

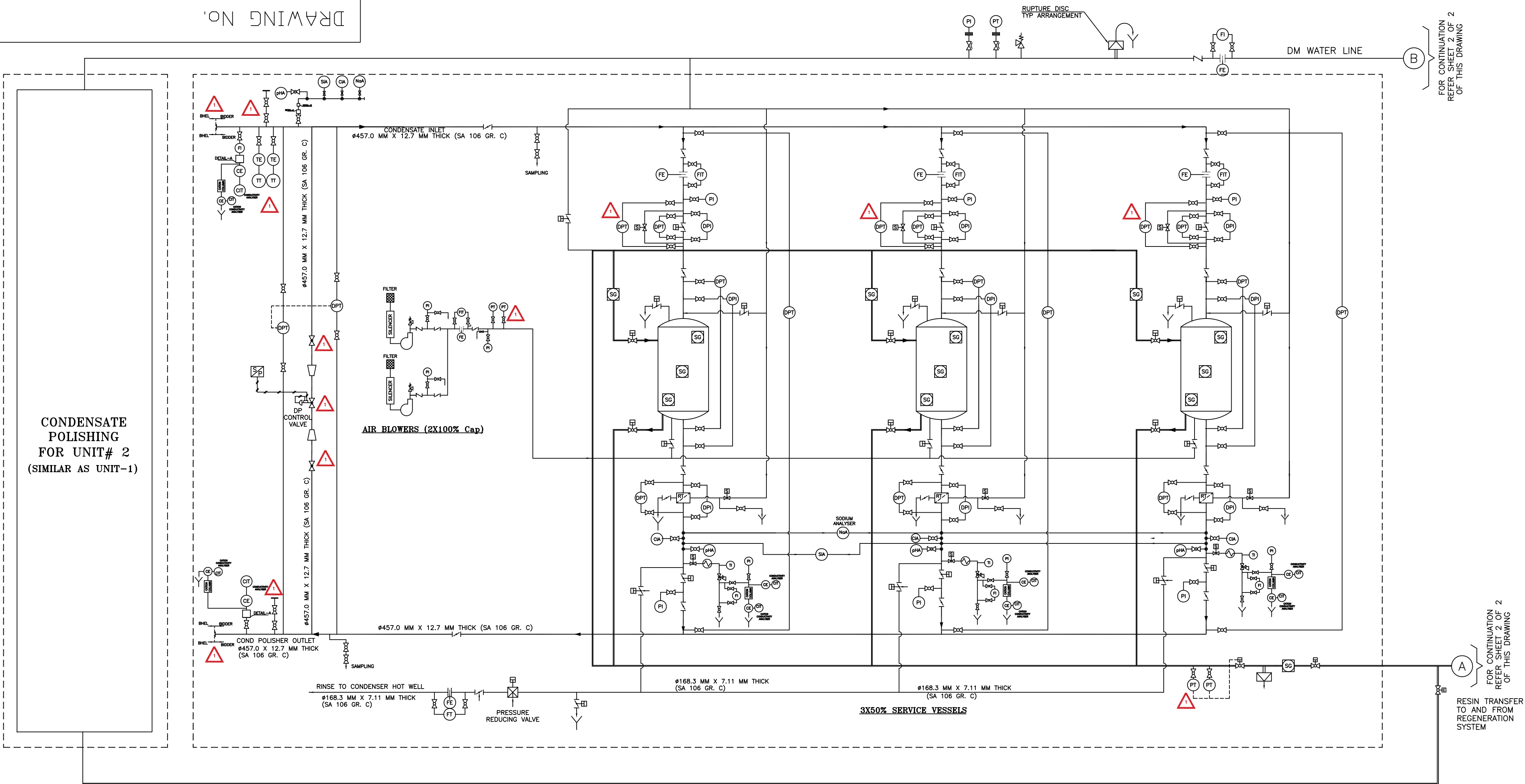
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FIRST ANGLE PROJECTION

ALL DIMENSIONS ARE IN MM

DRAWING NO.



NOTES :

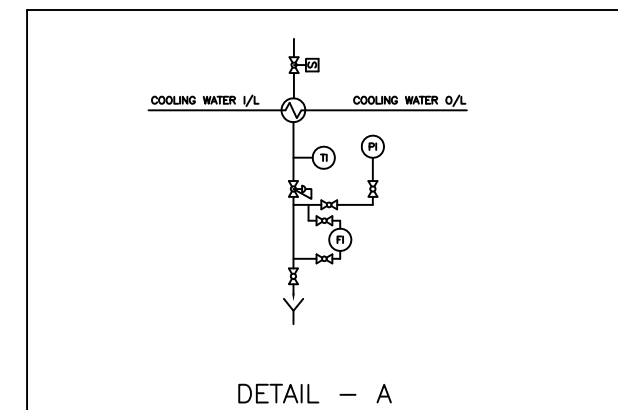
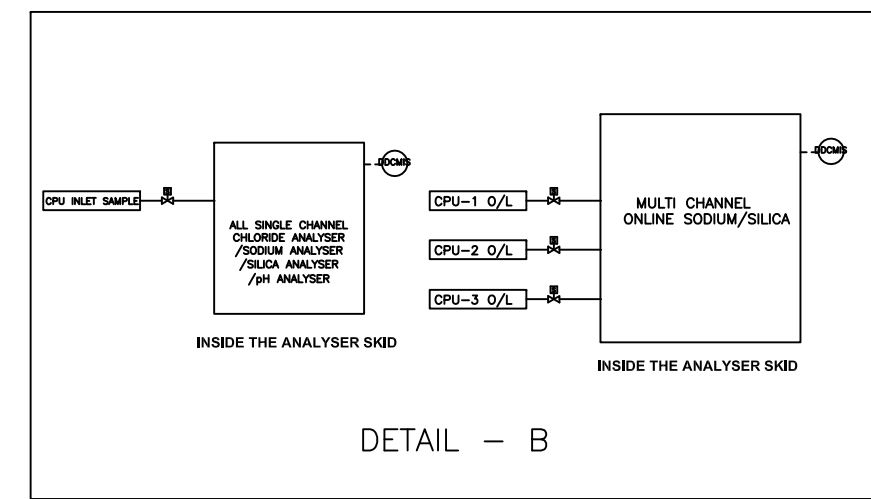
1. THE P&I DIAGRAM IS INDICATIVE AND ONLY MINIMUM REQUIREMENT OF VALVES, INSTRUMENTATION ETC. HAS BEEN SHOWN. BIDDER SHOULD FURNISH COMPLETE SCHEME IN ALL RESPECTS INCLUDING ALL INSTRUMENTS, VALVES ETC. FOR SMOOTH, SAFE, EFFICIENT, TROUBLE FREE OPERATION OF PLANT FOR BHEL/ CUSTOMER APPROVAL DURING DETAILED ENGINEERING.
2. [] INDICATES TERMINAL POINTS BETWEEN BHEL/SCCL & BIDDER:
BHEL - SCOPE OF EMPLOYER TP (TERMINAL POINT)
BIDDER - SCOPE OF BIDDER
3. SERVICE VESSELS OF SPHERICAL DESIGN IS ALSO ACCEPTABLE.
4. ALL THE INSTRUMENT ISOLATION VALVES OTHER THAN FOR ACID/ALKALI APPLICATION SHALL BE GLOBE PATTERN AND DIAPHRAGM TYPE. FOR ACID/ALKALI/REG WASTE APPLICATION TO BE PROVIDED AT SOURCE. NEAR THE INSTRUMENT 2-VALVE MANIFOLD FOR PRESSURE MEASURING INSTRUMENTS/3-VALVE MANIFOLD FOR DP MEASURING INSTRUMENTS/ 5-VALVE MANIFOLD FOR DPTS, BALL VALVE FOR FLOW INDICATORS/ANALYTICAL INSTRUMENT SHALL BE PROVIDED.
5. WHERE EVER PROVIDING 2 VALVE MANIFOLD IS NOT FEASIBLE TWO NUMBERS OF GLOBE VALVES SHALL BE PROVIDED TO MEET THE FUNCTION OF 2-VALVE MANIFOLD.
6. ACID/ALKALI/DM LINE, REG WASTE, RESIN LINES, CRU, ARU, IRU AND MIXED RESIN STORAGE VESSELS PR. INSTRUMENTS SHALL BE PROVIDED WITH DIAPHRAGM SEAL.
7. FLOW TOTALISATION SHALL BE DONE IN SOFTWARE.
8. DP CONTROL VALVE BETWEEN INLET/OUTLET OF CPU SHALL BE MODULATING TYPE DULY PROVIDED WITH PNEUMATIC ACTUATOR, MICRO-PROCESSOR BASED POSITIONER, FOS, XMT, AIR LOCK DEVICE AND SOLENOID VALVE ETC.
9. ALL SOLENOID OPERATED VALVES SHALL BE PROVIDED WITH MODULATING TYPE DULY PROVIDED WITH PNEUMATIC ACTUATOR, MICRO-PROCESSOR BASED POSITIONER, FOS, XMT, AIR LOCK DEVICE AND SOLENOID VALVE ETC.
10. ALL THE TRANSMITTERS PROCESS ACTIVATED SWITCHES ARE TO BE CONNECTED TO PLC.
11. BLANK FLANGES, COUNTER FLANGES & ISOLATION VALVES SHALL BE PROVIDED BY THE BIDDER AT THE TERMINAL POINTS WHEREVER APPLICABLE
12. ALL THE ANALYSERS SHALL BE PANEL MOUNTED.
13. ALL THE ISOLATION VALVES OF ALL THE INSTRUMENTS SHALL BE OF SS316 CONFORM TO ANSI 300# CLASS.
14. REFER SHEET 2 OF 2 OF THIS DRAWING FOR ADDITIONAL NOTES.
15. DOUBLE ROOT VALVE WILL BE PROVIDED BY BIDDER WHEN LINE PRESSURE IS MORE THAN 40 BAR.
16. LEVEL TRANSMITTERS FOR ACID/ ALKALI TANKS SHALL BE ULTRASONIC / RADAR TYPE.
17. BIDDER TO INDICATE RECOMMENDED ALARM LIST ALONGWITH CONTROL PHILOSOPHY AND INTERLOCK/PROTECTION WRITE UP IN LINE REQUIREMENT.
18. WHERE EVER THE TERMINAL POINTS HAVE BEEN MARKED BETWEEN BHEL & BIDDER IF REDUCERS/EXPANDERS ARE REQUIRED DURING DETAIL ENGG. SHALL BE PROVIDED BY BIDDER.
19. KKS TAG NOS. SHALL BE PROVIDED FOR EACH INSTRUMENTS.DRIVE/VALVE DURING DETAIL ENGINEERING BY THE BIDDER AND TAG NO. PREFIX FOR UNIT-1 SHALL BE "10" AND FOR UNIT-2 PREFIX SHALL BE "20" AND FOR COMMON SYSTEM PREFIX SHALL BE USED "90".
20. BIDDER TO INDICATE PROCESS PARAMETERS (PRESSURE, TEMPERATURE, FLOW ETC.) OF EACH AND INDIVIDUAL LINES DURING DETAIL ENGINEERING WHILE SUBMITTING THE P&ID OF CONDENSATE POLISHING UNIT.

CONDENSATE POLISHING FOR UNIT #1 (TYPICAL)

- CS CONTROL SYSTEM OCLS- OPEN CLOSE LIMIT SWITCH
LS LEVEL SWITCH DPIT- DIFF. PRESSURE INDICATOR CUM TRANSMITTER
TT TEMPERATURE TRANSMITTER
PI/PG PRESSURE INDICATOR/PRESSURE GAUGE
PT PRESSURE TRANSMITTER
TI TEMPERATURE INDICATOR
FI FLOW INDICATOR
CE CONDUCTIVITY ELEMENT
SIO2 SILICA ANALYSER
FT FLOW TRANSMITTER
DPI/DPG DIFF. PRESSURE INDICATOR/DIFF. PRESSURE GAUGE
DPS DIFF. PRESSURE SWITCH
FIT FLOW INDICATOR TRANSMITTER
FE FLOW ELEMENT
CT CONDUCTIVITY TRANSMITTER
DPT DIFF. PRESSURE TRANSMITTER
FS FLOW SWITCH
CIT CONDUCTIVITY INDICATING TRANSMITTER
DI DENSITY INDICATOR
TE TEMPERATURE ELEMENT
LI/LG LEVEL INDICATOR/ LEVEL GAUGE
PHE pH ELECTRODE
PHAT pH ANALYSER TRANSMITTER
ORIFICE (Pressure Breakdown)
SAMPLE COOLER
SODIUM ANALYSER
SINGLE CHANNEL CHLORIDE ANALYSER
SILICA ANALYSER
SINGLE CHANNEL PH ANALYSER
TEMPERATURE GAUGE
NON-NUCLEONIC (VIBRATION) TYPE DENSITY METER

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PRIMING CHAMBER		BLOWER
	PUMP		ISOLATION GATE
	BALL VALVE		PLUG VALVE
	BUTTERFLY VALVE		DRAIN
	OVERFLOW SEAL POT/CO2 ABSORBER		RUPTURE DISC
	GLOBE VALVE		PRESSURE REDUCING VALVE
	DIAPHRAGM VALVE		CONDENSATE LINE
	MOTORISED VALVE		D.M.WATER/RAIN LINE
	PRESSURE RELIEF VALVE		RINSE WATER LINE
	NON RETURN VALVE		ACID SOLUTION LINE
	BUTTERFLY VALVE WITH GLAND SEALING		ALKALI SOLUTION LINE
	SOLENOID VALVE		RESIN TRANSFER LINE
	RESIN TRAP		FIELD MOUNTED INSTRUMENT
	SIGHT GLASS		PANEL MOUNTED INSTRUMENT
	DOUBLE ACTING PHU/CYLINDER OPERATOR		PULSATION DAMPER
	PNEUMATICALLY OPERATED VALVE		DIAPHRAGM SEAL
	Y TYPE STRAINER		OC LS OPEN CLOSED LIMIT SWITCH
	ORIFICE PLATE		OVER PRESSURE PROTECTION DEVICE
	TEMPERATURE CONTROL VALVE		



2 X 660 MW ENnore SEZ SUPER CRITICAL TPP



TAMILNADU GENERATION & DISTRIBUTION CORPORATION LTD.



CONSULTANT: DESEIN PVT LTD, NEW DELHI.



BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA

TITLE

P&I DIAGRAM FOR
CONDENSATE POLISHING UNIT

DEPT CODE	NAME	SIGN	DATE
DRN	DK		04.01.2017
DESN	MKG		04.01.2017
CHD	JP		04.01.2017
APPD	PK		04.01.2017

DRAWING No.
PE-DG-412-155-A001

SHEET	01	OF	02	REV	1
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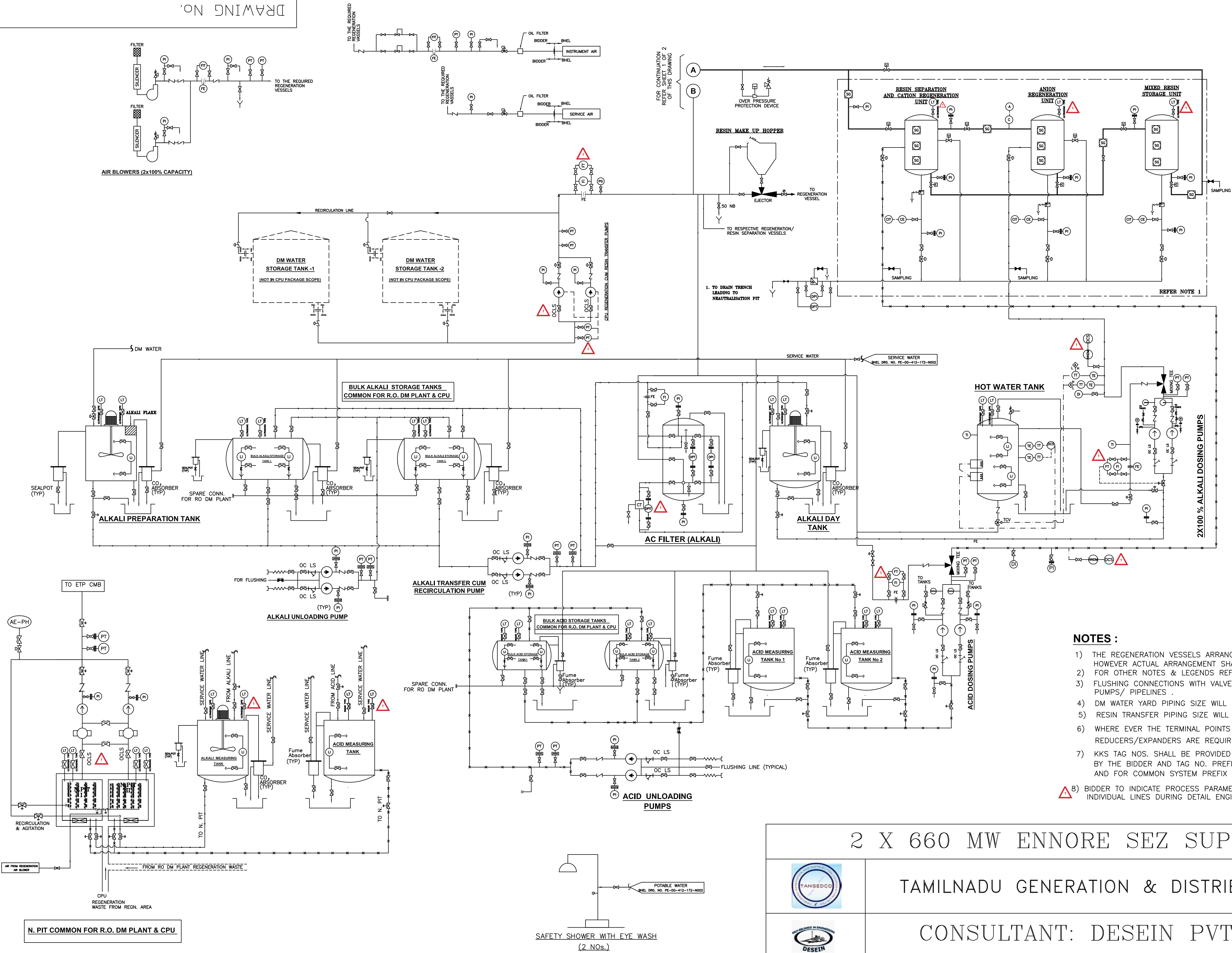
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FIRST ANGLE PROJECTION

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- NOTES :
- THE REGENERATION VESSELS ARRANGEMENT SHOWN HERE IS INDICATIVE ONLY. HOWEVER ACTUAL ARRANGEMENT SHALL BE AS PER SUPPLIER PROCESS REQUIREMENT.
 - FOR OTHER NOTES & LEGENDS REFER SHEET 1 OF THIS DRAWING.
 - FLUSHING CONNECTIONS WITH VALVES SHALL BE PROVIDED FOR ALL ACID/ALKALI/DM PUMPS/ PIPELINES .
 - DM WATER YARD PIPING SIZE WILL BE MIN. 100 NB.
 - RESIN TRANSFER PIPING SIZE WILL BE MIN. 80 NB.
 - WHERE EVER THE TERMINAL POINTS HAVE BEEN MARKED BETWEEN BHEL & BIDDER IF REDUCERS/EXPANDERS ARE REQUIRED DURING DETAIL ENGG. SHALL BE PROVIDED BY BIDDER.
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P&I DIAGRAM FOR
CONDENSATE POLISHING UNIT

DRAWING No.
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SHEET	02	OF	02	REV	1
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