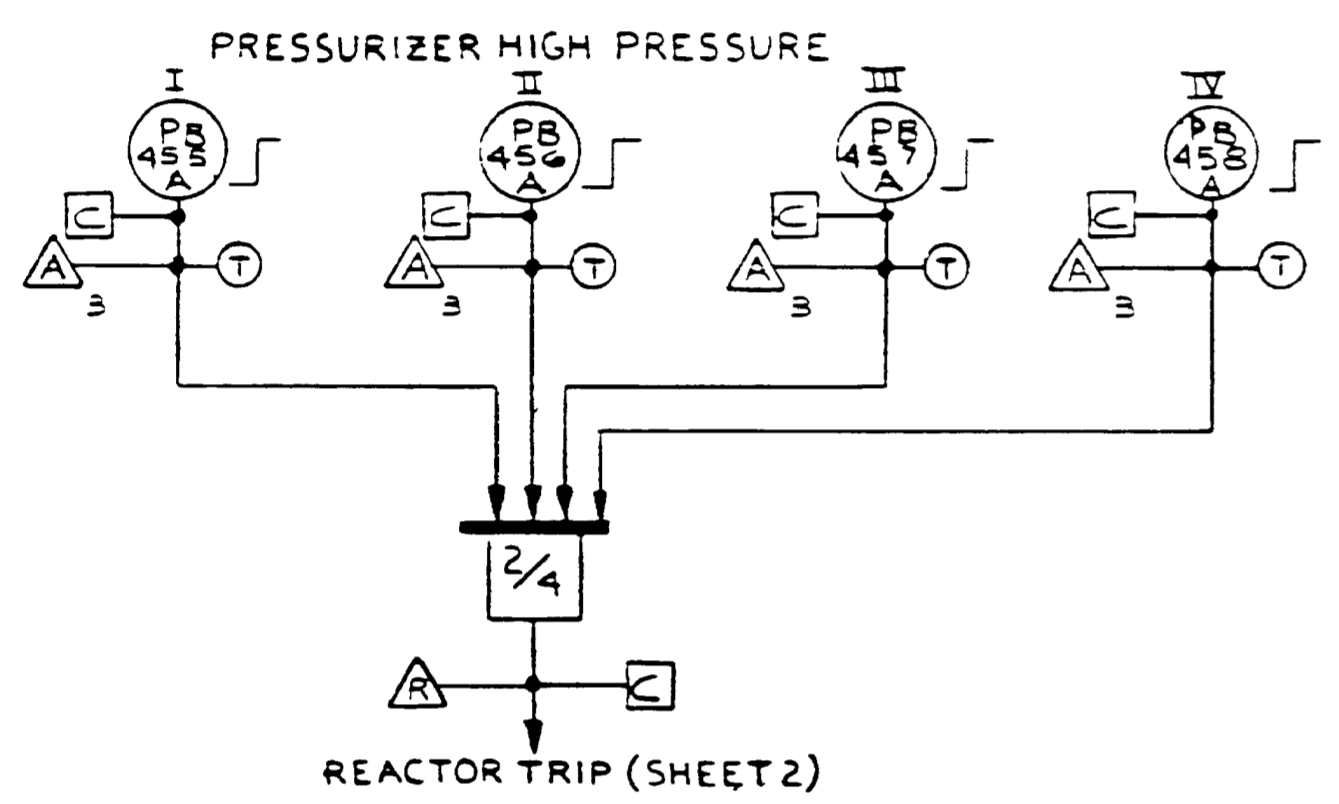
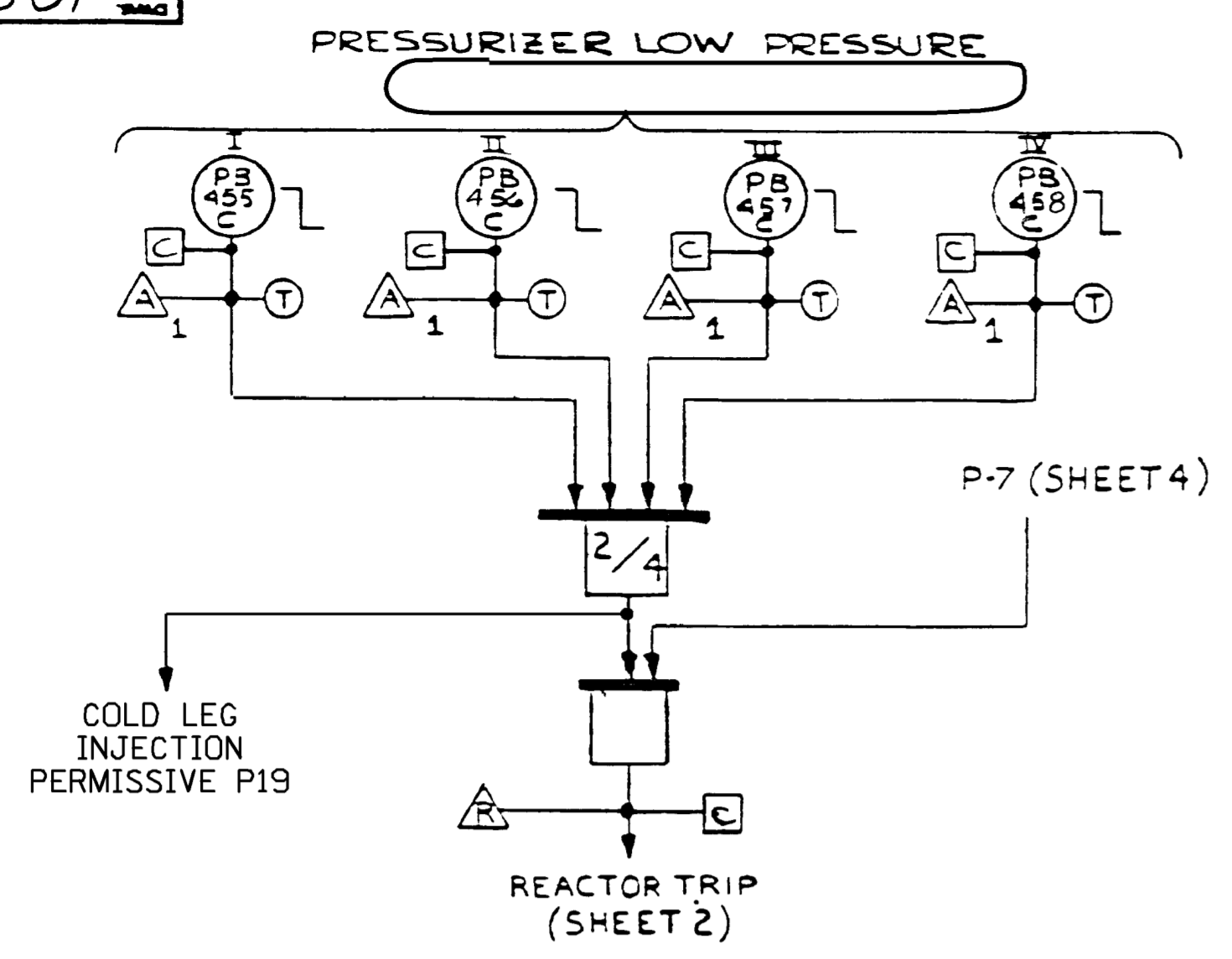
APP. J. GERBER 5-23-72
DES. ENG. 7-22
MFG. ENG.
MTRL. ENG.
APP.
APP.
APP.

Westinghouse Electric Corporation
ATOMIC POWER DIV., PITTSBURGH, PA., U.S.A.

TITLE NORTHEAST UTILITIES SERVICE CO
MILLSTONE NUCLEAR POWER STATION
UNIT 3 FUNCTIONAL DIAGRAMS
PRIMARY COOLANT SYSTEM TRIP SIGNALS

SCALE 108D684
DIMENSIONS IN INCHES SHEET 5
DO NOT SCALE SUB 123456

9133HS
108D684



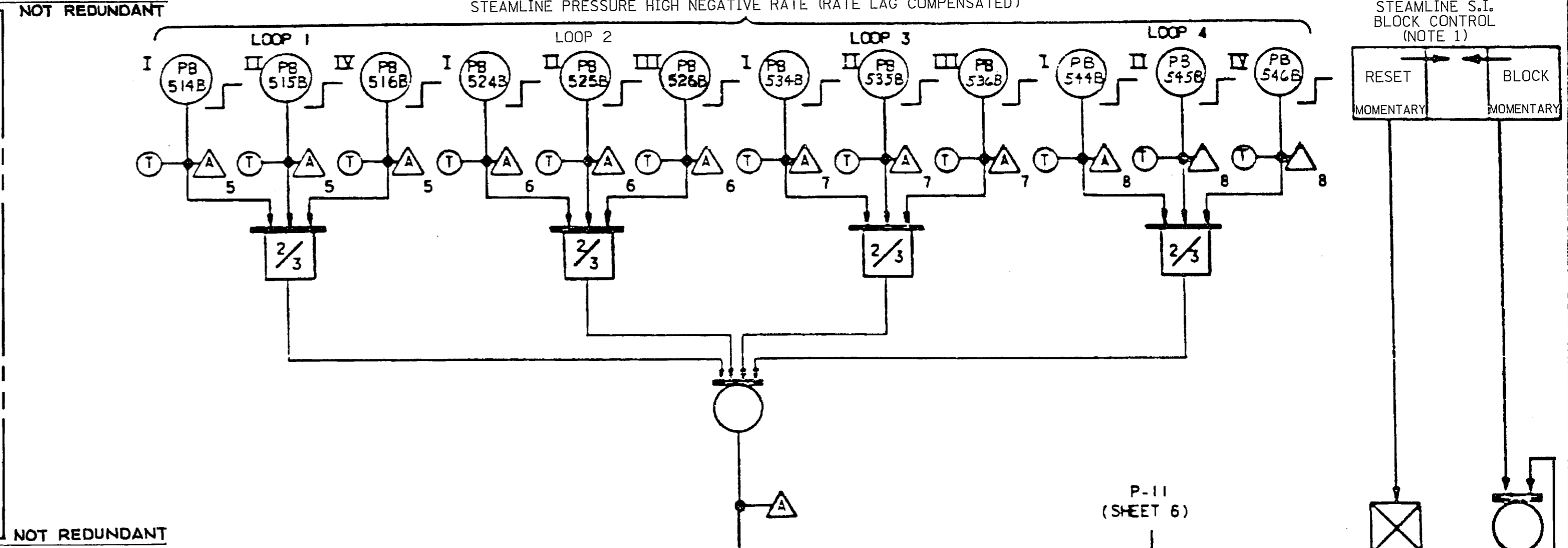
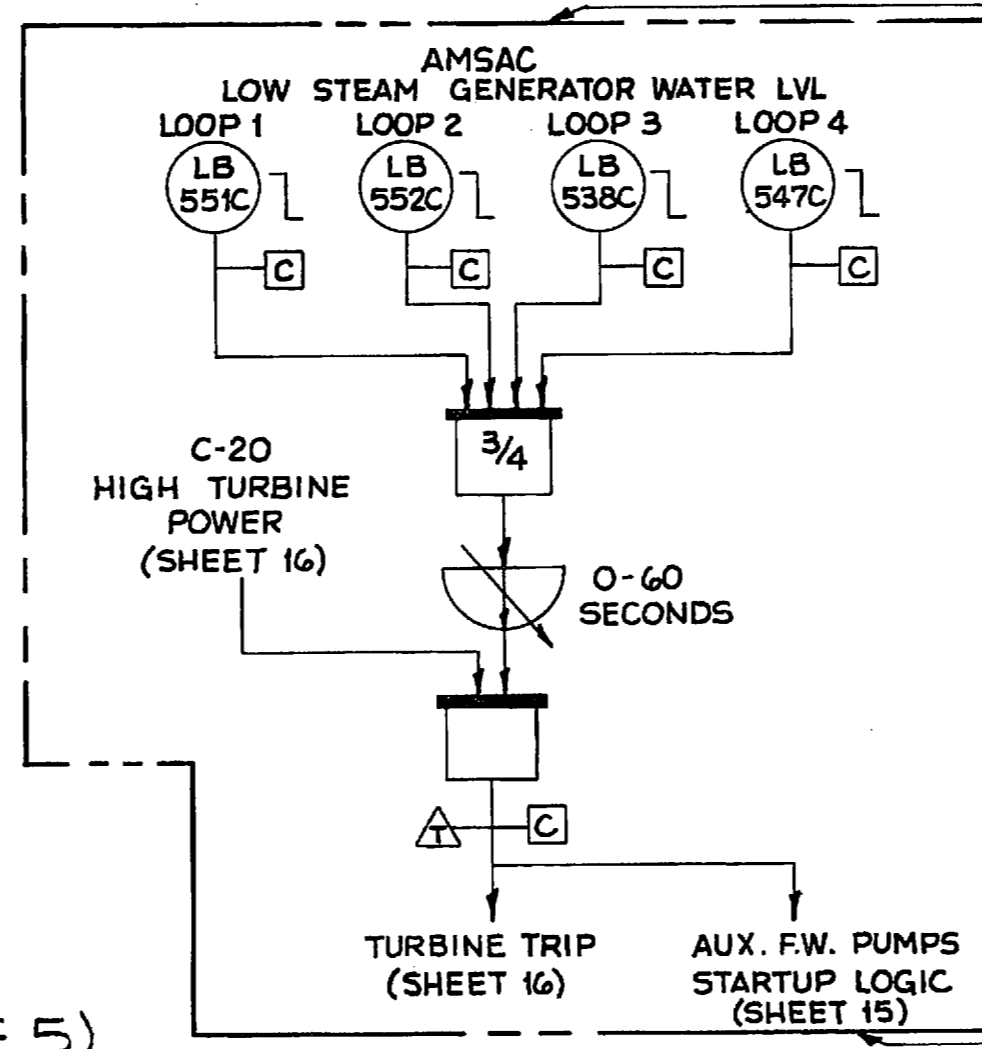
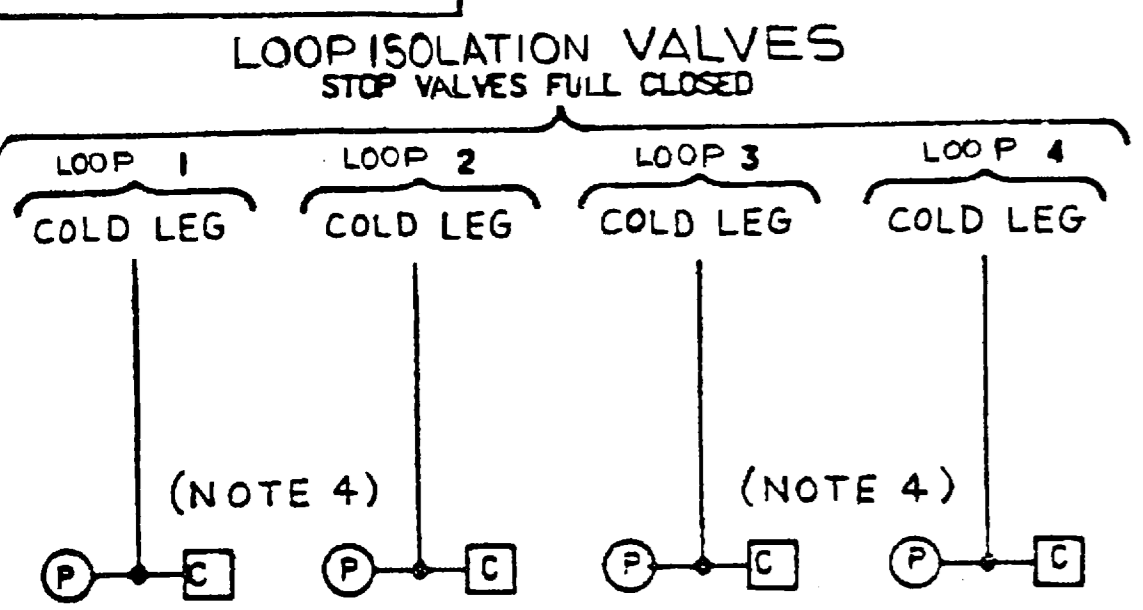
- NOTES:
1. THE REDUNDANT MANUAL BLOCK CONTROL CONSISTS OF TWO CONTROLS ON THE CONTROL BOARD, ONE FOR EACH TRAIN. TWO COMPUTER INPUTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN.
 2. TWO PERMISSIVE STATUS LIGHTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN.
 3. TWO PERMISSIVE STATUS LIGHTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN.
 4. SUPPLIED BY OTHERS.

1
50 NELI-300
D 300-495
CHANGE
IT

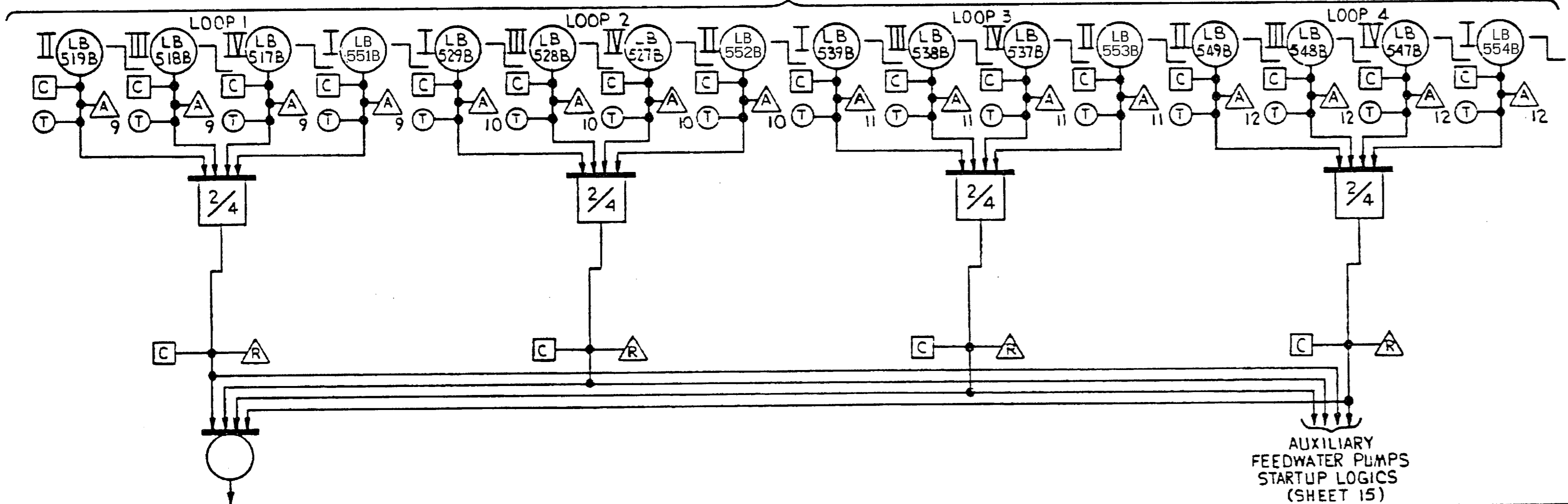
12179-2472.011-001-006

[3RPS * SYS]

<small>THIS DRAWING IS THE PROPERTY OF WESTINGHOUSE ELECTRIC CORPORATION AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF WESTINGHOUSE ELECTRIC CORPORATION.</small>	DFTN: J. GERBER CHER: DES. ENG.: K. KATON MFG. ENG.: INST. ENG.: APP.: APP.: APP.: DATE: 10/72	Westinghouse Electric Corporation ATOMIC POWER DIV., PITTSBURGH, PA., U.S.A. TITLE: MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS PRESSURIZER TRIP SIGNALS SCALE: ~ DIMENSIONS IN INCHES DO NOT SCALE	108D684 SHEET 6 SUB # 23 # 5
	25212-39001 SH4007 "FSAR FIGURE"		
	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.		
	TITLE: MILLSTONE UNIT 3 UNIT 3 FUNCTIONAL DIAG. PRESSURIZER TRIP SIGNALS		
REVISION DESCRIPTION (SIGNATURES ON FILE) REVISED PER DC MP3-12-01100 PER DUR 14-800168		CAD NO: C390014007.HYB DRAWING NO: 25212-39001 REV J	DSGN DLW SCALE: N/A UNLESS OTHERWISE NOTED SH 4007

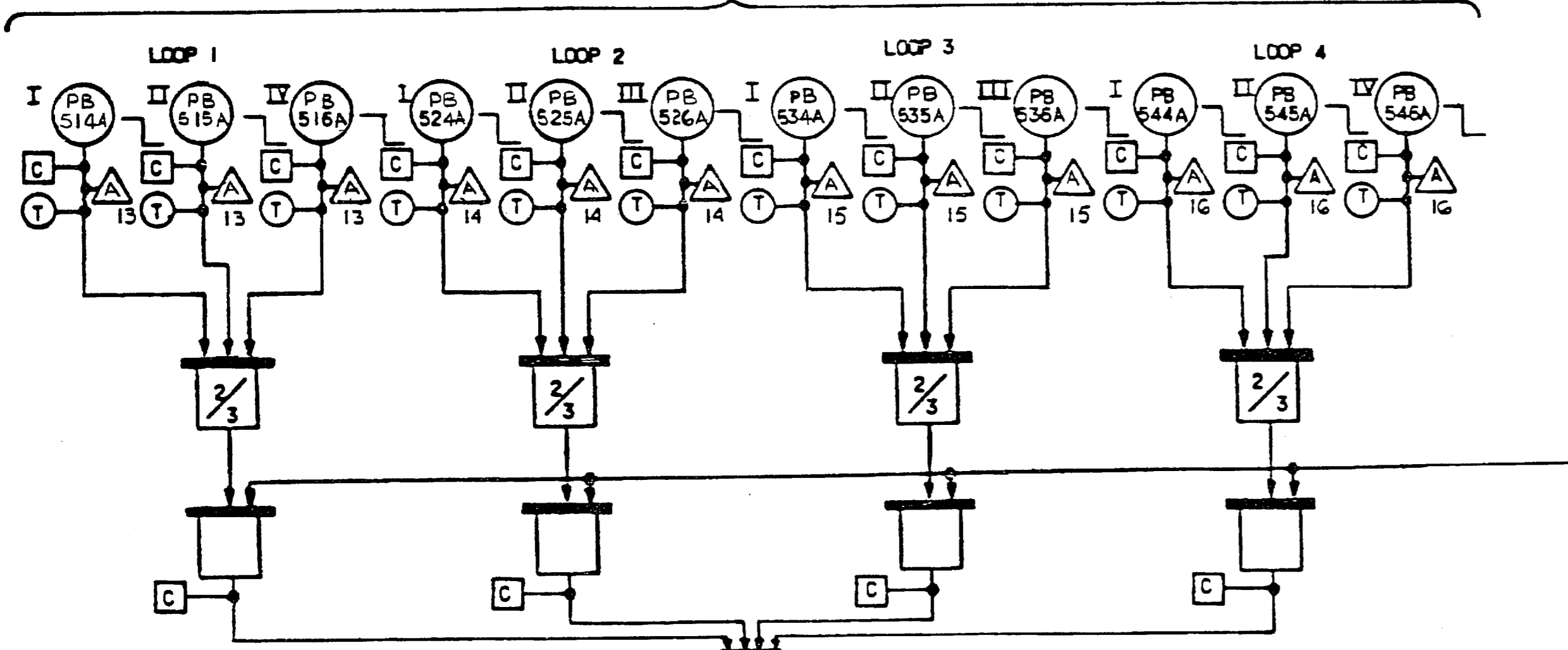


STEAM GENERATOR LOW-LOW WATER LEVEL (NOTE 5)

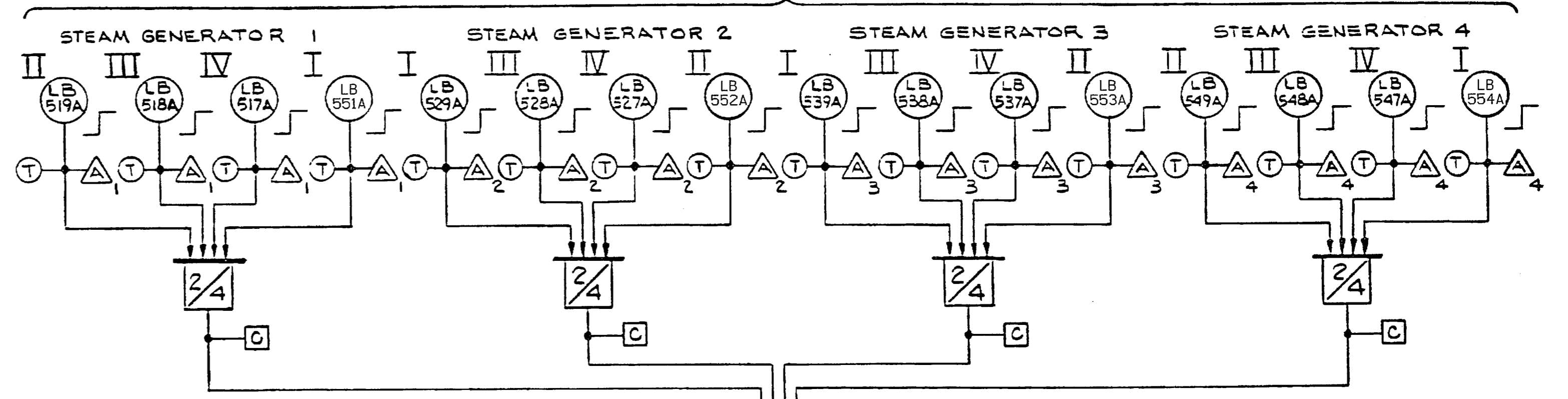


- NOTES:
1. THE REDUNDANT MANUAL BLOCK CONTROL CONSISTS OF TWO CONTROLS ON THE CONTROL BOARD ONE FOR EACH TRAIN SUPPLIED BY OTHERS.
 2. TWO COMPUTER INPUTS ARE CONNECTED TO THIS CIRCUIT INDIVIDUAL FOR EACH TRAIN.
 3. TWO PERMISSIVE STATUS LIGHTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN.
 4. POSITION DETECTION IS ACCOMPLISHED BY TWO POSITION SWITCHES (INDIVIDUAL FOR EACH TRAIN) PER STOP VALVE.
 5. LOOP BLOCKS FOR THIS FUNCTION TO ALLOW 3 LOOP OPERATION PROVIDED BY KEYLOCK SWITCHES ON SSPS CABINET, 1 KEYLOCK PER LOOP PER TRAIN.

LOW STEAMLINE PRESSURE (LEAD-LAG COMPENSATED) (NOTE 5)



STEAM GENERATOR HI-HI LEVEL (NOTE 5)



SAFETY INJECTION AND STEAMLINE ISOLATION (SHEET 8)

P-14 TURBINE TRIP AND FEEDWATER ISOLATION (SHEET 13)

"FSAR FIGURE" Q.A.

REVISIONS DURING CONSTRUCTION	P.A.#

1	CHANGE
SO NEU-300	
D 906495	
IT	

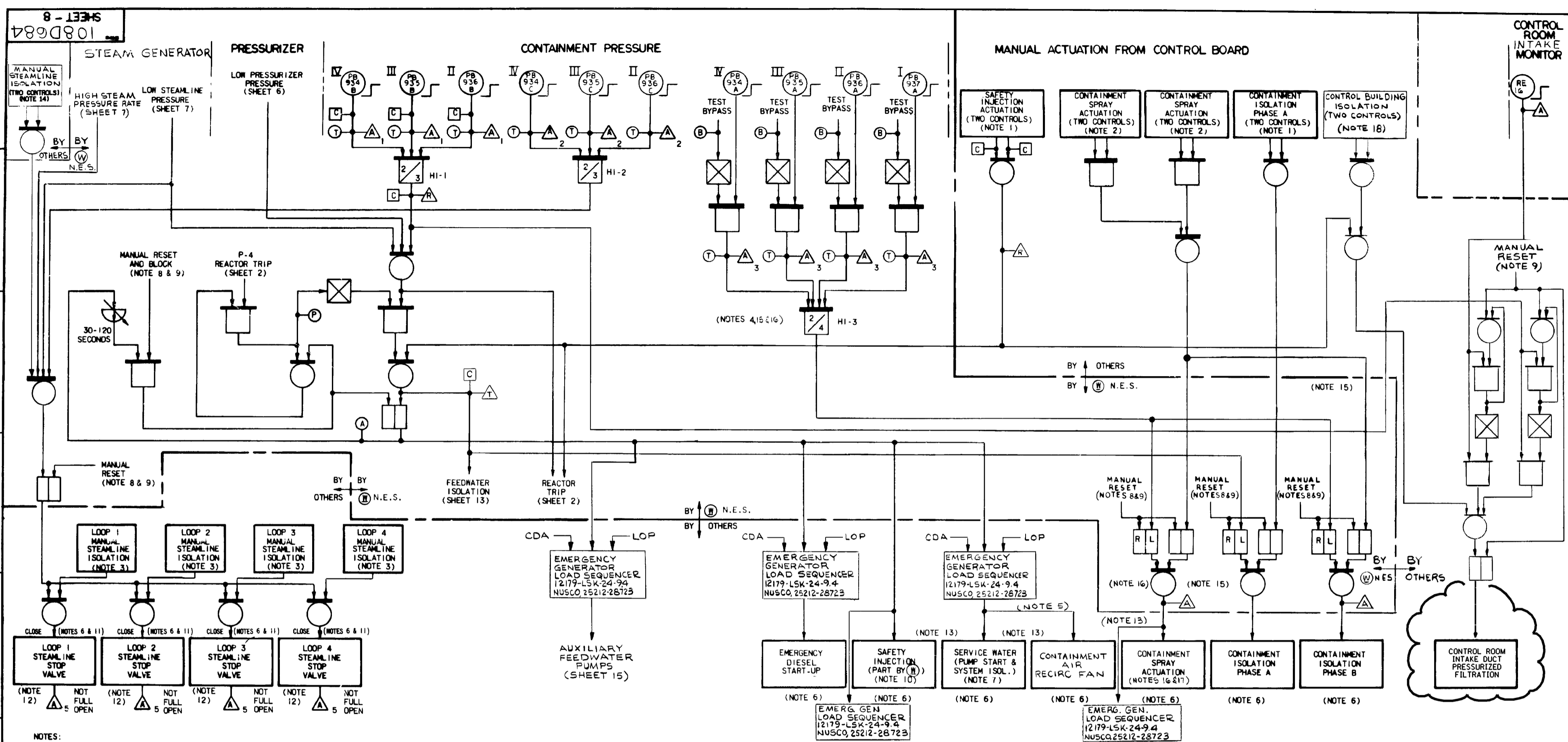
CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

12179-2472.011-001-007

NO.	P.A.#	DATE	REVISIONS	BY	CHK.	CORR.	APP.
M	5-23-99		INCORP DCN DM3-00-0682-98	RMV	PLW	DEJ	DEJ
L	3-1-97		INCORP DCN DM3-S-1003-96	DLW	WSP	DED	DED

Westinghouse Electric Corporation
 NUCLEAR ENERGY SYSTEMS PITTSBURGH PA U.S.A.
 NORTHEAST UTILITIES SERVICE CO.
 MILLSTONE NUCLEAR POWER STATION
 UNIT 3 FUNCTIONAL DIAGRAMS
 STEAM GENERATOR TRIP SIGNALS

SCALE: 108D684 SHEET 7
 DIMENSIONS IN INCHES
 DO NOT SCALE
 SUB # 2307



- NOTES:
- TWO MOMENTARY CONTROLS ON THE CONTROL BOARD. OPERATING EITHER CONTROL WILL ACTUATE.
 - THE MANUAL SPRAY ACTUATION CONSISTS OF FOUR MOMENTARY CONTROLS. ACTUATION WILL OCCUR ONLY IF TWO ASSOCIATED CONTROLS ARE OPERATED SIMULTANEOUSLY.
 - ONE CONTROL PER LOOP ON THE CONTROL BOARD.
 - CONTAINMENT PRESSURE BISTABLES FOR SPRAY ACTUATION ARE ENERGIZE TO ACTUATE (OTHER BISTABLES ARE DE-ENERGIZE TO ACTUATE).
 - CONTAINMENT AIR RECIRC FAN IS TRIPPED BY CDA SIGNAL.
 - COMPONENTS ARE ALL INDIVIDUALLY SEALED IN (LATCHED), SO THAT LOSS OF THE ACTUATION SIGNAL WILL NOT CAUSE THESE COMPONENTS TO RETURN TO THE CONDITION HELD PRIOR TO THE ACTUATION SIGNAL.
 - SERVICE WATER SYSTEM ISOLATION IS USED ONLY IF REQUIRED.
 - THE REDUNDANT MANUAL RESET CONSISTS OF TWO MOMENTARY CONTROLS ON THE CONTROL BOARD, ONE FOR EACH TRAIN.
 - SUPPLIED BY OTHERS.

- SAFETY INJECTION SEQUENCE REQUIREMENTS (IF SEQUENCING IS NECESSARY) ARE SPECIFIED BY (N) NUCLEAR ENERGY SYSTEMS.
- ALSO CLOSES THE BYPASS VALVE IN PARALLEL WITH THE ASSOCIATED STEAM LINE STOP VALVE.
- LIGHTS SHOULD BE PROVIDED IN THE CONTROL ROOM FOR EACH STEAM LINE STOP VALVE TO INDICATE WHEN THE VALVE IS FULLY CLOSED OR FULLY OPEN.
- THE ACTUATION MAY BE DELAYED AND SEQUENCED IF THE EMERGENCY DIESEL POWER CAPABILITY IS LESS THAN THE TOTAL LOAD WITH ALL SYSTEMS STARTING. THE TIME DELAY(S), IF USED MAY NOT EXCEED THE MAXIMUM STARTING TIME REQUIREMENTS FOR EACH SYSTEM.
- TWO CONTROLS ON THE CONTROL BOARD. OPERATING EITHER CONTROL WILL ACTUATE.
- SOME ENGINEERED SAFEGUARDS FUNCTIONS ARE NOT WITHIN THE FUNCTIONAL DESIGN SCOPE OF (N) NUCLEAR ENERGY SYSTEMS BUT ONLY SHOWN ON THIS SHEET AS THE FUNCTIONS ARE BUILT IN THE (N) SUPPLIED EQUIPMENT.

- THE 2 OUT OF 4 COINCIDENCE, MEMORIES, AND "OR" LOGIC ARE DUPLICATED WITHIN EACH TRAIN. SEPARATE OUTPUT RELAYS ARE ALSO PROVIDED, TO MINIMIZE FALSE CONTAINMENT SPRAY. ONE CUTOFF RELAY SHOULD START THE PUMPS WHILE ANOTHER SHOULD OPEN THE SYSTEM VALVES.
- THE CONTAINMENT SPRAY SYSTEM SHOULD BE INDEPENDENT OF THE SAFETY INJECTION SYSTEM. IF THE CONDITIONS OF NOTE 13 APPLY, THE SEQUENCE INTERLOCK SHOULD BE SUCH THAT SPRAY WILL START WITHIN THE REQUIRED TIME INDEPENDENT OF THE SAFETY INJECTION SIGNAL STATUS.
- TWO MOMENTARY CONTROLS, ONE ON MAIN CONTROL BOARD 2 AND THE OTHER ON MAIN VENTILATION PANEL VP1. OPERATING EITHER CONTROL WILL ACTUATE.

NO.	CHANGE	DATE	BY	REASON
1	NEU-300	08-09-75		
2	NEU-300	08-09-75		
3	ECN-31005	08-09-75		
4	ECN-31595	08-09-75		
5	ECN-33212	08-09-75		
6	ECN-33520	08-09-75		

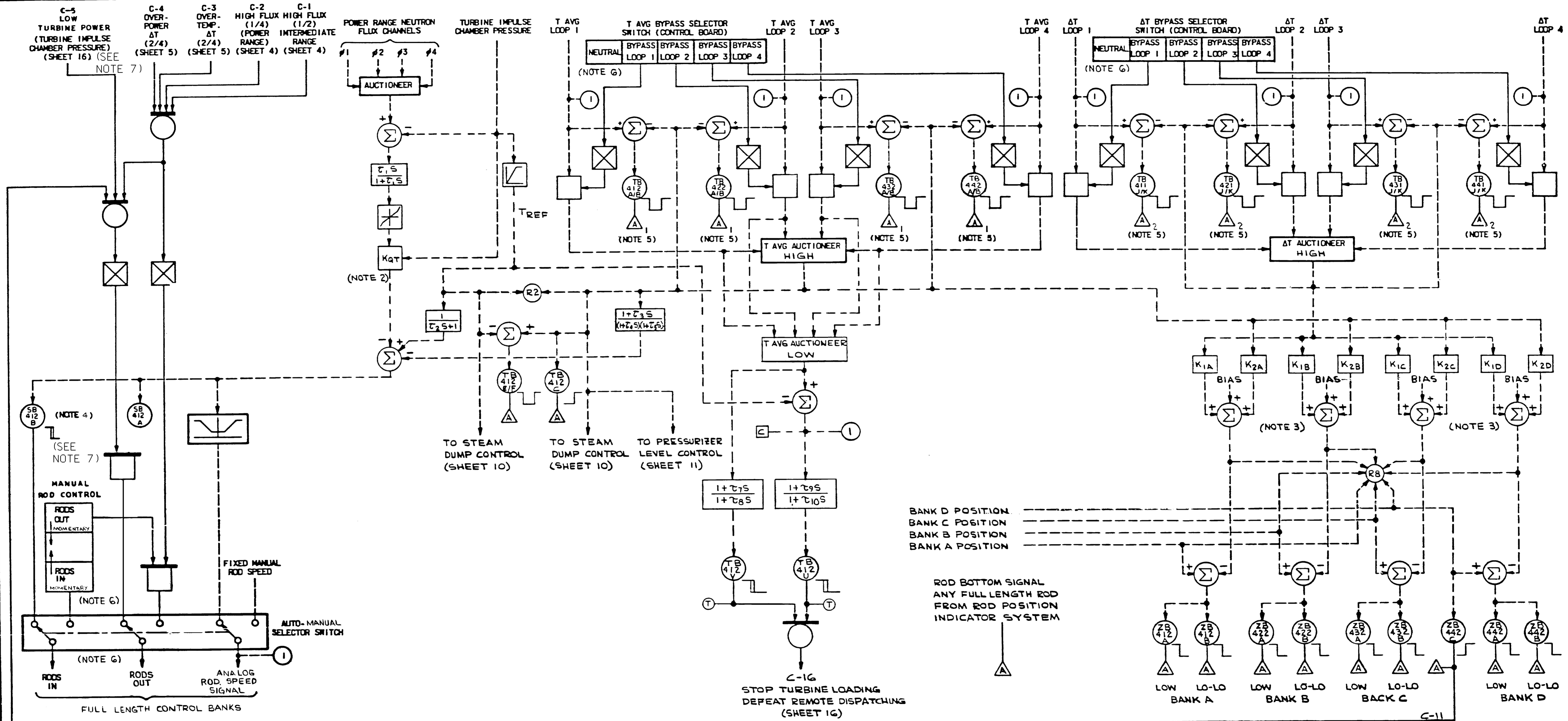
[3RPS*SYS] "FSAR FIGURE"

DES. ENG. MFG. ENG. MTLG. ENG. APP. APP. APP. OPTG. SUPV.	WESTINGHOUSE ELECTRIC CORPORATION NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A. TITLE: NORTHEAST UTILITIES SERVICE CO. MILLSTONE NUCLEAR POWER PLANT UNIT 3 FUNCTIONAL DIAGRAM SAFEGUARDS ACTUATION SIGNALS
SCALE DIMENSIONS IN INCHES DO NOT SCALE	108D684 SHEET 8 SUB 2880

25212-39001 SH4009

FSAR FIGURE 07.02-01 SH 08

	Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.
	TITLE FUNCTIONAL DIAGRAM SAFEGUARDS ACTUATION SIGNALS
REVISION DESCRIPTION SIGNATURES ON FILE	DRAWING NO. 25212-39001
REVISED PER USUR 12-90022 & DUR 12-90024	REV K
S&W DWG NO. 12179-2472.01-001-008	UNLESS OTHERWISE NOTED SH 4009



- NOTES**
1. ALL CIRCUITS ON THIS SHEET ARE NOT REDUNDANT.
 2. KQT MAY VARY INVERSELY PROPORTIONAL TO LOAD WITH A FIXED LIMIT OR MAY VARY IN TWO DISCRETE STEPS WITH BREAK POINTS AT 30 TO 50 % AND GO TO 80% TURBINE LOAD.
 3. THE SUMMER OUTPUTS HAVE FIXED MANUALLY ADJUSTABLE UPPER LIMITS.
 4. THE ROD DIRECTION BISTABLES NO. SB-412A AND SB-412B ARE "ENERGIZED TO ACTUATE".

5. ALARM 1 AND ALARM 2 MUST HAVE REFLASH CAPABILITY.
6. THESE CONTROLS ON THE CONTROL BOARD ARE SUPPLIED BY OTHERS.
7. AUTOMATIC ROD WITHDRAWAL CAPABILITY HAS BEEN ELIMINATED. INTERLOCK C-5 HAS BEEN SET TO PROVIDE AN AUTO ROD WITHDRAWAL BLOCK FOR ALL TURBINE IMPULSE CHAMBER PRESSURE VALUES.

"FSAR FIGURE" Q.A.

REVISIONS DURING CONSTRUCTION	P.A.#

NEU-300
 506495
 CHANGE

12179-2472.011-001-009

REV.	P.A.#	NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
H	1-5-09			INCORP DCN DM3-00-0190-07	JCV	MEL	-	DLW
G	5-23-99			INCORP DCN DM3-00-0682-98	RMV	DLW	DED	DED

WESTINGHOUSE Electric Corporation

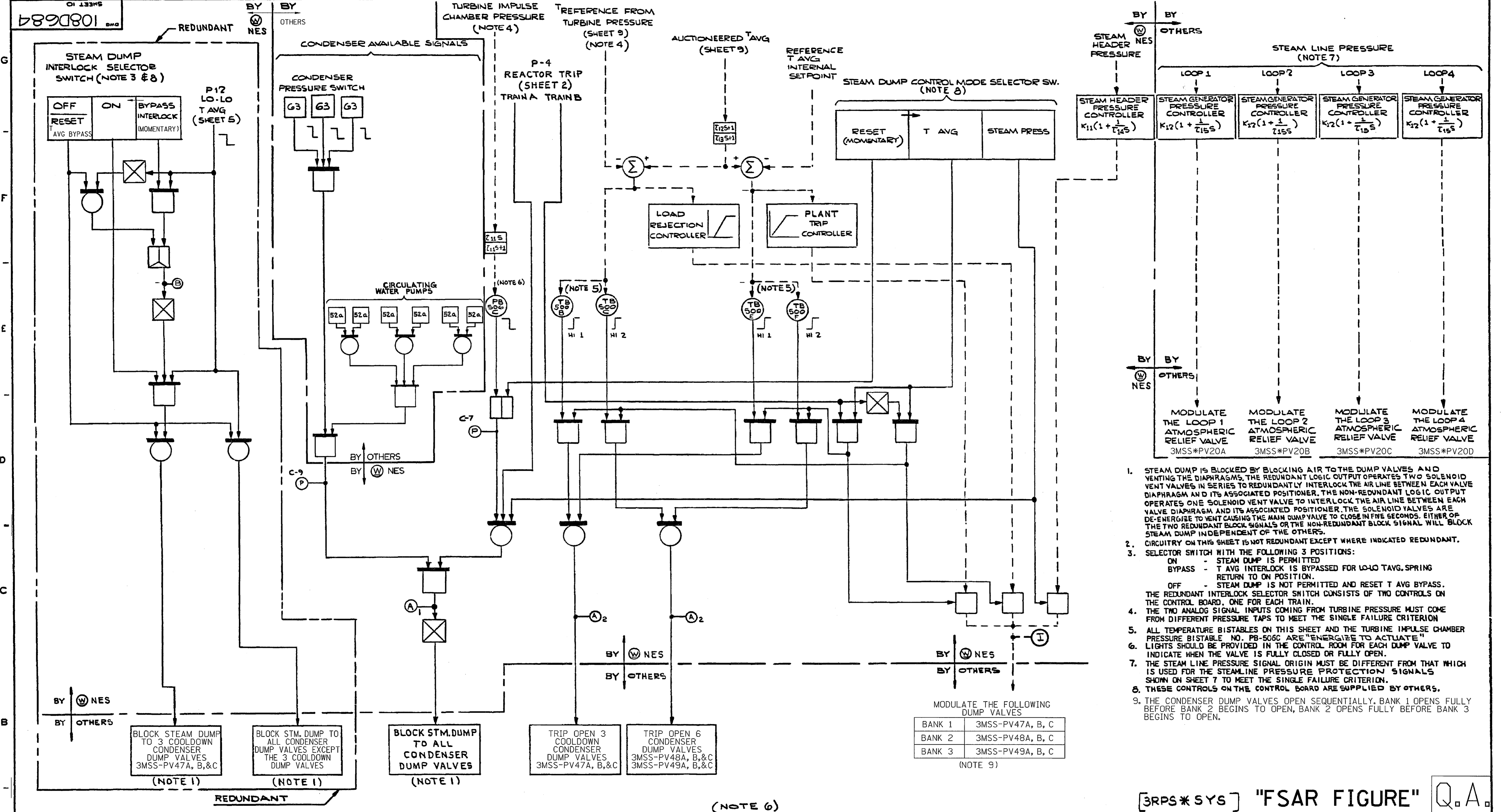
NUCLEAR DIVISION, PITTSBURGH, PA., U.S.A.

TITLE: NORTHEAST UTILITIES SERVICE CO
MILLSTONE NUCLEAR POWER STATION
UNIT 3 FUNCTIONAL DIAGRAMS
ROD CONTROLS - 4 ROD BLOCKS

SCALE: 108D684
SHEET - 9

DO NOT SCALE

REV. 74



- STEAM DUMP IS BLOCKED BY BLOCKING AIR TO THE DUMP VALVES AND VENTING THE DIAPHRAGMS. THE REDUNDANT LOGIC OUTPUT OPERATES TWO SOLENOID VENT VALVES IN SERIES TO REDUNDANTLY INTERLOCK THE AIR LINE BETWEEN EACH DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE NON-REDUNDANT LOGIC OUTPUT OPERATES ONE SOLENOID VENT VALVE TO INTERLOCK THE AIR LINE BETWEEN EACH VALVE DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE SOLENOID VALVES ARE DE-ENERGIZE TO VENT CAUSING THE MAIN DUMP VALVE TO CLOSE IN FIVE SECONDS. EITHER OF THE TWO REDUNDANT BLOCK SIGNALS OR THE NON-REDUNDANT BLOCK SIGNAL WILL BLOCK STEAM DUMP INDEPENDENT OF THE OTHERS.
- CIRCUITRY ON THIS SHEET IS NOT REDUNDANT EXCEPT WHERE INDICATED REDUNDANT.
- SELECTOR SWITCH WITH THE FOLLOWING 3 POSITIONS:
 - ON - STEAM DUMP IS PERMITTED
 - BYPASS - T AVG INTERLOCK IS BYPASSED FOR LO-LO TAVG. SPRING RETURN TO ON POSITION.
 - OFF - STEAM DUMP IS NOT PERMITTED AND RESET T AVG BYPASS.
 THE REDUNDANT INTERLOCK SELECTOR SWITCH CONSISTS OF TWO CONTROLS ON THE CONTROL BOARD, ONE FOR EACH TRAIN.
- THE TWO ANALOG SIGNALS COMING FROM TURBINE PRESSURE MUST COME FROM DIFFERENT PRESSURE TAPS TO MEET THE SINGLE FAILURE CRITERION
- ALL TEMPERATURE BISTABLES ON THIS SHEET AND THE TURBINE IMPULSE CHAMBER PRESSURE BISTABLE NO. PB-506C ARE "ENERGIZE TO ACTUATE"
- LIGHTS SHOULD BE PROVIDED IN THE CONTROL ROOM FOR EACH DUMP VALVE TO INDICATE WHEN THE VALVE IS FULLY CLOSED OR FULLY OPEN.
- THE STEAM LINE PRESSURE SIGNAL ORIGIN MUST BE DIFFERENT FROM THAT WHICH IS USED FOR THE STEAMLINE PRESSURE PROTECTION SIGNALS SHOWN ON SHEET 7 TO MEET THE SINGLE FAILURE CRITERION.
- THESE CONTROLS ON THE CONTROL BOARD ARE SUPPLIED BY OTHERS.
- THE CONDENSER DUMP VALVES OPEN SEQUENTIALLY. BANK 1 OPENS FULLY BEFORE BANK 2 BEGINS TO OPEN, BANK 2 OPENS FULLY BEFORE BANK 3 BEGINS TO OPEN.

MODULATE THE FOLLOWING DUMP VALVES

BANK 1	3MSS-PV47A, B, C
BANK 2	3MSS-PV48A, B, C
BANK 3	3MSS-PV49A, B, C

(NOTE 9)

[3RPS * SYS] "FSAR FIGURE" Q.A.

NO. 108D684
REV. 006495
CHANGE

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
J	5-23-99	INCRP DCN'S DM3-00-0573-97, DM3-00-0682-98	DLW	RMV	JPP	JPP
H	12-1-93	AS BUILT PER DCR # M3-S-998-92 & INCRP. DCN # DM3-S-774-92	SM	JWL	JPP	JPP
G	10-3-86	DRAWING UPDATE	T.S.	E.C.	J.P.P.	J.P.P.

NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

12179-2472.011-001-010

OFFN	J. GERBER	9-77
ENGR.		
DES. ENG.	W. K. Patton	9-77
WPG. ENG.		
MTLL. ENG.		
APP.		
APP.		
APP.		
OPTICAL		

Westinghouse Electric Corporation

NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A.

TITLE: NORTHEAST UTILITIES SERVICE CO. MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS STEAM DUMP CONTROL

SCALE: NONE

DIMENSIONS IN INCHES: 108D684

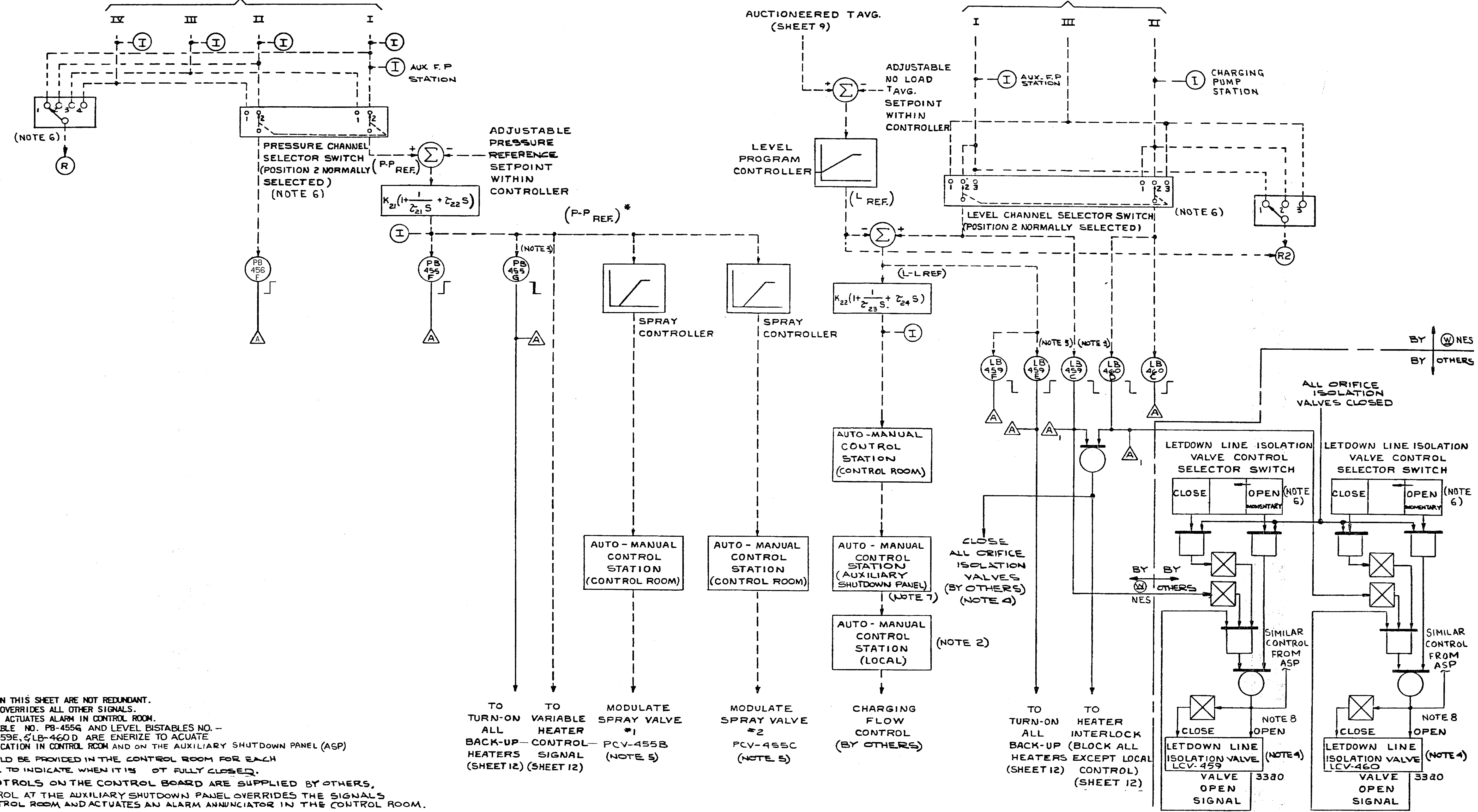
SHEET 10

DO NOT SCALE

SUB 123A86

PRESSURIZER PRESSURE CHANNELS

PRESSURIZER LEVEL CHANNELS



- NOTES:
1. ALL CIRCUITS ON THIS SHEET ARE NOT REDUNDANT.
 2. LOCAL CONTROL OVERRIDES ALL OTHER SIGNALS. LOCAL OVERRIDE ACTUATES ALARM IN CONTROL ROOM.
 3. PRESSURE BISTABLE NO. PB-455G AND LEVEL BISTABLES NO. - LB-459C, LB-459E, LB-460D ARE ENERGIZE TO ACUATE OPEN/SHUT INDICATION IN CONTROL ROOM AND ON THE AUXILIARY SHUTDOWN PANEL (ASP)
 4. A LIGHT SHOULD BE PROVIDED IN THE CONTROL ROOM FOR EACH SPRAY VALVE TO INDICATE WHEN IT IS NOT FULLY CLOSED.
 5. THESE CONTROLS ON THE CONTROL BOARD ARE SUPPLIED BY OTHERS.
 6. LOCAL CONTROL AT THE AUXILIARY SHUTDOWN PANEL OVERRIDES THE SIGNALS FROM THE CONTROL ROOM AND ACTUATES AN ALARM ANNUNCIATOR IN THE CONTROL ROOM.
 7. A REMOTE/LOCAL CONTROL TRANSFER SWITCH IS LOCATED ON A LOCAL TRANSFER SWITCH PANEL (TSP).

NO. 108D684
D. 906495
CHANGE

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

NO.	DATE	REVISIONS	P.A.#
10-29-98	10-29-98	INCORP DCN'S DM3-00-0303-98 & DM3-00-0682-98	
10-3-86	10-3-86	DRAWING UPDATE	

12179-2472.011-001-011

Q.A

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
H	10-29-98	INCORP DCN'S DM3-00-0303-98 & DM3-00-0682-98	RMV	W	DEB	DEB
G	10-3-86	DRAWING UPDATE	T.S.	P.E.	R	P.D.

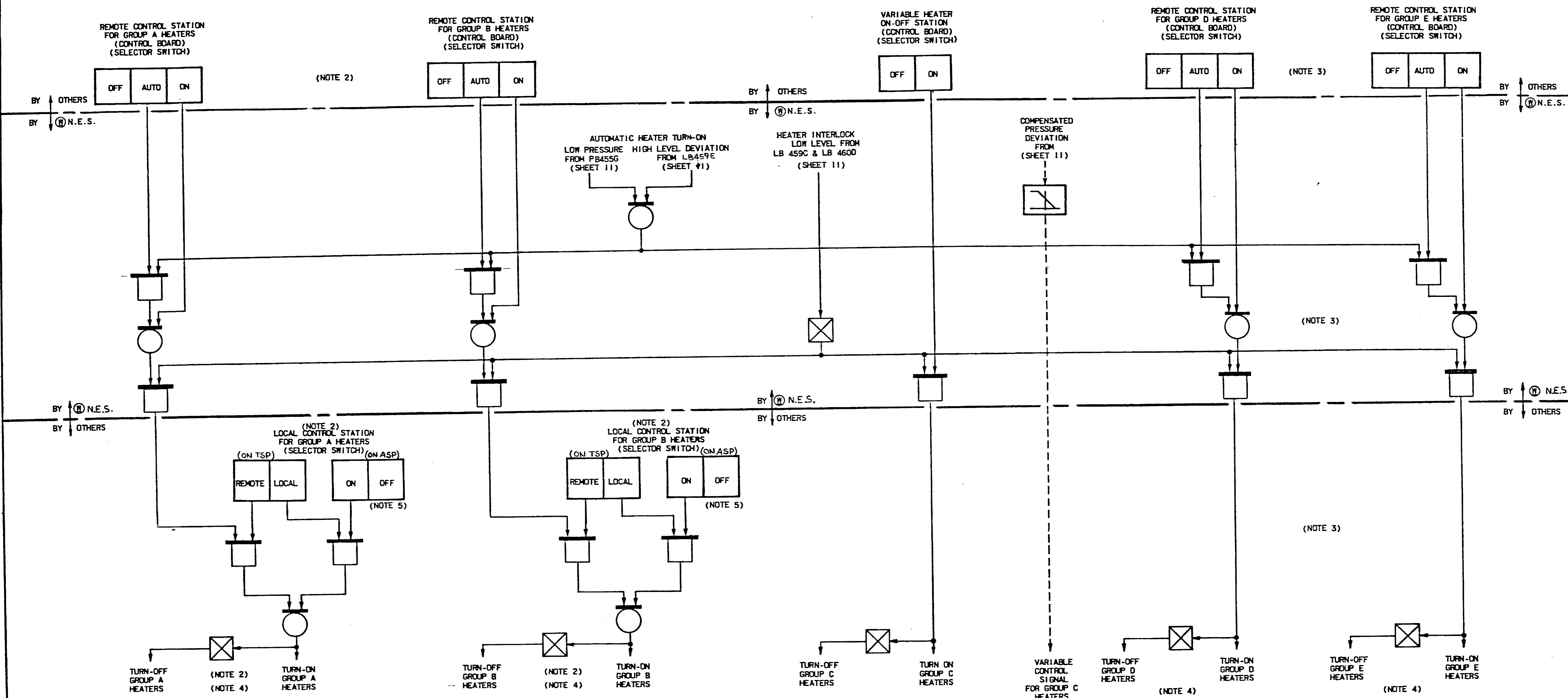
[3RPS * SYS] "FSAR FIGURE"

DFTM.	J. GERBER	3-7-92
CHKR.		
DES. ENG.	W. Patton	7-2-92
MFG. ENG.		
INT'L. ENG.		
APP.		
APP.		
APP.		
APP.		
APP.		

Westinghouse Electric Corporation
ATOMIC POWER DIV., PITTSBURGH, PA., U.S.A.
TITLE: NORTHEAST UTILITIES SERVICE CO
MILLST NE NUCLEAR POWER STATION
UNIT 3 FUNCTIONAL DIAGRAMS
PRESSURIZER PRESSURE & LEVEL CONTROL

SCALE: ~
DIMENSIONS IN INCHES

108D684
SHEET 11
505 12395



- NOTES:
1. ALL CIRCUITS ON THIS SHEET ARE NOT REDUNDANT.
 2. GROUP A AND GROUP B HEATERS MUST BE ON SEPARATE VITAL POWER SUPPLIES WITH THE LOCAL CONTROL SEPARATED SO THAT ANY SINGLE FAILURE DOES NOT DEFEAT BOTH.
 3. THE NUMBER OF BACK-UP HEATER GROUPS IS TYPICAL. THE ACTUAL NUMBER OF GROUPS MAY DIFFER DEPENDING ON ELECTRICAL LOADING REQUIREMENTS.
 4. BACK-UP HEATER STATUS INDICATION IN CONTROL ROOM.
 5. PRECAUTIONS SHOULD BE TAKEN TO AVOID MANUAL HEATER OPERATION, WHICH WOULD CAUSE HEATER DAMAGE, IF THE WATER LEVEL UNCOVERS THE HEATERS.

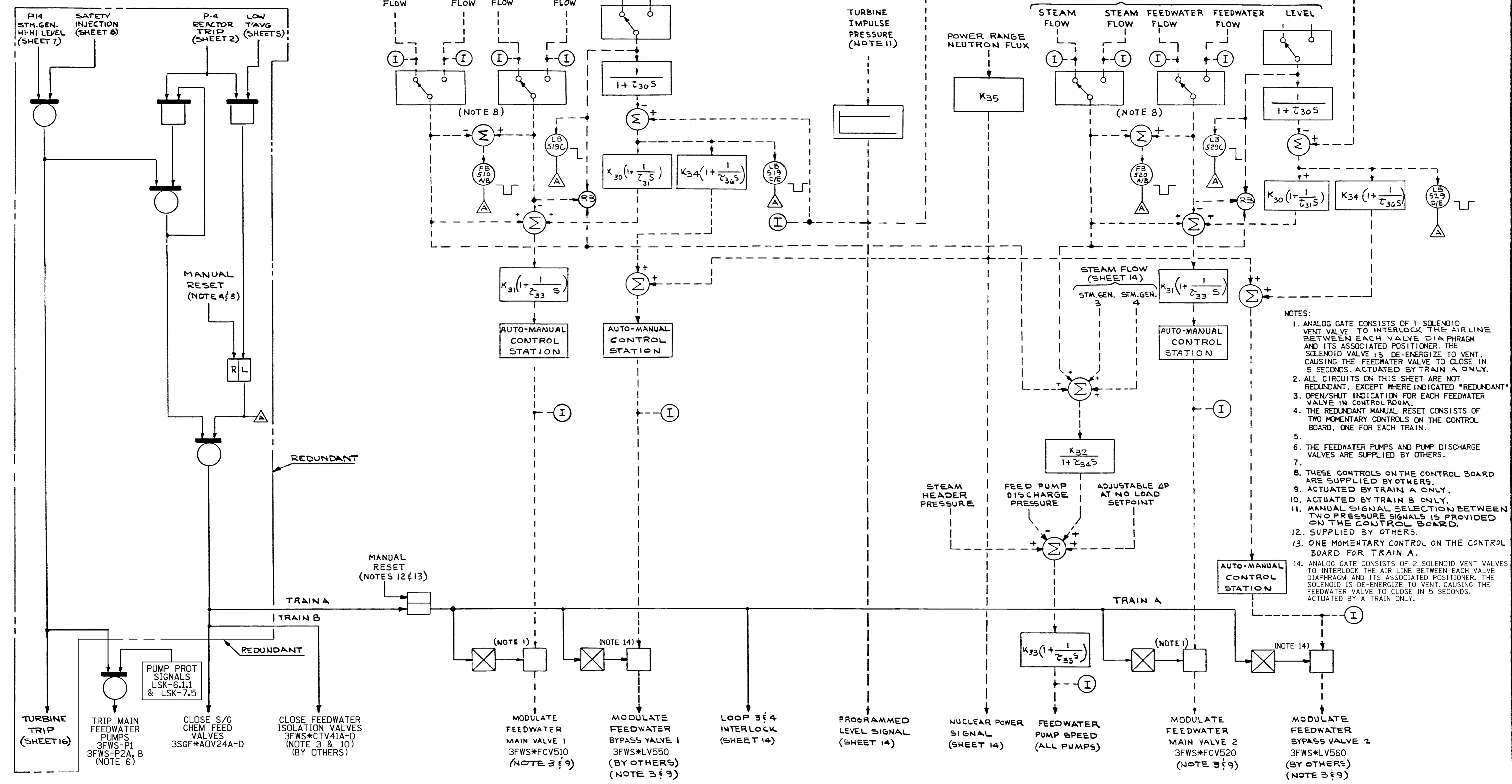
"FSAR FIGURE" Q.A.

1	CHANGE
90	NEU-300
90	906495

12179-2472.011-001-012

NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.			
WF	P.A.#	NO.	DATE
		F	5-23-99
		INCORP DCN DM3-00-0682-98	
		RMV	PC
		BY	CHK. CORR. APP.

REVISIONS DURING CONSTRUCTION		P.A.#
[RPS * SYS]		
WESTINGHOUSE Electric Corporation		
NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A.		
TITLE: NORTH EAST UTILITIES SERVICE CO. MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAM PRESSURIZER HEATER CONTROL		
SCALE	108D684	
DIMENSIONS IN INCHES	SHEET - 12	
DO NOT SCALE	SHEET 3	



- NOTES:
1. ANALOG GATE CONSISTS OF 1 SOLENOID VENT VALVE TO INTERLOCK THE AIR LINE BETWEEN EACH VALVE DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE SOLENOID VALVE IS DE-ENERGIZE TO VENT, CAUSING THE FEEDWATER VALVE TO CLOSE IN 5 SECONDS. ACTUATED BY TRAIN A ONLY.
 2. ALL CIRCUITS ON THIS SHEET ARE NOT REDUNDANT, EXCEPT WHERE INDICATED "REDUNDANT".
 3. OPEN/SHUT INDICATION FOR EACH FEEDWATER VALVE IN CONTROL ROOM.
 4. THE REDUNDANT MANUAL RESET CONSISTS OF TWO MOMENTARY CONTROLS ON THE CONTROL BOARD, ONE FOR EACH TRAIN.
 - 5.
 6. THE FEEDWATER PUMPS AND PUMP DISCHARGE VALVES ARE SUPPLIED BY OTHERS.
 - 7.
 8. THESE CONTROLS ON THE CONTROL BOARD ARE SUPPLIED BY OTHERS.
 9. ACTUATED BY TRAIN A ONLY.
 10. ACTUATED BY TRAIN B ONLY.
 11. MANUAL SIGNAL SELECTION BETWEEN TWO PRESSURE SIGNALS IS PROVIDED ON THE CONTROL BOARD.
 12. SUPPLIED BY OTHERS.
 13. ONE MOMENTARY CONTROL ON THE CONTROL BOARD FOR TRAIN A.
 14. ANALOG GATE CONSISTS OF 2 SOLENOID VENT VALVES TO INTERLOCK THE AIR LINE BETWEEN EACH VALVE DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE SOLENOID IS DE-ENERGIZE TO VENT, CAUSING THE FEEDWATER VALVE TO CLOSE IN 5 SECONDS. ACTUATED BY A TRAIN ONLY.

NO. NEW-300
D 906995
CHANGE

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
K	1-20-12	INCORP DCN DM3-00-0128-11 PER DUR 12-800034	JCV	DLW	-	DLW
J	5-23-99	INCORP DCN DM3-00-0682-98	RMV	DLW	DED	DED
H	12-30-97	INCORP DCN DM3-00-1611-96	RMV	WSP	AJS	DED
G	10-3-86	DRAWING UPDATE	T.S.	P.C.	K	D

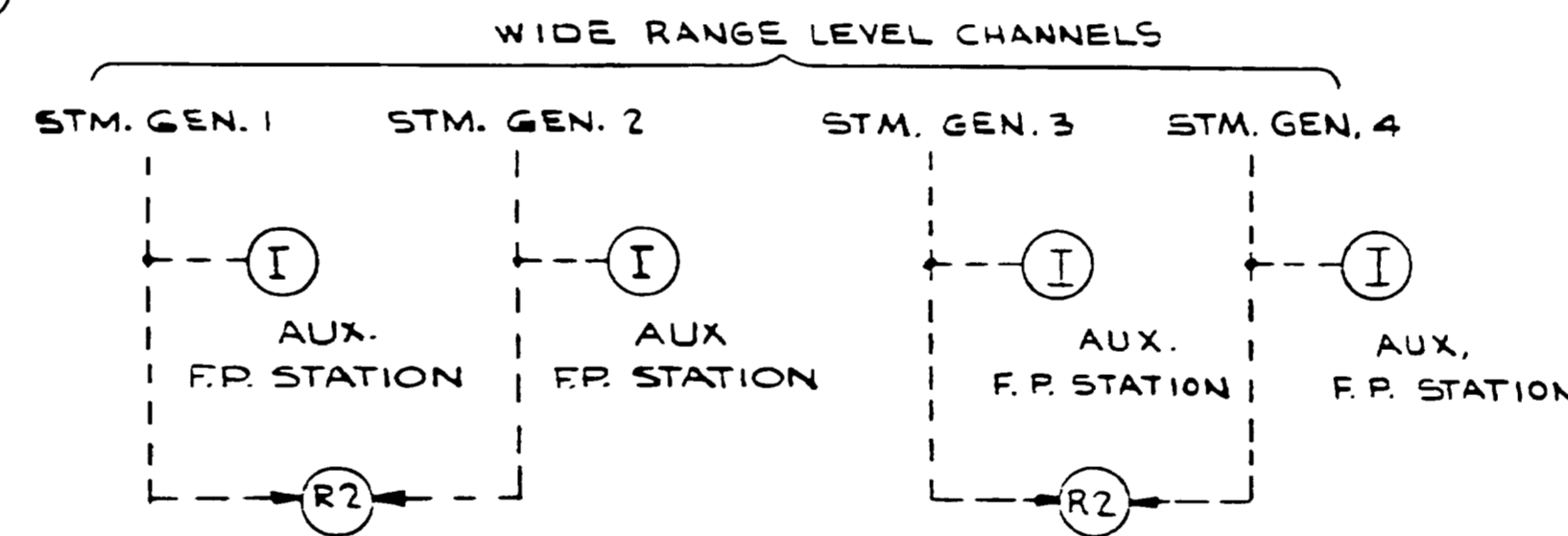
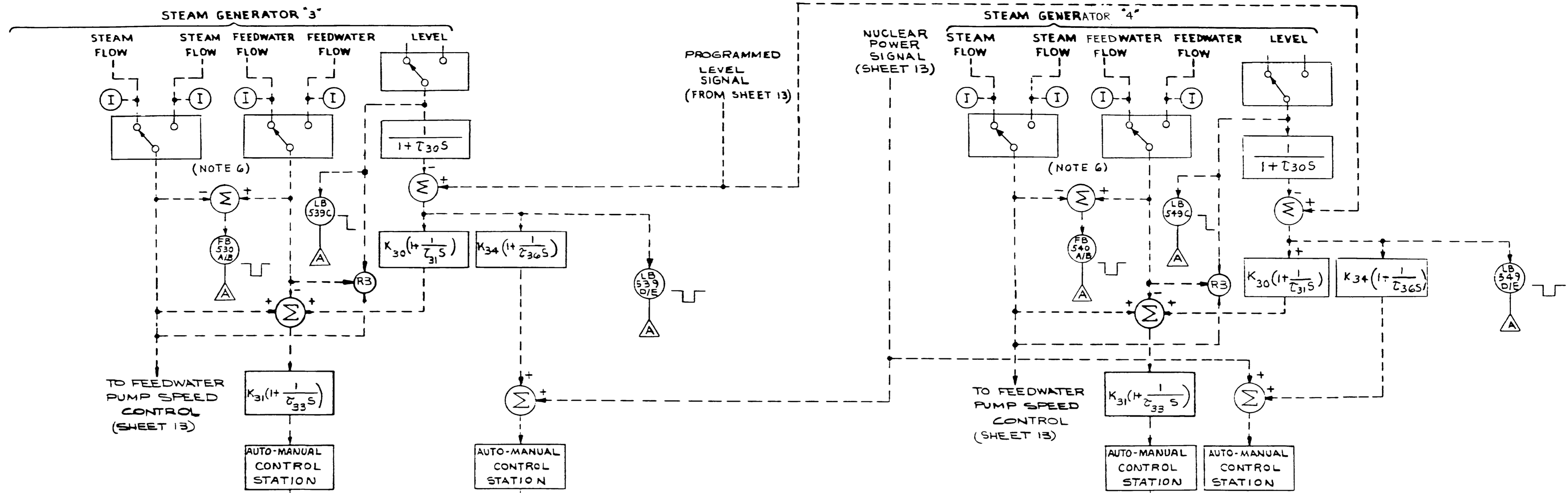
12179-2472.011-001-013

[3RPS * SYS]

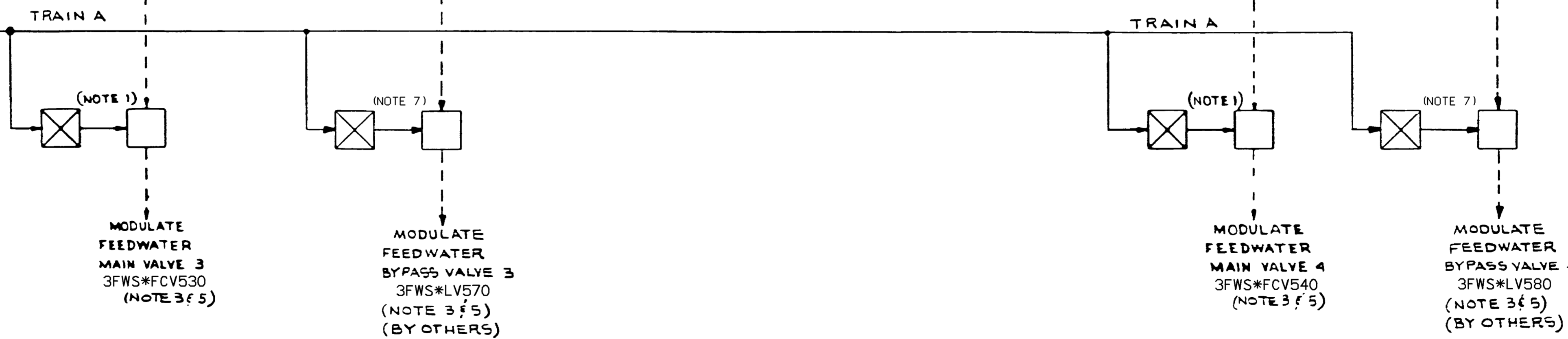
"FSAR FIGURE" Q.A.

DATE	1-20-12	BY	J. GERBER
CHKD.			
DES. ENG.			
APP.			
SCALE	108D684		
DIMENSIONS IN INCHES	SHEET 13		
DO NOT SCALE	SUB 2895		

LOOP 3 & 4 INTERLOCK (SHEET 13) TRAIN A



- NOTES:
1. ANALOG GATE CONSISTS OF 1 SOLENOID VENT VALVE TO INTERLOCK THE AIR LINE BETWEEN EACH VALVE DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE SOLENOID VALVE IS DE-ENERGIZE TO VENT, CAUSING THE FEEDWATER VALVE TO CLOSE IN 5 SECONDS. ACTUATED BY TRAIN A ONLY.
 2. ALL CIRCUITS ON THIS SHEET ARE NOT REDUNDANT, EXCEPT WHERE INDICATED "REDUNDANT".
 3. OPEN/SHUT INDICATION FOR EACH FEEDWATER VALVE IN CONTROL ROOM.
 - 4.
 5. ACTUATED BY TRAIN A ONLY.
 6. THESE CONTROLS ON THE CONTROL BOARD ARE SUPPLIED BY OTHERS.
 7. ANALOG GATE CONSISTS OF 2 SOLENOID VENT VALVES TO INTERLOCK THE AIR LINE BETWEEN EACH VALVE DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE SOLENOID IS DE-ENERGIZE TO VENT, CAUSING THE FEEDWATER VALVE TO CLOSE IN 5 SECONDS. ACTUATED BY A TRAIN ONLY.



"FSAR FIGURE"

Q.A.

REVISIONS DURING CONSTRUCTION	P.A.#

12179-2472.011-001-014

3RPS*SYS

NO.	DATE	REVISIONS	BY	CHK.	APP.
K	1-20-12	INCORP DCN DM3-00-0128-11 PER DUR 12-800034	JCV	DLW	DLW
J	5-23-99	INCORP DCN DM3-00-0682-98	RMV	DLW	DED
H	12-30-97	INCORP DCN DM3-00-1611-96	RMV	WSP	AJS
G	10/3/86	DRAWING UPDATE	F.D.	E.C.	K.P.

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

DESIGNED BY: J. GERBER
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 TITLE: NORTHEAST UTILITIES SERVICE C/S MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS FEEDWATER CONTROL & ISOLATION
 SCALE: ~
 SHEET 14
 108D684
 25212-39001 SH4015

NO. MEL-300
D 906-955
CHANGE

STEAM GENERATOR 1
2/4 LOW LOW LEVEL
(SHEET 7)

STEAM GENERATOR 2
2/4 LOW LOW LEVEL
(SHEET 7)

STEAM GENERATOR 3
2/4 LOW LOW LEVEL
(SHEET 7)

STEAM GENERATOR 4
2/4 LOW LOW LEVEL
(SHEET 7)

AMSAC ACTUATION
SIGNAL
(SHEET 7)

(NOTE 10)

BY N.E.S.

BY OTHERS

BY N.E.S.

BY OTHERS

BY N.E.S.

BY OTHERS

(SIS, LOP, CDA)
FROM EMERGENCY GENERATOR
LOAD SEQUENCER
(SHEET 8)

LOSS OF EMERGENCY
125V DC BUS (NOTE 11)

BY OTHERS

NOT REDUNDANT

NOT REDUNDANT

MANUAL CONTROL
CONTROL ROOM
(NOTE 6)

MANUAL CONTROL
LOCAL
(NOTES 2 & 6)

MOTOR DRIVEN
AUX. FEED PUMP
FEED VALVES
(NOTE 4)

MANUAL CONTROL
CONTROL ROOM
(NOTE 6)

MANUAL CONTROL
LOCAL
(NOTES 2 & 6)

TURBINE DRIVEN
AUX. FEED PUMP
SYSTEM VALVES
(NOTE 4)

MANUAL CONTROL
CONTROL ROOM

MANUAL CONTROL
LOCAL
(NOTE 2)

(I) (I)
C.R. LOCAL
TURBINE
SPEED
CONTROL

(NOTE 8)

MANUAL START
CONTROL ROOM

MANUAL START
LOCAL (NOTES 2 & 3)

MANUAL STOP
CONTROL ROOM

MANUAL STOP
LOCAL (NOTE 2 & 3)

NOTES:

1. TRAIN A CONTROLS 3FWA*PIA
TRAIN B CONTROLS 3FWA*PIB
2. LOCAL CONTROL OVERRIDES ALL OTHER SIGNALS
3. LOCAL OVERRIDE ACTUATES ALARM IN CONTROL ROOM.
4. OPEN/SHUT INDICATION IN CONTROL ROOM.
5. MOTOR OPERATING LIGHTS IN CONTROL ROOM.
6. INDIVIDUAL FOR EACH VALVE.
7. INDIVIDUAL FOR EACH PUMP.
8. THE TURBINE SPEED CONTROL IS TYPICAL. ACTUAL IMPLEMENTATION MAY NOT INCLUDE SPEED CONTROL.
9. THE PUMP START MAY BE DELAYED AND SEQUENCED IF THE EMERGENCY DIESEL POWER CAPABILITY IS LESS THAN THE TOTAL LOAD WITH ALL SYSTEMS STARTING. THE TIME DELAY, IF USED, MAY NOT EXCEED THE MAXIMUM STARTING TIME REQUIREMENTS FOR THIS SYSTEM..
10. THE AMSAC SIGNAL IS NOT REDUNDANT ITS SIGNAL IS DUPLICATED FOR INPUT TO EACH AUXILIARY FEEDWATER ACTUATION CIRCUIT ISOLATION DEVICES ARE REQUIRED BETWEEN THE NON-IE AMSAC CIRCUITS AND THE IE AUXILIARY FEEDWATER START CIRCUITS
11. LOSS OF 125VDC POWER TO EITHER OF THE TWO SOLENOIDS PER STEAM SUPPLY VALVE WILL OPEN THE STEAM SUPPLY VALVE RESULTING IN A TURBINE DRIVEN AUXILIARY FEED PUMP START. ONE SOLENOID IS POWERED FROM BATTERY 3BYS*BAT-1, THE OTHER FROM BATTERY 3BYS*BAT-2.

MANUAL START, CONTROL ROOM (NOTE 7)

MANUAL START, LOCAL (NOTES 2, 3 & 7)

MANUAL STOP, CONTROL ROOM (NOTE 7)

MANUAL STOP, LOCAL (NOTES 2, 3 & 7)

STOP START

MOTOR DRIVEN
AUX. FEED PUMPS
3FWA*PI A&B
(NOTES 1 & 5)

(NOTE 9)

CLOSE

STEAM GEN
BLOWDOWN SAMPLE
ISOL VALVES
3SSR*CTV19A-D

CLOSE

STEAM GEN
BLOWDOWN CONT
ISOL VALVES
3BDG*CTV22A-D

START STOP

TURBINE DRIVEN
AUX. FEED PUMP
3FWA*P2

[3RPS * SYS] "FSAR FIGURE" Q.A.

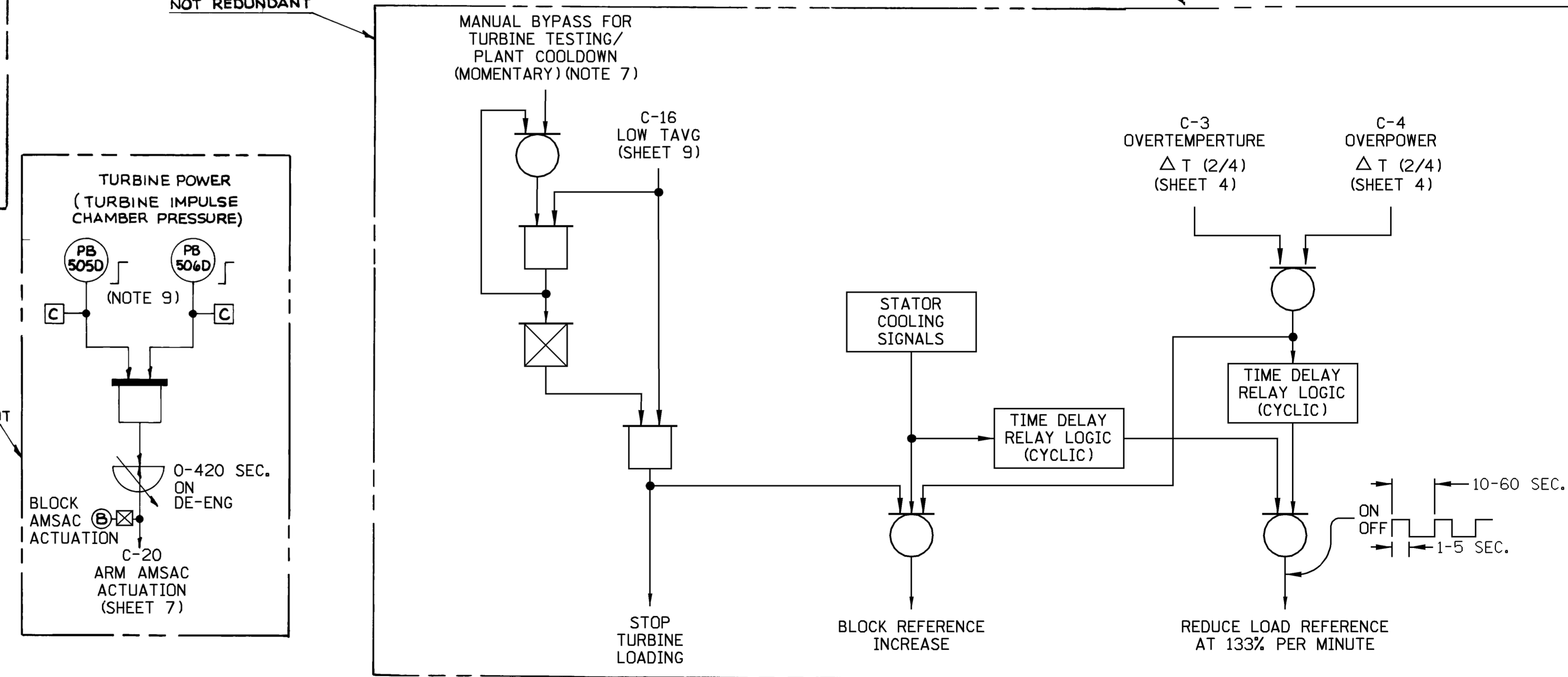
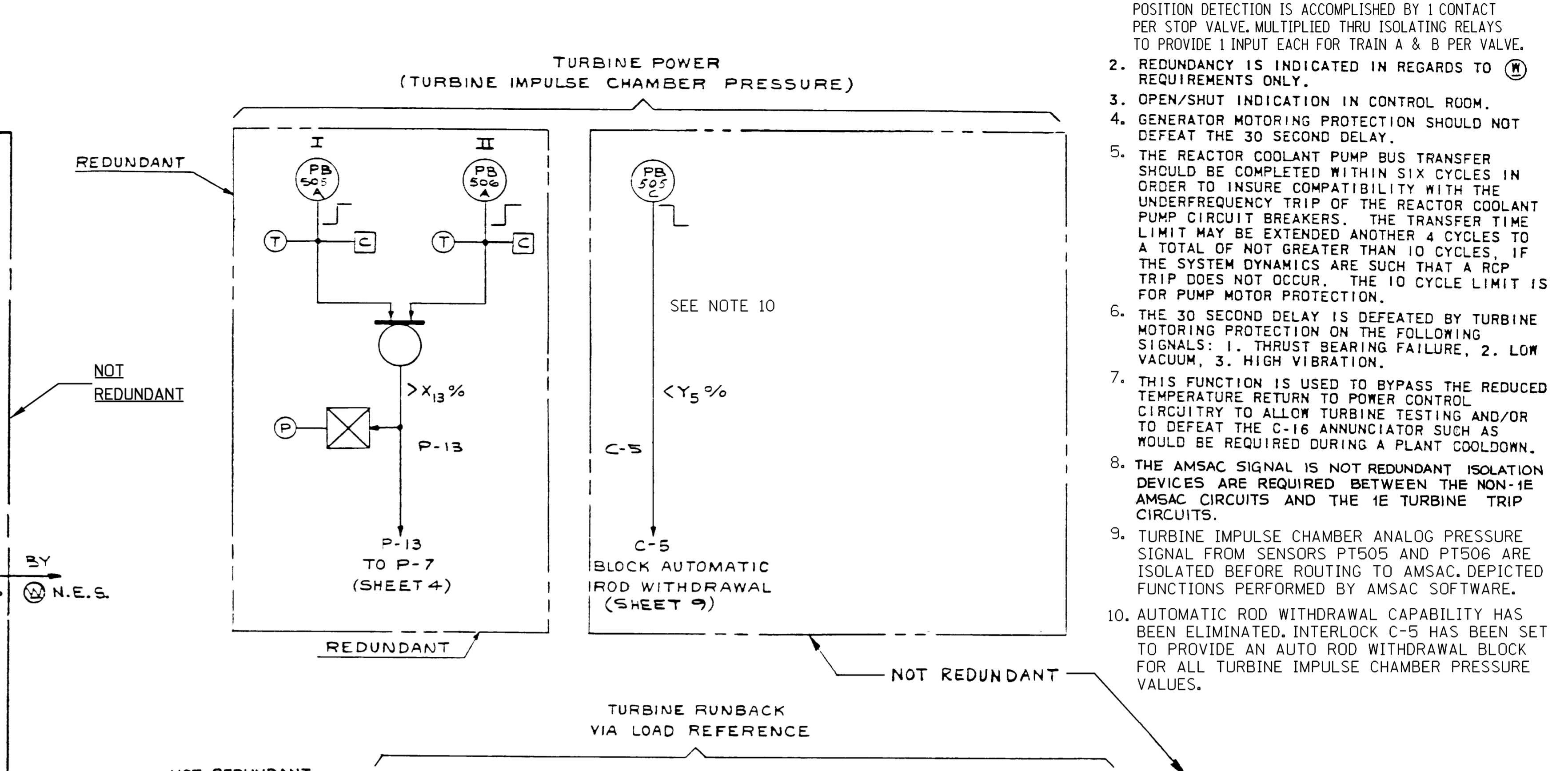
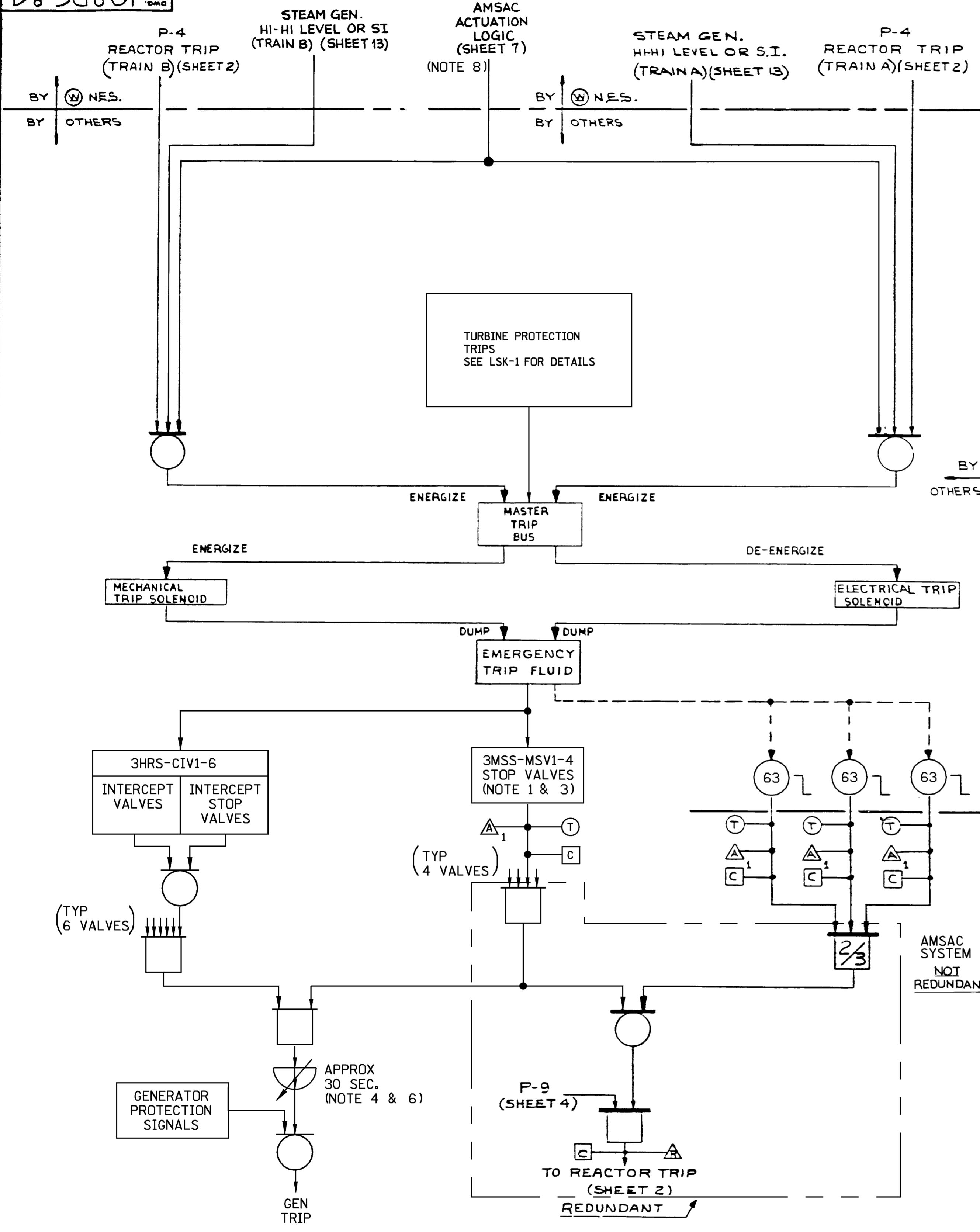
12179-2472.011-001-015

REV. 001	001-12/95	CHANGE
REV. 002	002-06/95	IT

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
L	3-12-03	INCRP DCN DM3-00-0581-99	SMH	WJA	DEJ	
K	5-23-99	INCRP DCN DM3-00-0682-98	RMV	DLW	DED	DED
J	5-18-97	INCRP DCN DM3-00-0284-97	DLW	WSP	BEB	DED

DATE	13-11-24	Westinghouse Electric Corporation
DRWR.	J. GERBER	ATOMIC POWER DIV PITTSBURGH, PA. U.S.A.
DES. ENG.	J. Patton	TITLE NORTHEAST UTILITIES SERVICE CO
MFG. ENG.		MILLSTONE NUCLEAR POWER STATION
MTLS. ENG.		UNIT 3 FUNCTIONAL DIAGRAMS
APP.		AUXILIARY FEEDWATER PUMPS STARTUP
SCALE		108D684
DIMENSIONS IN INCHES		SHEET-15
DO NOT SCALE		SL BY 2845



- NOTES:**
1. THESE SIGNALS INDICATE THE CLOSING OF THE STOP VALVES. POSITION DETECTION IS ACCOMPLISHED BY 1 CONTACT PER STOP VALVE, MULTIPLIED THRU ISOLATING RELAYS TO PROVIDE 1 INPUT EACH FOR TRAIN A & B PER VALVE.
 2. REDUNDANCY IS INDICATED IN REGARDS TO REQUIREMENTS ONLY.
 3. OPEN/SHUT INDICATION IN CONTROL ROOM.
 4. GENERATOR MOTORING PROTECTION SHOULD NOT DEFEAT THE 30 SECOND DELAY.
 5. THE REACTOR COOLANT PUMP BUS TRANSFER SHOULD BE COMPLETED WITHIN SIX CYCLES IN ORDER TO INSURE COMPATIBILITY WITH THE UNDERFREQUENCY TRIP OF THE REACTOR COOLANT PUMP CIRCUIT BREAKERS. THE TRANSFER TIME LIMIT MAY BE EXTENDED ANOTHER 4 CYCLES TO A TOTAL OF NOT GREATER THAN 10 CYCLES, IF THE SYSTEM DYNAMICS ARE SUCH THAT A RCP TRIP DOES NOT OCCUR. THE 10 CYCLE LIMIT IS FOR PUMP MOTOR PROTECTION.
 6. THE 30 SECOND DELAY IS DEFEATED BY TURBINE MOTORING PROTECTION ON THE FOLLOWING SIGNALS: 1. THRUST BEARING FAILURE, 2. LOW VACUUM, 3. HIGH VIBRATION.
 7. THIS FUNCTION IS USED TO BYPASS THE REDUCED TEMPERATURE RETURN TO POWER CONTROL CIRCUITRY TO ALLOW TURBINE TESTING AND/OR TO DEFEAT THE C-16 ANNUNCIATOR SUCH AS WOULD BE REQUIRED DURING A PLANT COOLDOWN.
 8. THE AMSAC SIGNAL IS NOT REDUNDANT ISOLATION DEVICES ARE REQUIRED BETWEEN THE NON-1E AMSAC CIRCUITS AND THE 1E TURBINE TRIP CIRCUITS.
 9. TURBINE IMPULSE CHAMBER ANALOG PRESSURE SIGNAL FROM SENSORS PT505 AND PT506 ARE ISOLATED BEFORE ROUTING TO AMSAC, DEPICTED FUNCTIONS PERFORMED BY AMSAC SOFTWARE.
 10. AUTOMATIC ROD WITHDRAWAL CAPABILITY HAS BEEN ELIMINATED. INTERLOCK C-5 HAS BEEN SET TO PROVIDE AN AUTO ROD WITHDRAWAL BLOCK FOR ALL TURBINE IMPULSE CHAMBER PRESSURE VALUES.

50 NEL-300
D 906795
CHANGE

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REVISIONS DURING CONSTRUCTION	P.A.#

NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
L	1-5-09	INCOMP DCN DM3-00-0190-07	JCV	MEL	-	DLW
K	5-23-99	INCOMP DCN DM3-00-0682-98	RMV	DLW	DED	DED
J	10-26-97	INCOMP DCN-DM3-00-0745-97	BFB	DLW	DED	DED

12179-2472.011-001-016

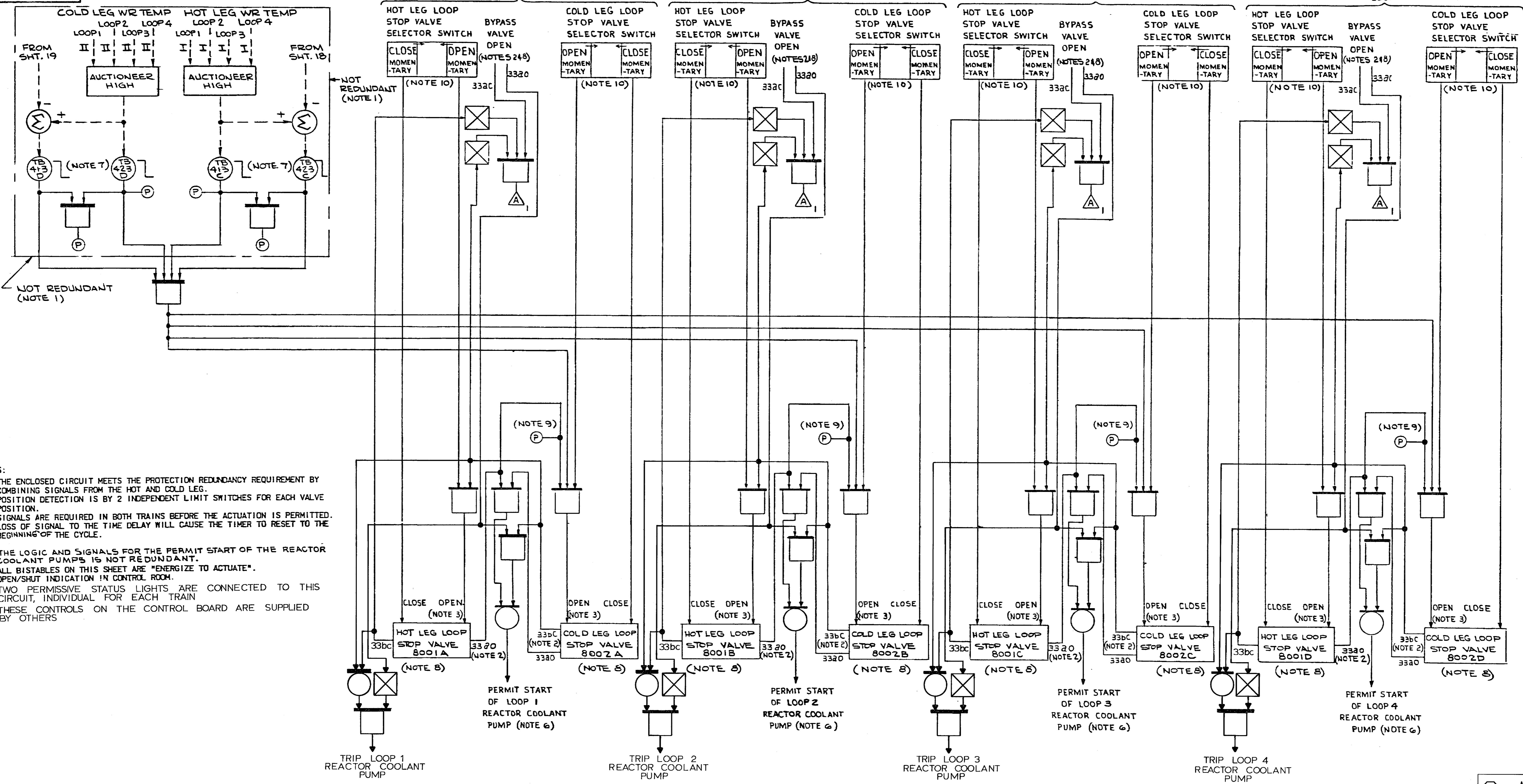
WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A.

DES. ENG. J. GERBER
MFG. ENG. J. L. PATTEN
MTLL. ENG.
APP.
APP.
APP.

SCALE: 108D684
DIMENSIONS IN INCHES: SHEET 16
SUB: 12245

DO NOT SCALE

"FSAR FIGURE" Q.A.



- NOTES:
1. THE ENCLOSED CIRCUIT MEETS THE PROTECTION REDUNDANCY REQUIREMENT BY COMBINING SIGNALS FROM THE HOT AND COLD LEG.
 2. POSITION DETECTION IS BY 2 INDEPENDENT LIMIT SWITCHES FOR EACH VALVE POSITION.
 3. SIGNALS ARE REQUIRED IN BOTH TRAINS BEFORE THE ACTUATION IS PERMITTED.
 4. LOSS OF SIGNAL TO THE TIME DELAY WILL CAUSE THE TIMER TO RESET TO THE BEGINNING OF THE CYCLE.
 6. THE LOGIC AND SIGNALS FOR THE PERMIT START OF THE REACTOR COOLANT PUMPS IS NOT REDUNDANT.
 7. ALL BISTABLES ON THIS SHEET ARE "ENERGIZE TO ACTUATE".
 8. OPEN/SHUT INDICATION IN CONTROL ROOM.
 9. TWO PERMISSIVE STATUS LIGHTS ARE CONNECTED TO THIS CIRCUIT, INDIVIDUAL FOR EACH TRAIN
 10. THESE CONTROLS ON THE CONTROL BOARD ARE SUPPLIED BY OTHERS

"FSAR FIGURE" Q.A.

REVISIONS DURING CONSTRUCTION	P.A.#

[3RPS*SYS]

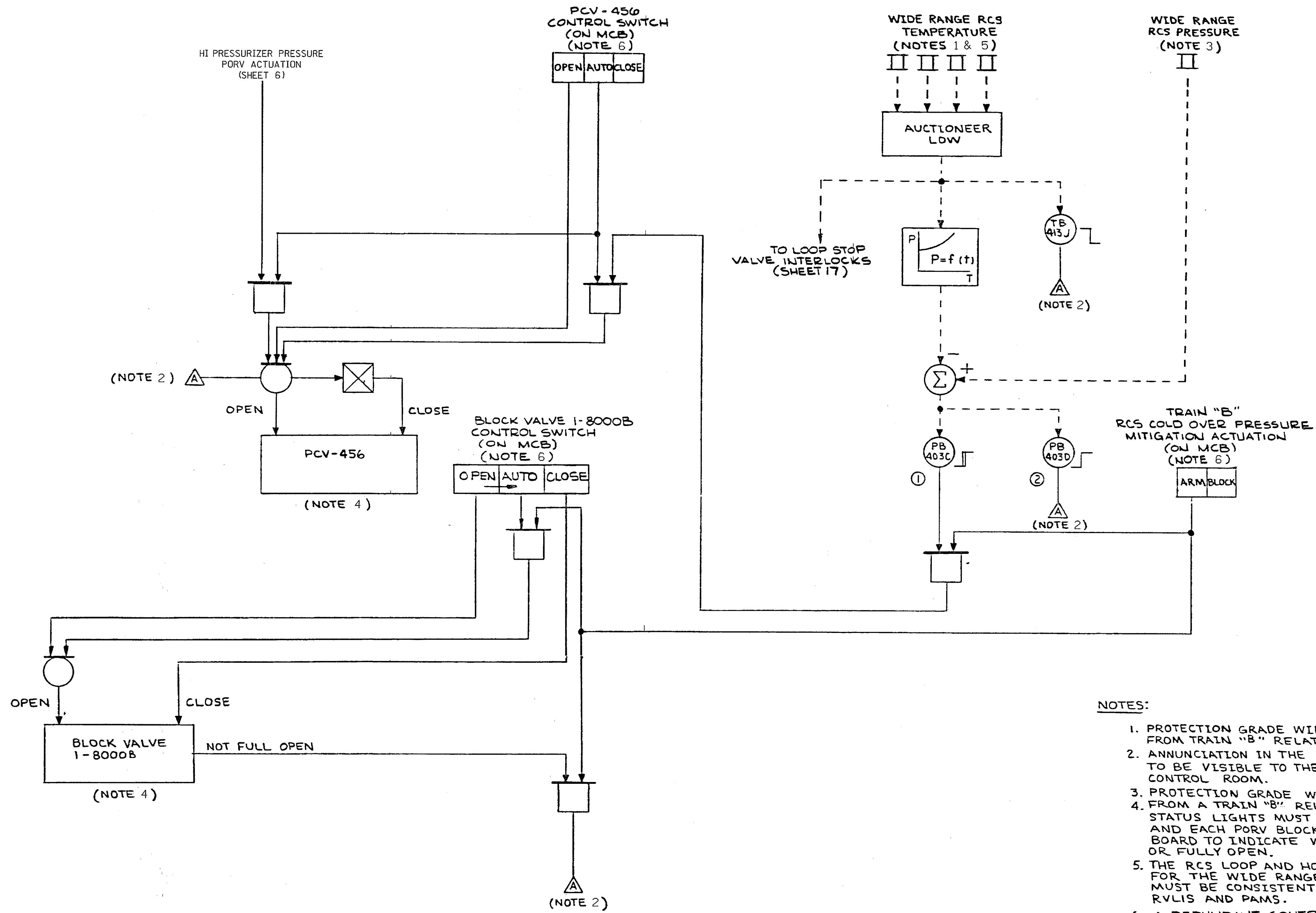
12179-2472.011-001-017

P.A.#	NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
F	5-23	99	INCORP DCN DM3-00-0682-98	RMV	W	Dej	Dej

CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

DFTM. J GERBER CHKR. DES. ENG. J. W. Patton MFG. ENG. MTLK. ENG. APP. APP. APP. DESG. 3009J REF. DWG.	3-7-72 7-27-72 1-21-72	Westinghouse Electric Corporation NUCLEAR ENERGY SYSTEMS, PITTSBURGH, PA., U.S.A. TITLE: NORTHEAST UTILITIES SERVICE CO. MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS LOOP STOP VALVE INTERLOCKS SCALE ~ 108D684 DIMENSIONS IN INCHES SHEET 17 DO NOT SCALE SUB 234
--	------------------------------	--

SO. NEU-300
D 906495
CHANGE



NOTES:

1. PROTECTION GRADE WIDE RANGE RCS TEMPERATURE SIGNALS FROM TRAIN "B" RELATED PROTECTION SETS.
2. ANNUNCIATION IN THE MAIN CONTROL ROOM IS REQUIRED TO BE VISIBLE TO THE OPERATOR AT THE MAIN CONTROL ROOM.
3. PROTECTION GRADE WIDE RANGE RCS PRESSURE SIGNAL FROM A TRAIN "B" RELATED PROTECTION SET.
4. STATUS LIGHTS MUST BE PROVIDED FOR EACH PORV AND EACH PORV BLOCK VALVE AT THE MAIN CONTROL BOARD TO INDICATE WHEN THE VALVE IS FULLY CLOSED OR FULLY OPEN.
5. THE RCS LOOP AND HOT LEG OR COLD LEG ASSIGNMENTS FOR THE WIDE RANGE RCS TEMPERATURE SIGNALS MUST BE CONSISTENT WITH THE REQUIREMENTS FOR RVLIS AND PAMS.
6. A REDUNDANT CONTROL SWITCH IS LOCATED ON THE AUXILIARY SHUTDOWN PANEL. A REMOTE/LOCAL CONTROL TRANSFER SWITCH IS LOCATED ON THE LOCAL TRANSFER SWITCH PANEL. SUPPLIED BY OTHERS.

Q.A.

12179-2472.011-001-018

[3RPS * SYS]

"FSAR FIGURE" (TRAIN B)

SO. NEU. 300	CHANGE
D 906954	
IT	

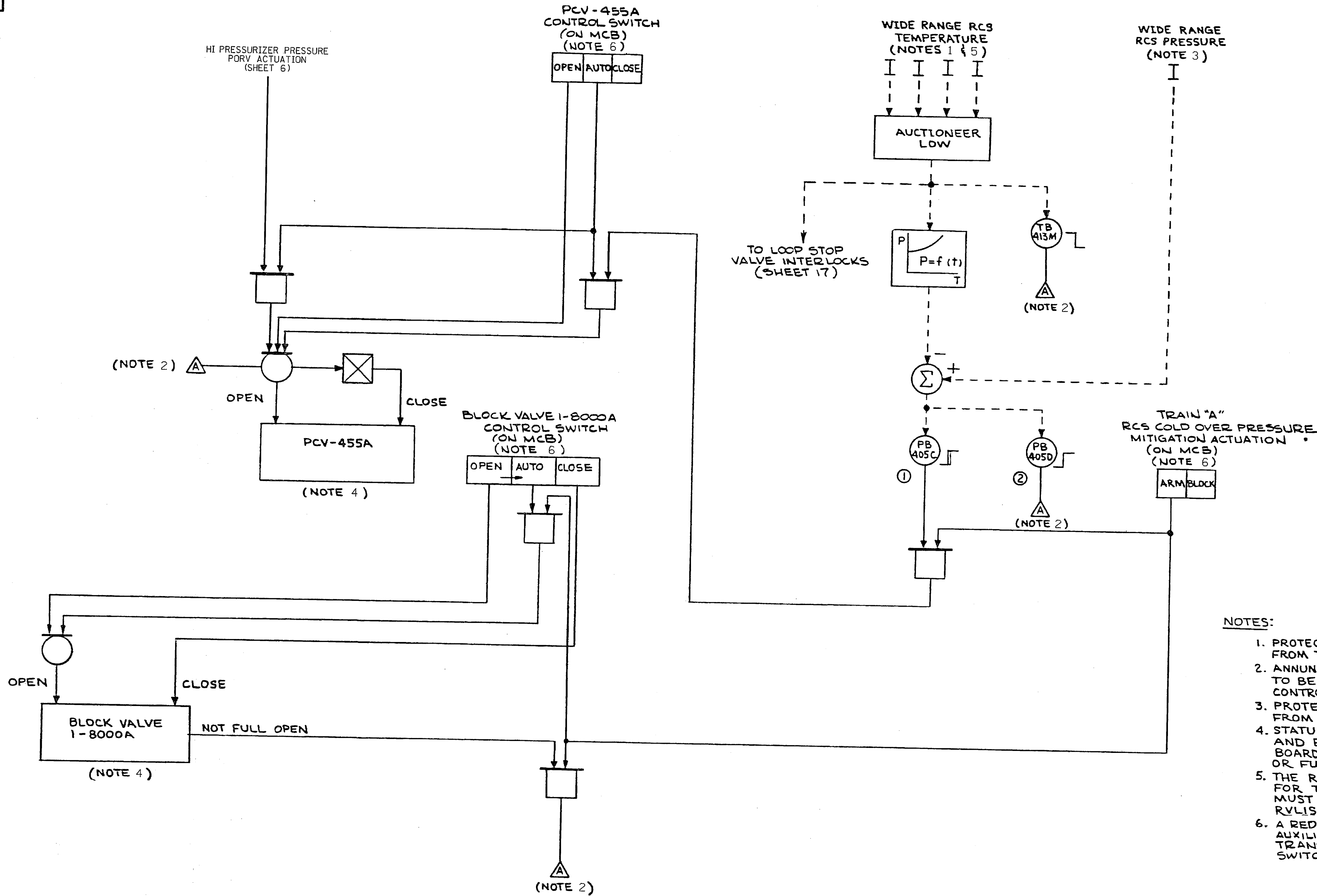
CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

REVISIONS DURING CONSTRUCTION	P.A.#

P.A.#	NO.	DATE	REVISIONS	BY	CHK.	CORR.	APP.
D	10-24-86	INCORP DCN'S DM3-00-0303-98 & DM3-00-0682-98	RMV	W. J. B.	D. S.		
C	10-10-86	DRAWING UPDATE		T. S. E.	R. K.		D. S.

DRY	W. J. B.	11/28/81
CHKR		
DES ENG	R. E. S.	1/2/84
MFG ENG		
MTLS ENG		
APP	H. J. J.	12/1/84
APP		
OPTIC SURV	H. J. J.	12/1/84

Westinghouse Electric Corporation
 NUCLEAR ENGINEERING SYSTEMS, PITTSBURGH, PA. U.S.A.
 TITLE: NORTHEAST UTILITIES SERVICE CO. MILLSTONE NUCLEAR POWER STATION UNIT 3 FUNCTIONAL DIAGRAMS PRESSURIZER PRESSURE RELIEF SYS
 SCALE: 108D684 SHEET 19
 DIMENSIONS IN INCHES
 DO NOT SCALE SUB 234



- NOTES:**
1. PROTECTION GRADE WIDE RANGE RCS TEMPERATURE SIGNALS FROM TRAIN "A" RELATED PROTECTION SETS.
 2. ANNUNCIATION IN THE MAIN CONTROL ROOM IS REQUIRED TO BE VISIBLE TO THE OPERATOR AT THE MAIN CONTROL ROOM.
 3. PROTECTION GRADE WIDE RANGE RCS PRESSURE SIGNAL FROM A TRAIN "A" RELATED PROTECTION SET.
 4. STATUS LIGHTS MUST BE PROVIDED FOR EACH PORV AND EACH PORV BLOCK VALVE AT THE MAIN CONTROL BOARD TO INDICATE WHEN THE VALVE IS FULLY CLOSED OR FULLY OPEN.
 5. THE RCS LOOP AND HOT LEG OR COLD LEG ASSIGNMENTS FOR THE WIDE RANGE RCS TEMPERATURE SIGNALS MUST BE CONSISTENT WITH THE REQUIREMENTS FOR RVLIS AND PAMS.
 6. A REDUNDANT CONTROL SWITCH IS LOCATED ON THE AUXILIARY SHUTDOWN PANEL. A REMOTE / LOCAL TRANSFER SWITCH IS LOCATED ON THE LOCAL TRANSFER SWITCH PANEL. SUPPLIED BY OTHERS.

Q.A.

12179-2472.011-001-019 [3RPS * SYS] "FSAR FIGURE" (TRAINA)

1	CHANGE
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

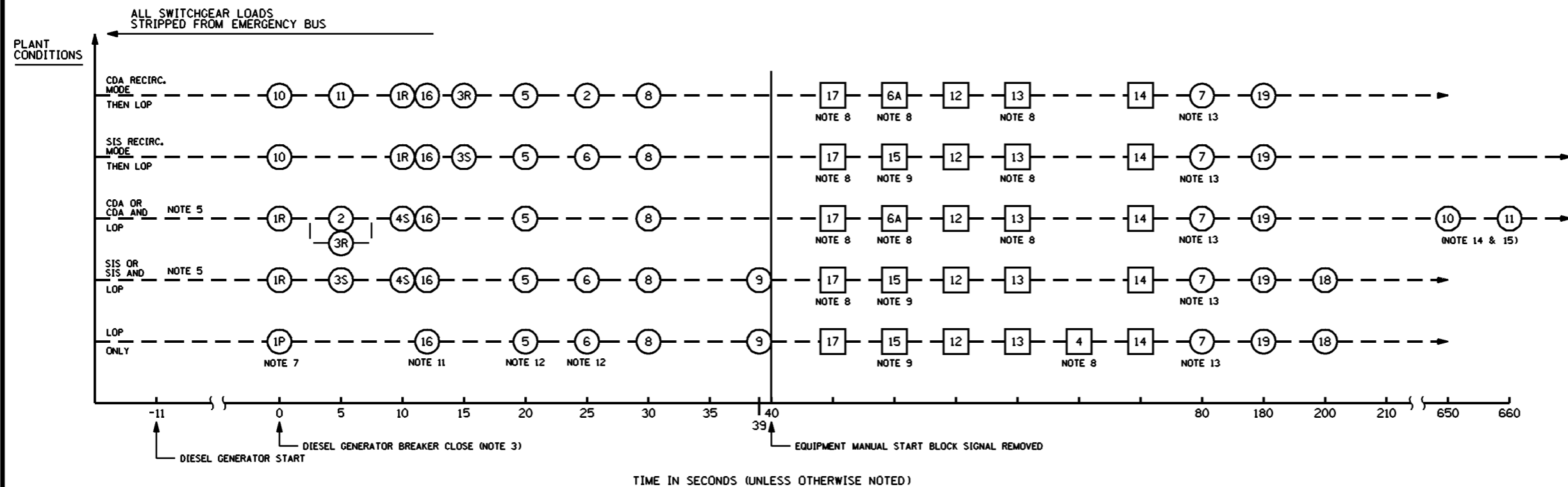
CAD
NOTE: MANUAL REVISIONS TO THIS DOCUMENT WHEN AS-BUILT ARE PROHIBITED.

NO.	DATE	REVISIONS	P.A.#

NO.	DATE	REVISIONS	BY	CHK	CORR	APP.
D	10-29-98	INCORP DCN'S DM3-00-0303-98 & DM3-00-0682-98	RMV	WY	DEB	DEB
C	10-10-86	DRAWING UPDATE	J.S.	E.	R.	D.D.

DRW	Jorge Field	11/83	Westinghouse Electric Corporation NU EAR ENERGY SYSTEMS PITTSBURGH PA U S A
CHAR			
DES EN	R. E. Ewald	11/83	
MFG ENG			
M*LS ENG			
APP	M. H. Low	1/87	
SCALE	108D684 SHEET 18		DO NOT SCALE
DWG SUPP	J.C. Veer	11-24-84	

DIESEL RATING CONTINUOUS: 4986 kW; 2000 HR: 5335 kW;
160 HR: 5486kW; 30 MIN: 5983 kW

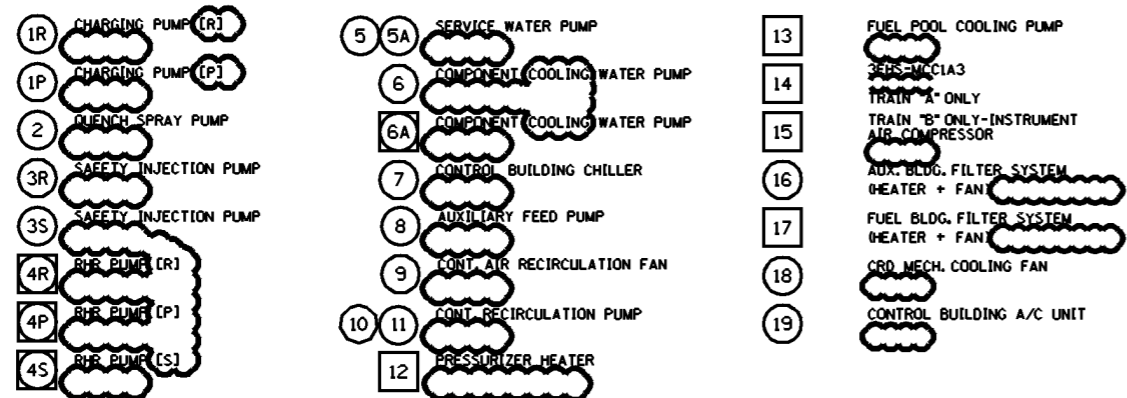


NOTES:

- SEQUENCED STARTS ARE AUTOMATICALLY INITIATED BY THE SEQUENCER FOR STEP LOADING OF EMERGENCY BUS DURING LOP CONDITIONS.
- MANUAL STARTS ARE INITIATED BY THE OPERATOR AS PLANT CONDITIONS REQUIRE THEM AFTER THE EQUIPMENT MANUAL START BLOCK SIGNAL IS REMOVED AT 40 SEC. DURING LOP CONDITIONS.
- WHEN THE DIESEL GENERATOR BREAKER CLOSURE (0 SEC) ALL SAFETY RELATED MOTOR CONTROL CENTERS ON THE EMERGENCY BUS WILL BE ENERGIZED. ALL SWITCHGEAR LOADS ARE STARTED IN ACCORDANCE WITH SEQUENCE CHART.
- THE MANUAL STARTS ARE ADMINISTRATIVELY CONTROLLED AND SOME REQUIRE BLOCKING SIGNAL RESETS IN ADDITION TO THE AUTOMATIC EQUIPMENT MANUAL START BLOCK SIGNAL REMOVED.
- WHENEVER A SIS OR CDA OCCURS WITHOUT A LOP ALL REQUIRED EQUIPMENT IS ENERGIZED WITHOUT SEQUENCING DELAYS EXCEPT CONTAINMENT RECIRCULATION PUMP (CDA ONLY).
- MINOR ADDITIONAL EQUIPMENT CONTROLLED BY THE SEQUENCER NOT SHOWN ON LOADING CHART.
- THE CHARGING PUMPS ARE NOT STRIPPED FROM THE BUS AND DO NOT RECEIVE A START SIGNAL AFTER A LOP ONLY. THE CHARGING PUMP THAT WAS RUNNING WILL RESTART WHEN POWER IS RESTORED.
- NOT INCLUDED IN THE INITIAL CONDITIONS CUMULATIVE KW LOAD CALCULATIONS. EQUIPMENT IS LOADED LATER BY OPERATOR MANUAL ACTION. USE THIS SHEET WITH DWG. NO. 25212-39241 SHT'S 190 THRU 193.
- INSTRUMENT AIR COMPRESSOR INCLUDED IN LOAD SUMMARY FOR TRAIN "B". TRAIN "A" IS SHOWN ABOVE.
- TRAIN "A" LOADING IS GREATER THAN TRAIN "B" AND TRAIN "A" TIME LINE IS SHOWN ABOVE.
- AFTER CLOSURE OF THE DIESEL GENERATOR CIRCUIT BREAKER, THE SEQUENCER HAS A 10.0 SEC. TIME DELAY BEFORE INITIATING EQUIPMENT STARTING. BECAUSE OF A 10.0 SEC. (APPROX) DAMPER OPENING TIME, THE ACTUAL ENERGIZATION OF THE MOTOR OCCURS APPROXIMATELY 11 SECS. AFTER DG BREAKER CLOSURE. IF FAN A FAILS TO START FOR A LOP ONLY OR A LOP COINCIDENT WITH A CDA/SIS, FAN B WILL START AT 30 SECS. AFTER DG BREAKER CLOSURE.
- IF PUMP 1A FAILS TO START, 1C WILL START .5 SECOND LATER.
- ADDITIONAL INTERLOCKS AND PERMISSIVES, ASSOCIATED WITH THE CONTROL BUILDING CHILLER, WILL IMPACT THEIR ACTUAL START TIME. CONSIDERING THE SETPOINT AND TOLERANCES OF THE CHILLER PROGRAM TIMER AND CHILLED WATER PUMP TIMERS, THE ACTUAL START TIME OF THE CHILLER UNIT WILL BE BETWEEN 111 SECONDS AND 171 SECONDS AFTER DIESEL GENERATOR CIRCUIT BREAKER CLOSURE.
- CONTAINMENT RECIRC. PUMP P1A EGLS SEQUENCED START SIGNAL OCCURS AT 650 SECONDS BUT PUMP DOES NOT START UNTIL A COINCIDENT RWST LOW LOW LEVEL SIGNAL OCCURS (APPROX 33-69 MINUTES FOLLOWING CDA) SEE LSK-27-11J.
- CONTAINMENT RECIRC. PUMP PIC EGLS SEQUENCED START SIGNAL OCCURS AT 660 SECONDS BUT PUMP DOES NOT START UNTIL 10 SECONDS FOLLOWING A COINCIDENT RWST LOW LOW LEVEL SIGNAL (APPROX 33-69 MINUTES FOLLOWING CDA) SEE LSK-27-11K.

GLOSSARY

- A - "A" TRAIN EQUIPMENT
- P - OPERATING POINT VALUE
- R - RUN OUT VALUE
- S - SHUT OFF HEAD VALUE



FSAR FIGURE

		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
		TITLE MILLSTONE POWER STATION-UNIT NO.3 EMERGENCY GENERATOR LOAD SEQUENCING [3EGS*EG-A/B]	
REVISION DESCRIPTION (SIGNATURES ON FILE) & DUR 15-800333		CAD NO: C39241189.DGN	
REVISED PER ETE-CEE-2015-1001 & DUR 15-800333		DRAWING NO: 25212-39241	
DSGN JCV		SCALE: NONE	
UNLESS OTHERWISE NOTED		SH 189	

Table (1A) LOP, Loss of Power Only - 3EGS*EG-A[0] - EDG-A

Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1A/C at Opr Point + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,441	63	1,504
S2	Starts 3HVR*FN6A + Power 3HVR*FLT1A	261	-	1,766
S3	Starts one 3SWP*P1A/C (C started)	484	-	2,250
S4	Starts one 3CCP*P1A/C [P]	447	-	2,696
S5	Starts 3FWA*P1A	470	-	3,166
S6	Starts 3HVU-FN1A	151	-	3,316
Manual-LR	Start both 3HVR*FN10A1/A2 + Power 3HVR*FLT2A - MOV Inrush load	241	(63)	3,494
Manual	Power 3RCS*H1A	383	-	3,877
Manual	Start 3SFC*P1A	97	-	3,974
Manual	Power 3EHS-MCC1A3	257	-	4,230
S7	Starts 3HVK*CHL1A	245	-	4,476
S8	Starts 3HVC*ACU2A	61	-	4,537
S9	Starts 3HVU-FN2A	121	-	4,658
Manual	Start 3RHS*P1A [P] at Aprox 6 Hrs	352	-	5,010
LR	Secure 3FWA*P1A at Aprox 16 Hrs	-	(470)	4,541
	Maximum EDG Load			5,010

Table (1B) LOP-SIS-SEC, Small Steam or Feedwater Line Break - Secondary Accident - 3EGS*EG-A[0] - EDG-A

Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1A/C at Runout + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,553	63	1,616
S2	Starts 3SIH*P1A[S]	180	-	1,796
S3	Starts 3RHS*P1A[S] + 3HVR*FN6A + Power 3HVR*FLT1A	517	-	2,313
S4	Starts one 3SWP*P1A/C (C started)	484	-	2,797
S5	Starts one 3CCP*P1A/C [P]	447	-	3,243
S6	Starts 3FWA*P1A	470	-	3,713
S7	Starts 3HVU-FN1A	151	-	3,864
Manual-LR	Power 3RCS*H1A - Remove MOV Inrush load	383	(63)	4,183
Manual	Start 3SFC*P1A	97	-	4,280
Manual	Power 3EHS-MCC1A3	257	-	4,536
S8	Starts 3HVK*CHL1A	245	-	4,782
S9	Starts 3HVC*ACU2A	61	-	4,843
S10	Start 3HVU-FN2A	121	-	4,964
LR	Load reduction 3CHS*P1A/C from Runout to Operating Point at Aprox 0.5 hrs	415	(527)	4,852
LR	Secure 3RHS*P1A[S] at Aprox 1 hr	-	(256)	4,596
LR	Secure 3SIH*P1A[S] at Aprox 1 hr	-	(180)	4,417
Manual	Start both 3HVR*FN10A1/A2 + Power 3HVR*FLT2A	241	-	4,658
Manual	Start 3RHS*P1A[P] at Aprox 6 hrs	352	-	5,010
LR	Secure 3FWA*P1A at Aprox 16 hrs	-	(470)	4,541
	Maximum EDG Load			5,010

Table (1C) LOP-CDA-SEC, Large Steam or Feedwater Line Break - Secondary Accident - 3EGS*EG-A[0] - EDG-A

Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1A/C at Runout + 1E MCC loads + Losses + MOV Inrush loads + Margin	1,553	63	1,616
S2	Starts 3SIH*P1A [R] + 3QSS*P3A [P]	659	-	2,275
S3	Starts 3RHS*P1A[S] + 3HVR*FN6A + Power 3HVR*FLT1A	517	-	2,792
S4	Starts one 3SWP*P1A	469	-	3,261
S5	Starts 3FWA*P1A	470	-	3,731
Manual-LR	Power 3RCS*H1A - Remove MOV Inrush loads	383	(63)	4,051
Manual	Power 3EHS-MCC1A3	257	-	4,307
S6	Starts 3HVK*CHL1A	245	-	4,552
S7	Starts 3HVC*ACU2A	61	-	4,614
LR	Load Reduction 3SIH*P1A from Runout [R] to Shut off Head [S] at Aprox 0.5 hr	180	(354)	4,439
LR	Load Reduction 3CHS*P1A/C from Runout [R] to Operating Point [P] at Aprox .5 hr	415	(527)	4,327
Manual	Start both 3HVR*FN10A1/A2 + Power 3HVR*FLT2A at Aprox 1 hr	241	-	4,568
LR	Trips 3RHS*P1A[S] at Aprox 80 min - 2.5 Hr (provides permissive to start 3RSS*P1A/C)	-	(256)	4,313
S8	Starts 3RSS*P1A at Aprox 80 min - 2.5 hrs	318	-	4,631
S9	Starts 3RSS*P1C at Aprox 80 min - 2.5 hrs	278	-	4,909
LR	Secure 3QSS*P3A [P] at Aprox 4 hrs	-	(305)	4,604
LR	Secure 3SIH*P1A[S] at Aprox 4 hr	-	(180)	4,425
LR	Secure both 3RSS*P1A/C at Aprox 4 hrs	-	(596)	3,828
Manual	Start 3CCP*P1A/C[CDA] at Aprox 4 hrs	297	-	4,125
Manual	Start 3SFC*P1A at Aprox 4 hrs	97	-	4,222
Manual	Start 2nd 3SWP*P1C + 3SWP*MOV102C at Aprox 4 hrs	484	6	4,712
Manual	Start 3RHS*P1A[P] at Aprox 6 hrs - Removed 3SWP*MOV102C load	352	(6)	5,058
LR	Secure 3FWA*P1A at Aprox 16 hrs	-	(470)	4,588
	Maximum EDG Load			5,058

NOTES:

- REFER TO DWG. NO. 25212-39241 SH 189 FOR LOAD STARTING SEQUENCE, 0 THRU 11 MINUTES.
- H₂ RECOMBINER NOT IN USE.
- CONTAINMENT RECIRCULATION PUMPS 3RSS*P1A/C STARTS AT RWST LOW LOW LEVEL.
- THE LOAD KW VALUES ARE ROUNDED AS A RESULT SOME DISPLAYED KW VALUES MAY SHOW APPROXIMATELY 1KW DIFFERENCE.
- THE KW LOAD VALUES ARE SHOWN AT 60HZ NOMINAL FREQUENCY.

GLOSSARY

- LR- INDICATES LOAD REDUCTION AUTO OR MANUAL.
 MANUAL - INDICATES THAT THE LOAD IS MANUALLY CONTROLLED.
 P - OPERATING POINT VALUE
 R - RUN OUT VALUE
 S - SHUT OFF HEAD VALUE
 KW LA +/- - KILOWATT LOAD ADJUSTMENT PLUS/(MINUS)
 KW+ - KILOWATT CUMULATIVE

FSAR FIGURE


		Dominion Nuclear Connecticut, Inc. Millstone Power Station Waterford, CT.	
TITLE: MILLSTONE POWER STATION-UNIT NO.3 EMERGENCY GENERATOR LONG TERM LOADING [3EGS*EG-A]			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: C:\fms32\mmplo\C39241190.DGN	
REVISED PER ETE-MP-2018-1020 & DUR 18-800068		DRAWING NO: 25212-39241	REV: 9
DSGN: DLW	SCALE: NONE	UNLESS OTHERWISE NOTED SH 190	

Table (1D) LOP-SIS-PRI, Small LOCA Conditions - Primary Accident - 3EGS*EG-A[0] - EDG-A				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1A/C at Runout + 1E MCC loads + Margin + Losses + MOV Inrush loads	1,553	63	1,616
S2	Starts 3SIH*P1A[S]	180	-	1,796
S3	Starts 3RHS*P1A[S] + 3HVR*FN6A + Power 3HVR*FLT1A	517	-	2,313
S4	Starts one 3SWP*P1A/C	484	-	2,797
S5	Starts one 3CCP*P1A/C[P]	447	-	3,243
S6	Starts 3FWA*P1A	470	-	3,713
S7	Starts 3HVU-FN1A	151	-	3,864
Manual-LR	Power 3RCS*H1A - Remove MOV Inrush loads	383	(63)	4,183
Manual	Start 3SFC*P1A	97	-	4,280
Manual	Power 3EHS-MCC1A3	257	-	4,536
S8	Starts 3HVK*CHL1A	245	-	4,782
S9	Starts 3HVC*ACU2A	61	-	4,843
S10	Starts 3HVU-FN2A	121	-	4,964
LR	Secure 3RHS*P1A[S] at Aprox 1 hr	-	(256)	4,708
LR	Secure 3SIH*P1A[S] at Aprox 1 hr	-	(180)	4,528
Manual	Start both 3HVR*FN10A1/A2 + Power 3HVR*FLT2A at Aprox 1 hrs	241	-	4,770
Manual	Start 3RHS*P1A[P] at Aprox 6 hrs	352	-	5,122
LR	Secure 3RCS*H1A	-	(383)	4,739
LR	Secure 3FWA*P1A at Aprox 16 hrs	-	(470)	4,269
Manual	H2 Recombiner at Aprox 24 hrs (3EHS*MCC1A4)	22	-	4,291
	Maximum EDG Load			5,122

Table (1E) LOP-CDA-PRI, DBA LOCA Conditions - Primary Accident - 3EGS*EG-A[0] - EDG-A				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1A/C at Runout + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,553	63	1,616
S2	Starts 3SIH*P1A[R] + 3QSS*P3A	659	-	2,275
S3	Starts 3RHS*P1A[R] + 3HVR*FN6A + Power 3HVR*FLT1A	641	-	2,916
S4	Starts one 3SWP*P1A	469	-	3,386
S5	Starts 3FWA*P1A	470	-	3,855
Manual-LR	Power 3EHS-MCC1A3 - Remove MOV load	257	(63)	4,048
S6	Starts 3HVK*CHL1A	245	-	4,294
S7	Starts 3HVC*ACU2A	61	-	4,355
Manual	Start both 3HVR*FN10A1/A2 + Power 3HVR*FLT2A	241	-	4,596
LR	Trips 3RHS*P1A[R] at Aprox 33 min - 68 min (provides permissive to start 3RSS*P1A/C)	-	(380)	4,216
S8	Starts 3RSS*P1A at Aprox 33 min - 69 min	318	-	4,534
S9	Starts 3RSS*P1C at Aprox 33 min - 69 min	278	-	4,812
LR	Secure 3QSS*P3A at Aprox 4 hrs	-	(305)	4,507
LR	Secure 3FWA*P1A at Aprox 4 hrs	-	(470)	4,038
Manual	Start 3SFC*P1A at Aprox 4 hrs	97	-	4,135
Manual	Start 2nd 3SWP*P1C + 3SWP*MOV102C	484	6	4,625
Manual	Start 3CCP*P1A/C [CDA] at Aprox 4 hrs - Removed 3SWP*MOV102C load	297	(6)	4,915
Manual	H2 Recombiner at Aprox 24 hrs (3EHS*MCC1A4)	22	-	4,938
	Maximum EDG Load			4,938

NOTE:
SEE 25212-39241 SH. 190 FOR NOTES.

GLOSSARY

LR- INDICATES LOAD REDUCTION AUTO OR MANUAL.
MANUAL - INDICATES THAT THE LOAD IS MANUALLY CONTROLLED.
P - OPERATING POINT VALUE
R - RUN OUT VALUE
S - SHUT OFF HEAD VALUE
KW LA +/- - KILOWATT LOAD ADJUSTMENT PLUS/(MINUS)
KW+ - KILOWATT CUMULATIVE

FSAR FIGURE


		Dominion Nuclear Connecticut, Inc.	
		Millstone Power Station	
		Waterford, CT.	
TITLE MILLSTONE POWER STATION-UNIT NO.3 EMERGENCY GENERATOR LONG TERM LOADING [3EGS*EG-A]			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: G:\ms32\mmplof\c\39241\91.DGN	
REVISED PER ETE-MP-2018-1020 & DUR 18-800068	DRAWING NO: 25212-39241	REV 9	
DSGN: DLW	SCALE: NONE	UNLESS OTHERWISE NOTED	SH 191

Table (1A) LOP, Loss of Power Only - 3EGS*EG-B[P] - EDG-B				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts 3CHS*P1B/C at Opr Point + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,438	70	1,507
S2	Starts 3HVR*FN6B + Power 3HVR*FLT1B	261	-	1,769
S3	Starts one 3SWP*P1B/D[P]	484	-	2,253
S4	Starts one 3CCP*P1B/C[P]	447	-	2,699
S5	Starts 3FWA*P1B	470	-	3,169
S6	Starts 3HVU-FN1B	151	-	3,320
Manual-LR	Start both 3HVR*FN10B1/10B2, 3IAS-C1B + Power 3HVR*FLT2B - Remove MOV Inrush loads	374	(70)	3,624
Manual	Power 3RCS*H1B	383	-	4,007
Manual	Start 3SFC*P1B	97	-	4,103
S7	Starts 3HVK*CHL1B	245	-	4,348
S8	Starts 3HVC*ACU2B	61	-	4,410
S9	Starts 3HVU-FN2B	121	-	4,531
Manual	Start 3RHS*P1B[P]	352	-	4,883
LR	Secure 3FWA*P1B at Aprox 16 hrs	-	(470)	4,413
	Maximum EDG Load			4,883

Table (1B) LOP-SIS-SEC, Small Steam or Feedwater Line Break - Secondary Accident - 3EGS*EG-B[P] - EDG-B				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts 3CHS*P1B/C at Runout + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,581	70	1,651
S2	Starts 3SIH*P1B[S]	180	-	1,831
S3	Starts 3RHS*P1B[S] + 3HVR*FN6B + Power 3HVR*FLT1B	517	-	2,348
S4	Starts one 3SWP*P1B/D	484	-	2,832
S5	Starts one 3CCP*P1B/C[P]	447	-	3,278
S6	Starts 3FWA*P1B	470	-	3,748
S7	Starts 3HVU-FN1B	151	-	3,899
Manual-LR	Start 3IAS-C1B, Power 3RCS*H1B - Remove MOV Inrush load	516	(70)	4,345
Manual	Start 3SFC*P1B	97	-	4,441
S8	Starts 3HVK*CHL1B	245	-	4,686
S9	Starts 3HVC*ACU2B	61	-	4,748
S10	Starts 3HVU-FN2B	121	-	4,869
LR	Load Reduction, 3CHS*P1B/C from Runout to Operating Point at Aprox 0.5 hrs	431	(574)	4,725
LR	Secure 3RHS*P1B[S] at Aprox 1 hr	-	(256)	4,469
LR	Secure 3SIH*P1B[S] at Aprox 1 hr	-	(180)	4,290
Manual	Start 3HVR*FN10B1/10B2 + Power 3HVR*FLT2B	241	-	4,531
Manual	Start 3RHS*P1B[P] at Aprox 6 hrs	352	-	4,883
LR	Secure 3FWA*P1B at Aprox 16 hrs	-	(470)	4,413
	Maximum EDG Load			4,883

Table (1C) LOP-CDA-SEC, Large Steam or Feedwater Line Break - Secondary Accident - 3EGS*EG-B[P] - EDG-B				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1B/C at Runout + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,581	70	1,651
S2	Starts 3SIH*P1B[R] + 3QSS*P3B	659	-	2,310
S3	Starts 3RHS*P1B[S] + 3HVR*FN6B + Power 3HVR*FLT1B	517	-	2,827
S4	Starts 3SWP*P1B	484	-	3,311
S5	Starts 3FWA*P1B	470	-	3,780
Manual-LR	Start 3IAS-C1B, Power 3RCS*H1B - Remove MOV Inrush loads	516	(70)	4,226
S6	Starts 3HVK*CHL1B	245	-	4,472
S7	Starts 3HVC*ACU2B	61	-	4,533
LR	Load Reduction 3SIH*P1A from Runout [R] to Shut off Head [S] at Aprox 0.5 hr	180	(354)	4,358
LR	Load Reduction 3CHS*P1B/C from Runout [R] to Operating Point [P] at Aprox 0.5 hr	431	(574)	4,215
Manual	Start both 3HVR*FN10B1/10B2 + Power 3HVR*FLT2B at Aprox 1 hr	241	-	4,456
LR	Trips 3RHS*P1B[S] at Aprox 80 min - 2.5 Hrs (provides permissive to start 3RSS*P1B/D)	-	(256)	4,200
S8	Starts 3RSS*P1B at Aprox 80 min - 2.5 hrs	318	-	4,518
S9	Starts 3RSS*P1D at Aprox 80 min - 2.5 hrs	278	-	4,797
LR	Secure 3QSS*P3B at Aprox 4 hrs	-	(305)	4,492
LR	Secure 3SIH*P1B[S] at Aprox 4 hr	-	(180)	4,312
LR	Secure both 3RSS*P1B/D at Aprox 4 hrs	-	(596)	3,716
Manual	Start 3CCP*P1B/C[CDA] at Aprox 4 hrs	297	-	4,013
Manual	Start 3SFC*P1B at Aprox 4 hrs	97	-	4,110
Manual	Start 2nd 3SWP*P1D + 3SWP*MOV102D at Aprox 4 hrs	484	6	4,599
Manual	Start 3RHS*P1B[P] at Aprox 6 hrs - Remove 3SWP*MOV102D	352	(6)	4,946
LR	Secure 3FWA*P1B at Aprox 16 hrs	-	(470)	4,476
	Maximum EDG Load			4,946

NOTE:
SEE 25212-39241 SH. 190 FOR NOTES.

GLOSSARY

LR- INDICATES LOAD REDUCTION AUTO OR MANUAL.
MANUAL - INDICATES THAT THE LOAD IS MANUALLY CONTROLLED.
P - OPERATING POINT VALUE
R - RUN OUT VALUE
S - SHUT OFF HEAD VALUE
KW LA +/- - KILOWATT LOAD ADJUSTMENT PLUS/(MINUS)
KW+ - KILOWATT CUMULATIVE

FSAR FIGURE


		Dominion Nuclear Connecticut, Inc.	
		Millstone Power Station Waterford, CT.	
TITLE: MILLSTONE POWER STATION-UNIT NO.3 EMERGENCY GENERATOR LOADING: EMERGENCY LOAD SHEDDING [3EGS*EG-B]			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: G:\ms32\mmplo\c\39241\92.dgn	
REVISED PER ETE-MP-2018-1020 & DUR 18-800058	DRAWING NO: 25212-39241	REV 8	
DSGN: DLW	SCALE: NONE	UNLESS OTHERWISE NOTED SH 192	

Table (1D) LOP-SIS-PRI, Small LOCA Conditions - Primary Accident - 3EGS*EG-B[P] - EDG-B				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1B/C at Runout + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,581	70	1,651
S2	Start 3SIH*P1B[S]	180	-	1,831
S3	Start 3RHS*P1B[S] + 3HVR*FN6B + Power 3HVR*FLT1B	517	-	2,348
S4	Starts one 3SWP*P1B/D[P]	484	-	2,832
S5	Start 3CCP*P1B/C[P]	447	-	3,278
S6	Start 3FWA*P1B	470	-	3,748
S7	Start 3HVU-FN1B	151	-	3,899
Manual-LR	Start 3IAS-C1B, Power 3RCS*H1B - Remove MOV Inrush loads	516	(70)	4,345
Manual	Start 3SFC*P1B	97	-	4,441
S8	Start 3HVK*CHL1B	245	-	4,686
S9	Start 3HVC*ACU2B	61	-	4,748
S10	Start 3HVU-FN2B	121	-	4,869
LR	Secure 3RHS*P1B[S] at Aprox 1 hr	-	(256)	4,613
LR	Secure 3SIH*P1B[S] at Aprox 1 hr	-	(180)	4,433
Manual	Start both 3HVR*FN10B1/B2 + Power 3HVR*FLT2B at Aprox 1 hr	241	-	4,674
Manual	Start 3RHS*P1B[P] at Aprox 6 hrs	352	-	5,027
LR	Secure 3RCS*H1B	-	(383)	4,644
LR	Secure 3FWA*P1B at Aprox 16 hrs	-	(470)	4,174
Manual	H2 Recombiner at Aprox 24 hrs (3EHS*MCC1B4)	22	-	4,196
	Maximum EDG Load			5,027


Table (1E) LOP-CDA-PRI, DBA LOCA Conditions - Primary Accident - 3EGS*EG-B[P] - EDG-B				
Load Step	Description	KW	KW LA +/-	KW+
S1	Starts one 3CHS*P1B/C at Runout + 1E MCC loads + Losses + Margin + MOV Inrush loads	1,581	70	1,651
S2	Starts 3SIH*P1B[R] + 3QSS*P3B	659	-	2,310
S3	Starts 3RHS*P1B[R] + 3HVR*FN6B + Power 3HVR*FLT1B (Note 1)	641	-	2,951
S4	Starts one 3SWP*P1B	484	-	3,435
S5	Starts 3FWP*P1B	470	-	3,905
Manual-LR	Start 3IAS-C1B - Remove MOV Inrush loads	133	(70)	3,968
S6	Starts 3HVK*CHL1B	245	-	4,213
S7	Starts 3HVC*ACU2B	61	-	4,274
Manual	Start both 3HVR*FN10B1/B2 + Power 3HVR*FLT2B at Aprox 1 hr	241	-	4,515
LR	Trips 3RHS*P1B[R] at Aprox 33 min - 69 min (provides permissive to start 3RSS*P1B/D)	-	(380)	4,135
S8	Starts 3RSS*P1B at Aprox 33 min - 69 min	318	-	4,453
S9	Starts 3RSS*P1D at Aprox 33 min - 69 min	278	-	4,732
LR	Secure 3QSS*P3B at Aprox 4 hrs	-	(305)	4,427
LR	Secure 3FWA*P1B at Aprox 4 hrs	-	(470)	3,957
Manual	Start 3SFC*P1B at Aprox 4 hrs	97	-	4,054
Manual	Start 2nd 3SWP*P1D + 3SWP*MOV102D	484	6	4,544
Manual	Start 3CCP*P1B/C [CDA] at Aprox 4 hrs - Remove 3SWP*MOV102D	297	(6)	4,835
Manual	H2 Recombiner at Aprox 24 hrs (3EHS*MCC1B4)	22	-	4,857
	Maximum EDG Load			4,857

NOTE:
SEE 25212-39241 SH. 190 FOR NOTES.

GLOSSARY

LR- INDICATES LOAD REDUCTION AUTO OR MANUAL.
MANUAL - INDICATES THAT THE LOAD IS MANUALLY CONTROLLED.
P - OPERATING POINT VALUE
R - RUN OUT VALUE
S - SHUT OFF HEAD VALUE
KW LA +/- - KILOWATT LOAD ADJUSTMENT PLUS/(MINUS)
KW+ - KILOWATT CUMULATIVE

FSAR FIGURE

		Dominion Nuclear Connecticut, Inc.	
		Millstone Power Station Waterford, CT.	
TITLE MILLSTONE POWER STATION-UNIT NO.3 EMERGENCY GENERATOR LOADING: EMERGENCY LOAD SHEDDING [3EGS*EG-B]			
REVISION DESCRIPTION (SIGNATURES ON FILE)		CAD NO: C:\fms32\fmplp1\C39241\93.DGN	
REVISED PER ETE-MP-2018-1020 & DUR 18-800068	DRAWING NO: 25212-39241	REV 8	
DSGN DLW	SCALE: NONE	UNLESS OTHERWISE NOTED	SH 193