RAD WASTE CONTROL ROOM PANEL C20

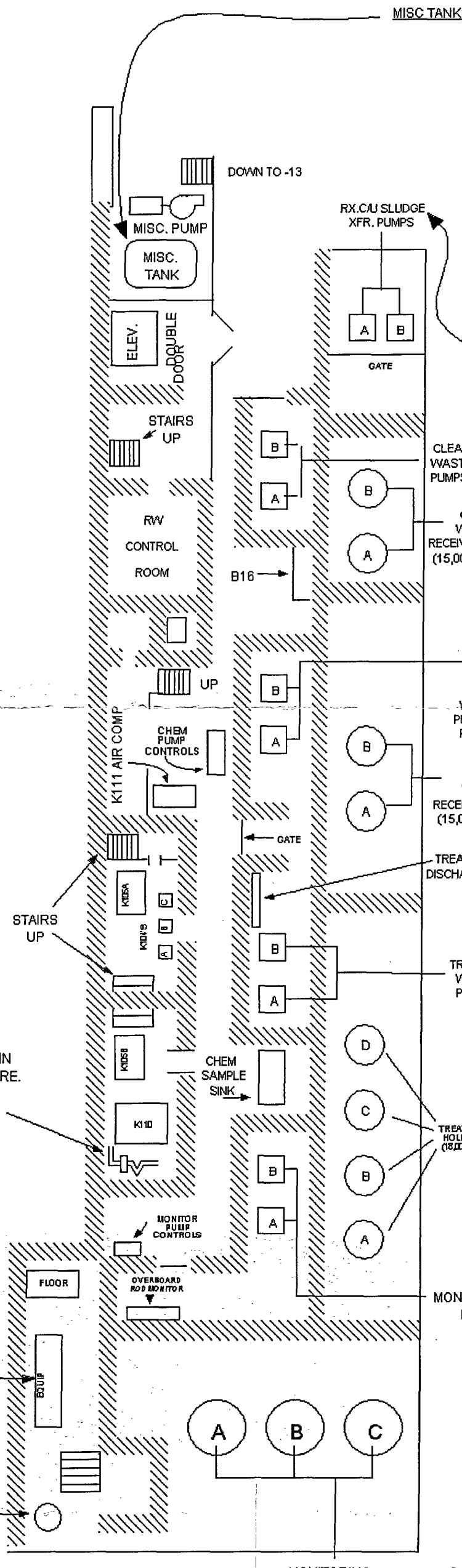
1. HAS SWITCHES TO START D/W FLOOR AND EQUIP
   PUMPS. MUST CALL CONTROL ROOM TO HAVE VALVES OPENED FIRST. THIS IS DONE EVERY 4 HOURS. REMEMBER TO CLOSE VALVES WHEN FINISHED.

2. LEVEL INDICATORS FOR TANKS ON C20:
   MISC A & B
   CLEAN A & B
   CHEM A & B
   TREATED A B C D
   MONITOR A B C

3. CAN RUN CLEAN PUMPS AND TREATED PUMPS FROM C20
   CAN'T RUN CHEM AND MONITOR PUMPS FROM C20.

4. MISC PUMP IS ALSO CONTROLLED HERE. MISC TANK IS CHECKED BY CHEM LAB THEN PUMPED OVERBOARD
   RAD MONITOR LOCATED ON OVERBOARD DISCHARGE LINE MUST BE CHECKED PRIOR TO OVERBOARD DISCHARGE. OSS MUST SIGN THAT VALVES ARE PROPERLY LINED UP FOR DISCHARGE.

5. SLUDGE PUMP A.O. VALVES OPERATED FROM C20 ALSO



MISC TANK: 1000 GALLON TANK WITH BAFFLE THAT FORMS TWO SEPARATE 500 GALLON TANKS A (EAST), B (WEST). HAS HIGH AND LOW LEVEL ALARMS.
SHOWER DRAINS, CHEM LAB DISHWASHER AND NPA'S MOP WATER (NOT MUCH OF THAT) TANK OVERFLOWS TO RADWASTE FLOOR SUMPS THEN ENDS UP IN CHEM TANK. WHEN 1 SIDE FILLS IT IS RECIRCED, SAMPLED AND PUMPED OVERBOARD. NOT MUCH ACTIVITY MOSTLY SOAPY WATER. PUMP TRIPS AT 10% TANK LEVEL IF IT IS THE SELECTED SIDE. (IN OTHER WORDS IF YOU ARE PUMPING DOWN THE A SIDE AND HAVE THE B SIDE SELECTED THE PUMP WILL TRIP AND YOU WILL TORCH THE PUMP.)

AIR OPERATED PUMPS USED TO PUMP SLUDGE (THE WORST STUFF WE HAVE) TO TRUCK LOCK IN THE HIC FOR SHIPPING TO BARNWELL S.C.

CLEAN WASTE PUMPS → OPERATED FROM C-20 POWERED FROM B16

CHEM WASTE RECEIVER TANKS (15,000 GAL. EA.) → THIS IS THE "CLEAN" WATER. THIS COMES FROM EQUIP SUMPS. NORMAL TORUS LETDOWN PATH. WHEN APPROACHING FULL ALL INLETS CAN BE SWAPPED TO CHEM.HIGH LEVEL TANK WILL LOCKOUT ALL EQUIP SUMPS WATER IS SENT TO FLATBED FILTER OR THERMEX.

CHEM WASTE PROCESS PUMPS

CHEM WASTE RECEIVER TANKS (15,000 GAL. EA.) → THIS IS THE "DIRTY" WATER. THIS COMES FROM FLOOR SUMPS CHEM LAB MUST SAMPLE PRIOR TO PROCESSING. TO PROCESS CHEM THE TANK OR A PORTION OF THE TANK IF "BATCHING" IS SENT TO CLEAN TANK THEN TO FLATBED FILTER. WATER CAN BE DIRECTLY SENT TO THERMEX

TREATED WATER PUMPS

TREATED WATER:
THIS IS WATER THAT HAS BEEN CLEANED UP BY EITHER THE *FLATBED FILTER OR THERMEX* AND IS READY TO BE SENT TO CST. CHEM LAB WILL SAMPLE AND TELL YOU IT IS OK OR THAT YOU MUST REPROCESS TO LOWER CONDUCTIVITY OR ORGANICS. FOR REPROCESSING WATER IS SENT BACK TO CLEAN WHEN PUMPING TO CST THERE IS *A CONDUCTIVITY* ELEMENT THAT WILL CLOSE AN AIR OPERATED VALVE ON DISCHARGE HEADER.

MONITOR TANK PUMPS

RX BLDG SUMPS
2 PUMPS EACH OPERATED IN AUTO
2ND PUMP STARTS WITH HIGH LEVEL

EQUIP ⌀ PUMPED TO CLEAN TANKS. LEVEL *IN CLEAN TANK GETS HIGH,* PUMPS TRIP.

FLOOR ⌀ *PUMPED TO CHEM*

THERE IS A HOSE LOCATED ALONG THE FLOOR IN THE HALL WHICH TIES INTO THE AIR SYSTEM HERE. THIS HOSE GOES UP THE STAIRS AND ENDS UP GOING OUTSIDE DIRECTLY BEHIND MAIN TRANSFORMER. THE DIESEL BACKUP AIR COMPRESSOR (COPCO) TIES INTO THIS LINE.

TURBINE BLDG SUMPS
EACH SUMP HAS TWO PUMPS USUALLY LEFT IN AUTO. EQUIP SUMP IS PLACED IN HAND AND PUMPED TO LOW POINT PRIOR TO TRANSFER OF RESIN
AT DEMINS BECAUSE THE WATER USED TO TRANSFER COMES HERE AND IT COMES IN WAVES.

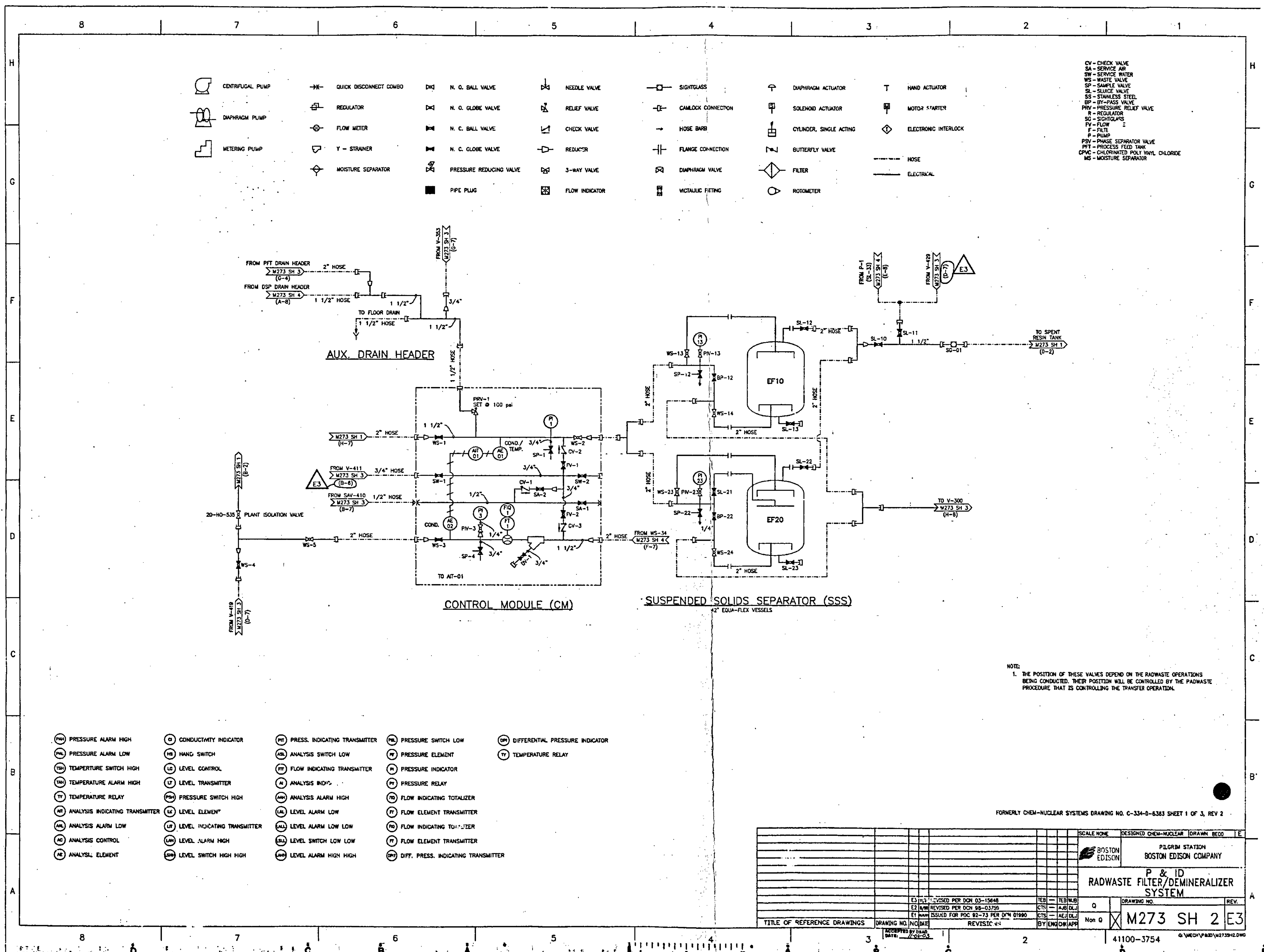
NORMAL LINEUPS -FLOOR SUMPS TO CHEM TANKS
EQUIP SUMPS TO CLEAN TANK (HOT WATER *FROM FEED PUMPS TOO HOT FOR THERMEX WHICH IS CURRENT PROBLEM.)*

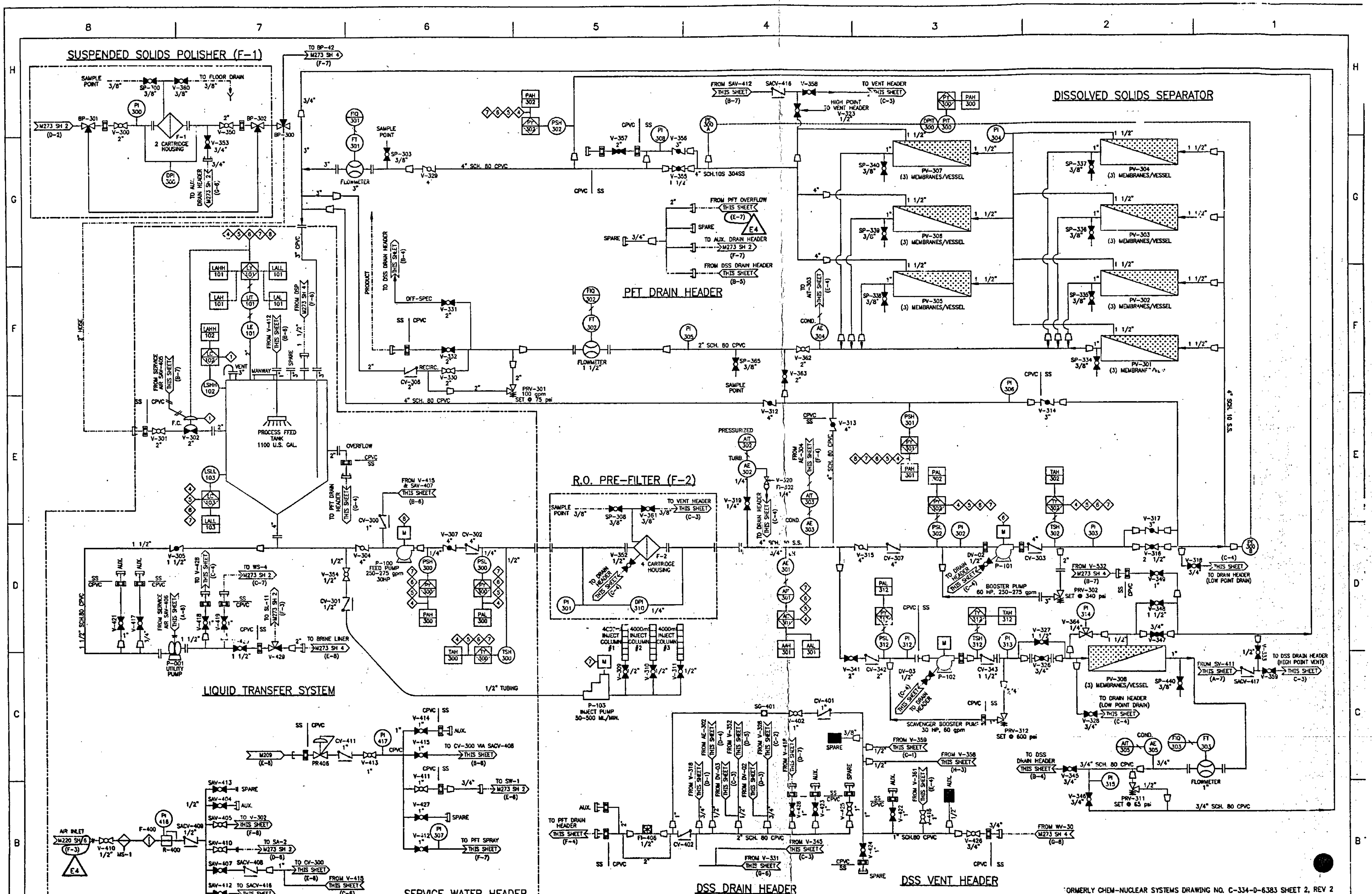
YOU DON'T WANT TO KNOW WHAT'S IN HERE.

MONITORING TANKS (20,000 GAL EA.)

HOLDING TANKS FOR WATER YOU CAN'T PROCESS RIGHT NOW.
WHEN COMING OUT OF AN OUTAGE THE WATER USED TO FLOOD UP ENDS UP HERE. WHEN FLATBEDS BREAK WATER STARTS BACKING UP AND THESE ARE FILLED. ONCE ALL THE TANKS -13' BECOMES A TANK. DON'T LAUGH IT'S HAPPENED.

RADWASTE EXTRA: THERE IS VERY EXPENSIVE LITTLE MACHINE NEXT TO THE T.B. EQUIP SUMP WHICH MONITORS CONDUCTIVITY AND ORGANICS. THIS CAN BE LINED UP SO THAT EQUIP SUMPS GO TO HOTWELL. IF CONDUCTIVITY OR *ORGANICS GOT HIGH IT WOULD SWAP TO THE CLEAN TANK.* WIGMAN SAYS NO GO.!


AUX. DRAIN HEADER
CONTROL MODULE (CM)
SUSPENDED SOLIDS SEPARATOR (SSS)
42" EQUA-FLEX VESSELS
EF10
EF20
TO SPENT RESIN TANK
TO V-300
NOTE:
1. THE POSITION OF THESE VALVES DEPEND ON THE RADWASTE OPERATIONS BEING CONDUCTED. THEIR POSITION WILL BE CONTROLLED BY THE RADWASTE PROCEDURE THAT IS CONTROLLING THE TRANSFER OPERATION.
FORMERLY CHEM-NUCLEAR SYSTEMS DRAWING NO. C-334-0-6383 SHEET 1 OF 3, REV 2
SCALE NONE
DESIGNED CHEM-NUCLEAR
DRAWN BECO
BOSTON EDISON
PILGRIM STATION
BOSTON EDISON COMPANY
P & ID
RADWASTE FILTER/DEMINERALIZER SYSTEM
E3 REVISED PER DCN 03-15648
E2 REVISED PER DCN 98-03759
E1 ISSUED FOR PDC 92-73 PER DCN 01990
TITLE OF REFERENCE DRAWINGS
DRAWING NO.
REVISIONS
DRAWING NO.
M273 SH 2
REV.
E3
41100-3754
Q:\MECH\P&ID\M273SH2.DWG



NOTES:

1. THE POSITION OF THESE VALVES DEPEND ON THE RADWASTE OPERATIONS BEING CONDUCTED. THEIR POSITION WILL BE CONTROLLED BY THE RADWASTE PROCEDURE THAT IS CONTROLLING THE TRANSFER OPERATION.
2. SEE DRAWING M273 SHEET 2 FOR LEGEND & SYMBOLS.

NO	DATE	REVISIONS	BY	ENG	CHK	APP
E4	11/03	REVISED PER DCN 03-15649	TEB	—	TEB	WJB
E3	7/03	REVISED FOR CR-PNP-2002-9774 PER DCN 15250	TEB	—	NJW	WJB
E2	8/98	REVISED PER DCN 98-03760	CTS	—	AJB	OLJ
E1	[illegible]	ISSUED FOR PDC 92-73 PER DCN 01981	CTS	—	AEJ	OLJ

TITLE OF REFERENCE DRAWINGS | DR.NUMBER

SCALE NONE | DESIGNED CHEM-NUCLEAR | DRAWN BECO | E

BOSTON EDISON

PILGRIM STATION
BOSTON EDISON COMPANY

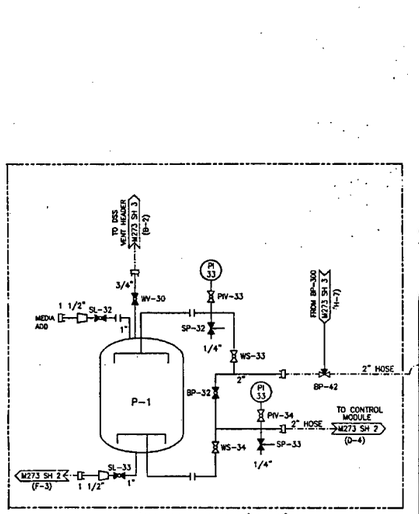
P & ID
RADWASTE FILTER / DEMINERALIZER SYSTEM

Q / Non Q X | DRAWING NO. M273 SH 3 | REV. E4

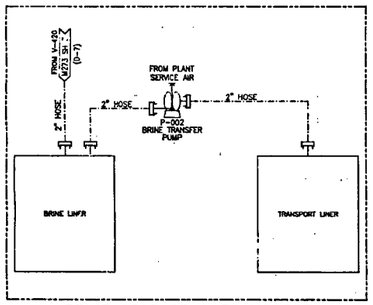
ACCEPTED BY DBAD DATE: 11-06-03

41100-3753

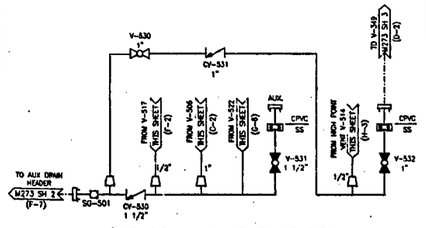
O:\MECH\P&ID\M273SH3.DWG



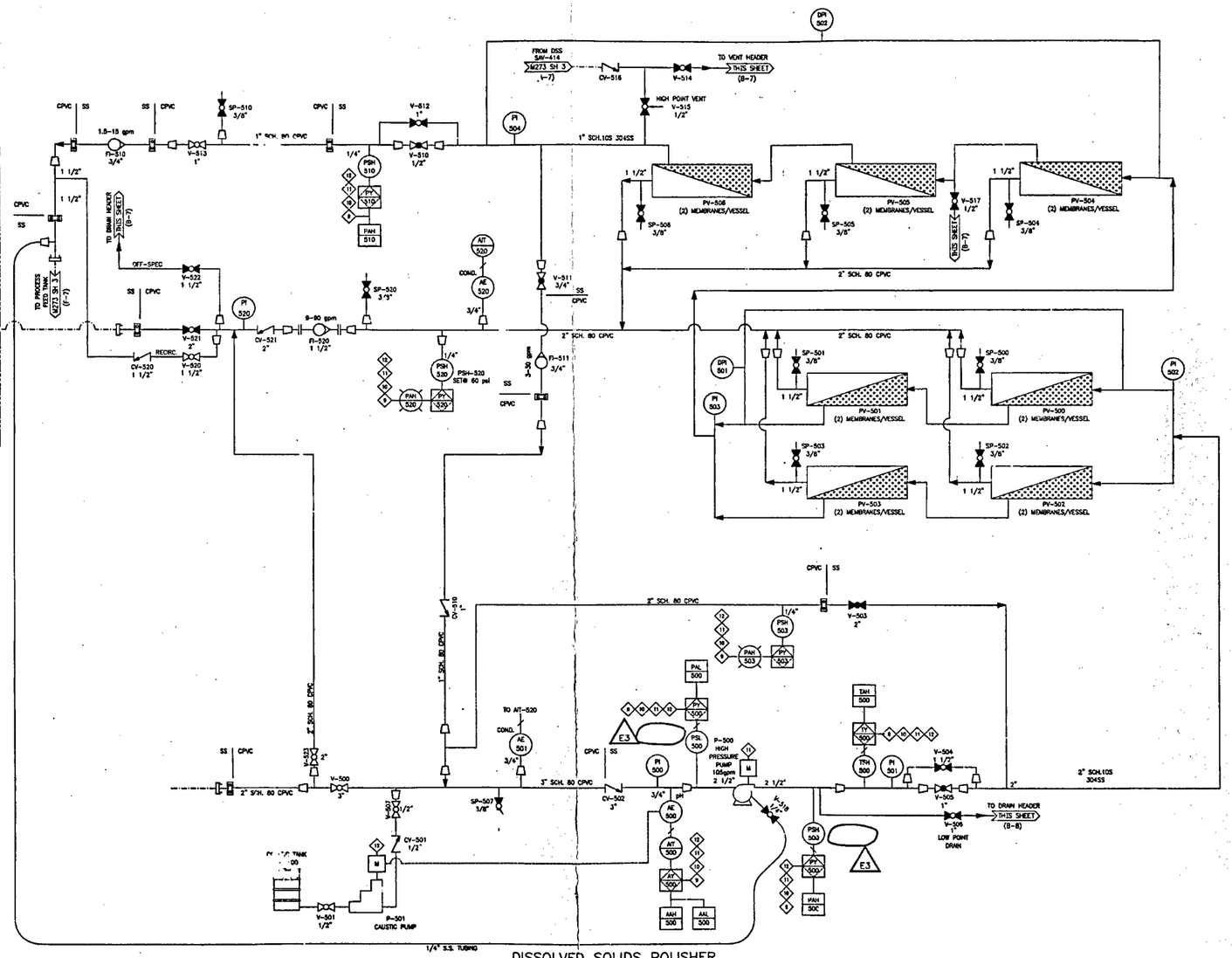
POLISHER 1 (P-1)



BRINE STORAGE & TRANSPORT



DSP DRAIN & VENT HEADER



DISSOLVED SOLIDS POLISHER

NOTES:
1. THE POSITION OF THESE VALVES DEPEND ON THE RADWASTE OPERATIONS BEING CONDUCTED. THEIR POSITION WILL BE CONTROLLED BY THE RADWASTE PROCEDURE THAT IS CONTROLLING THE TRANSFER OPERATION.
2. SEE DRAWING M273 SHEET 2 FOR LEGEND & SYMBOLS.

FORMERLY CHEM-NUCLEAR DRAWING NO. C-334-D-6383 SHEET 3 REV 2

TITLE OF REFERENCE DRAWINGS	DR.NUMBER	NO	DATE	REVISIONS	BY	CHK	APP
		E3	7/93	REVISED FOR CR-PNP-2002-0774 PER DCN 15249	TEB	—	N.W.W.B
		E2	4/96	ISSUED PER DCN 96-03781	CTS	—	A.B.D.L.J.
		E1	10/92	ISSUED FOR PDC 92-73 PER DCN 01692	CTS	—	A.B.D.L.J.

ACCEPTED by D&AS DATE 9-23-93

SCALE NONE | DESIGNED CHEM-NUCLEAR | DRAWN BECO | E

BOSTON EDISON

PILGRIM STATION
BOSTON EDISON COMPANY

P & ID
RADWASTE FILTER / DEMINERALIZER SYSTEM

Q | Non Q | DRAWING NO. M273 SH 4 | REV. E3

41100-3755

STANDBY GAS TREATMENT SYSTEM (SGTS)

PURPOSE PROVIDES A METHOD TO REMOVE PART. AND GASEOUS CONTAMINENTS FROM RB CONTAMINATED EXHAUST AIR STREAM TO MIN THE RELEASE TO THE STACK. IT ALSO PREVENTS A RELEASE FROM THE RB BY MNTN .25" H_2O VACUUM. SGTS AUTO STARTS ON +12" RPV LVL OR 2.2# DW PRESSURE, OR RF FLOOR HIGH RAD (RBIS SIGNAL)

SGTS FILTER UNITS

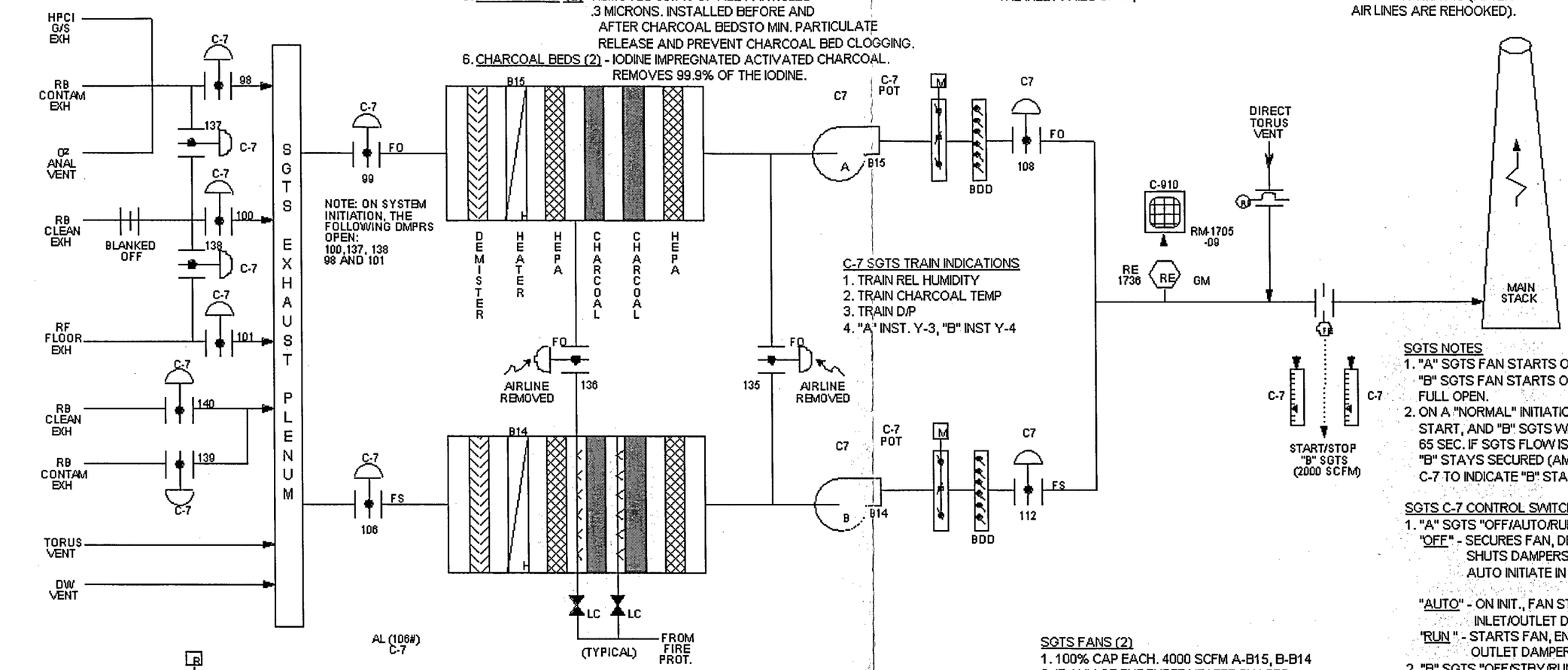
1. TWO FILTER UNITS RATED AT 4000 SCFM EACH
2. TWO CROSS CONNECTS FOR DECAY HEAT REMOVAL
3. DEMISTER - REMOVES ENTRAINED WATER DROPLETS. DRNS TO RBEDS.
4. HEATER - 21.4 KW REDUCE REL HUMID <70%. ENERGIZE WHEN FAN STARTS. A-B15, B-B14, IF LOW CURRENT IS SENSED ON ANY PHASE, FAN TRIPS. A T.S. DNSTM WILL SHUT OFF HEATER AT 200°.
5. HEPA FILTERS (2) - REMOVES 99.7% OF ALL PARTICLES .3 MICRONS. INSTALLED BEFORE AND AFTER CHARCOAL BEDSTO MIN. PARTICULATE RELEASE AND PREVENT CHARCOAL BED CLOGGING.
6. CHARCOAL BEDS (2) - IODINE IMPREGNATED ACTIVATED CHARCOAL. REMOVES 99.9% OF THE IODINE.

SGTS DAMPERS (INLET AND OUTLET)

1. "A" SGTS INLET/OUTLET DAMPERS ARE AIR TO CLOSE, SPRING OPEN.
2. "A" SGTS DAMPERS FAIL OPEN ON A LOSS OF AIR OR LOSS OF DC CONTROL POWER.
3. "B" SGTS DAMPERS ARE AIR TO OPEN, SPRING CLOSED.
4. IF "B" SGTS TRAIN IS ON AND THE INLET FAILS SHUT, FAN TRIPS.

SGTS DECAY HEAT DAMPERS (135/136)

1. PROVIDE FLOW FROM A NON-OPERATING SGTS TRAIN TO AN OPERATING SGTS TRAIN FOR THE PURPOSE OF DECAY HEAT REMOVAL.
2. AIR LINES ARE DISCONNECTED TO DAMPERS TO KEEP THEM ALWAYS OPEN. SWITCHES ON C-7 ARE STILL THERE AND ARE USED FOR TESTING (AFTER AIR LINES ARE REHOOKED).



C-7 SGTS TRAIN INDICATIONS

1. TRAIN REL HUMIDITY
2. TRAIN CHARCOAL TEMP
3. TRAIN D/P
4. "A" INST. Y-3, "B" INST Y-4

SGTS NOTES

1. "A" SGTS FAN STARTS OFF THE C-7 CS. "B" SGTS FAN STARTS ON INLET DAMPER FULL OPEN.
2. ON A "NORMAL" INITIATION, BOTH TRAINS START, AND "B" SGTS WILL S/D AFTER 65 SEC. IF SGTS FLOW IS 2000SCFM "B" STAYS SECURED (AMBER LIGHT ON C-7 TO INDICATE "B" STARTED ON LOW FLOW).

SGTS C-7 CONTROL SWITCHES

1. "A" SGTS "OFF/AUTO/RUN"
   - "OFF" - SECURES FAN, DE ENERGIZES HTR AND SHUTS DAMPERS IF IN "AUTO". WILL NOT AUTO INITIATE IN THIS POSITION.
   - "AUTO" - ON INIT., FAN STARTS, HTR ENER. AND INLET/OUTLET DAMPERS OPEN.
   - "RUN" - STARTS FAN, ENERG HTR, OPENS INLET/OUTLET DAMPERS.
2. "B" SGTS "OFF/STBY/RUN/MAINTENANCE"
   - "OFF" - SHUTS "B" INLET DMPR, TRIPS FAN WHICH DEENERGIZES HTR AND SHUTS OUTLET DMPR.
   - "STBY" - WHEN INIT. SIGNAL IS RECEIVED, INLET DMPR OPENS WHEN THE INLET DMPR IS FULL OPEN, THE FAN STARTS, WHICH ENERGIZES THE HTR AND OPENS THE OUTLET DAMPERS. AFTER 65 SEC THE INLET DAMPER SHUTS, WHICH TRIPS THE FAN, DEENERGIZES THE HTR AND SHUTS THE OUTLET DAMPER. IF SGTS FLOW IS≤2000 SCFM AFTER THIS S/D, "B" SGTS WILL RESTART.
   - "RUN" - "B" FAN STARTS IF INLET DAMPER IS OPEN. WHEN FAN STARTS, OUTLET DAMPER OPENS AND HEATER ENERGIZES.
   - "MAIN" - SAME AS "STBY" EXCEPT THE "B" TRAIN WILL NOT S/D AFTER 65 SECONDS. IT WILL CONTINUE TO RUN UNTIL INIT SIGNAL IS RESET OR FAN TAKEN TO "OFF".

SGTS DAMPER AIR SYSTEM

1. SINCE TB IA SYSTEM IS NOT SAFETY RELATED (AND SEISMIC CAT I)
2. 2 HP BOTTLES AND 4 ACCUMULATORS.
3. "CAT I" AIR IS STORED IN A "SEISMIC CAGE" FOR M/U TO THE ACCUM.
4. GAGES ARE NORMALLY ISOLATED AND SHOULD BE MNTD >120# BUT ≤130# AND GAGES MUST AGREE TO WITHIN 6#.

DELUGE SPRAY SYSTEM

1. PREVENTS FIRE IN CHARCOAL FILTERS
2. HEAT FROM DECAY PRODUCTS CAN START A FIRE.
3. 280°, ALARM IN CR
4. DELUGE IS MANUALLY INITIATED

SGTS WILL AUTO INITIATE ON:

1. RPV LEVEL ≤12", OR
2. DW PRESS 2.2#, OR
3. HIGH RF EXHAUST RAD ≥16 MR/HR, OR
4. ALL 4 RF EXHAUST RAD MONITORS DNSCL, OR
5. 2 RF FLOOR EXH MONITORS (IN ONE CHANNEL) DOWNSCALE, WITH OTHER CHANNEL UPSCALE

SGTS FANS (2)

1. 100% CAP EACH. 4000 SCFM A-B15, B-B14
2. IF ANY OF THE THREE HEATER PHASES HAS LOW CURRENT, THE FAN WILL TRIP.
3. ON INITIATION SIGNAL, BOTH FANS START AND "B" FAN SHUTS DOWN AFTER 65 SEC.
4. IF A SGTS FAN TRIPS ON A LOW CURRENT HEATER TRIP (AUX BAY) THE FAN CONTROL SW HAS TO BE TAKEN TO "OFF" TO RESET THE TRIP.

PNPS
REV.00
01/15/98
JEH

STANDBY GAS TREATMENT SYSTEM (SGTS) (SHEET 1 OF 1)