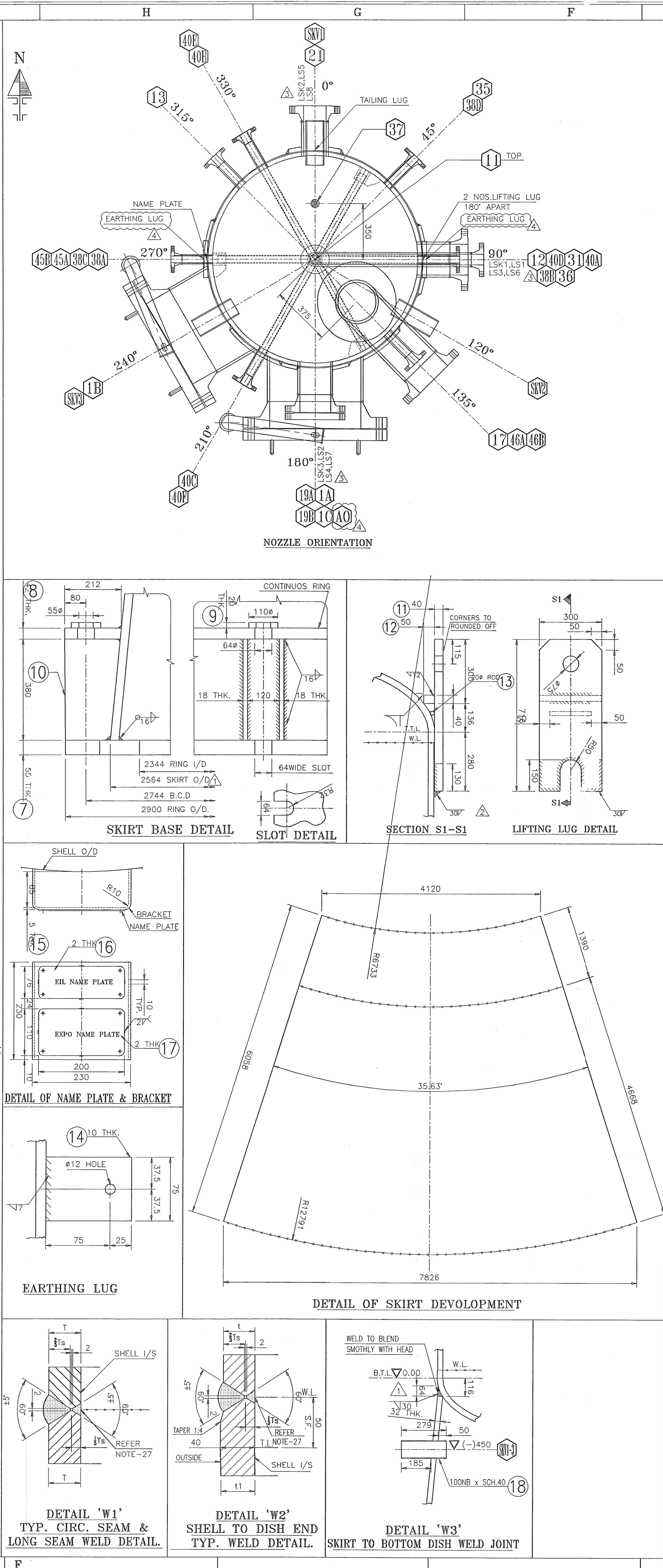
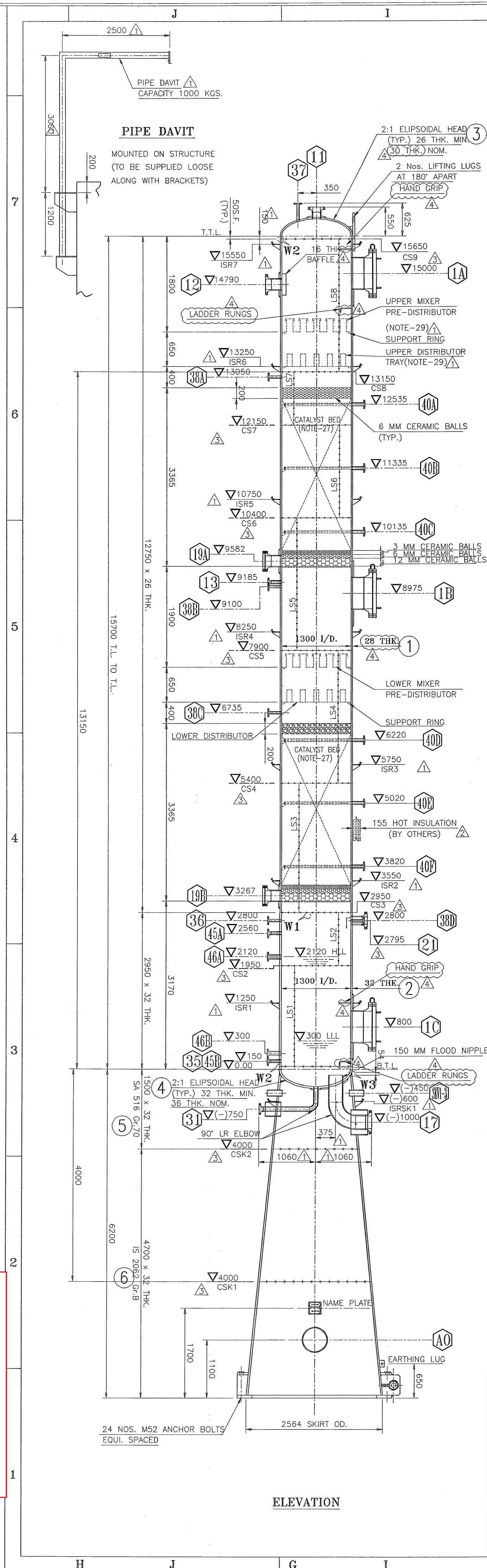




GENERAL NOTES :

- ALL DIMENSIONS ARE IN MM, UNLESS OTHERWISE SPECIFIED.
- ALL ANCHOR BOLT HOLES TO STRADDLE N/S CENTER LINE.
- NORTH DIRECTION WHEREVER SHOWN IS WITH RESPECT TO PLAN VIEW.
- FOR NOZZLES ON SHELL, PROJECTIONS ARE REFERRED TO FROM VESSEL CENTER LINE TO FLANGE CONTACT FACE. FOR NOZZLES ON HEAD PROJECTIONS ARE REFERRED TO FROM HEAD T.L. TO FLANGE CONTACT FACE.
- THE INDICATED THICKNESS IS THE MINIMUM ACCEPTABLE AFTER CONSTRUCTION.
- FLANGE GASKET FACE SHALL HAVE 125 AARI FINISH.
- DIMENSIONS OF FLANGES SHALL BE AS PER ASME B 16.5 UNLESS OTHERWISE SPECIFIED.
- 1/2 OF WELD NECK FLANGES SHALL MATCH WITH CORRESPONDING I/D OF NOZZLE PIPE.
- ALL LONG & CIRC. SEAMS INCLUDING FLANGE TO NECK, PIPE TO PIPE & PIPE TO FITTINGS SHALL BE 100% RADIOGRAPHED.
- NOZZLE 2" NB AND BELOW SHALL BE PROVIDED WITH 2 NOS. STIFFENERS 40 x 8 THK. AT 90° APART.
- PIPE TO PIPE, PIPE TO FLANGE, PIPE TO FITTING & FITTING TO FLANGE JOINT SHALL BE WELDED WITH THE SAME TECHNIQUE USED FOR MAIN EQUIPMENT WELDING.
- NOZZLE NECK / PIPE MADE OUT OF PLATE SHALL BE 100% RADIOGRAPHED. WELD SEAM OF SKIRT SHALL BE SPOT RADIOGRAPHED.
- ALL REACTORS INTERNALS COMPONENTS SHALL BE SIZED TO PASS THROUGH THE MANWAY.
- SHELL COURSE LENGTHS MAY BE UPGRADED SUITABLY TO AVOID DIRECT FOULING OF SEAMS WITH NOZZLES/EXT. ATTACHMENT.
- VESSEL IS DESIGNED FOR STEAMOUT AS MENTIONED BELOW.
 - a) 0.5 Kg/cm² (g) @ 190°C.
 - a) 3.5 Kg/cm² (g) @ 150°C.
- TAILING LUG TO BE PROVIDED AT 90° TO LIFTING LUG.
- WRC ANALYSIS CALCULATIONS SHALL BE PERFORMED FOR ALL PROCESS NOZZLES FOR NOZZLE NECK AS PER INSTRUCTIONS TO VENDOR. CALCULATION TO BE SUBMITTED FOR EILS REVIEW.
- ALL BUT WELDS SHALL HAVE FULL PENETRATION WELDS.
- WELDING ELECTRODES:
 - I SA 516 GR 70 TO SA 516 GR 70
 - II SA 516 GR 70 TO SA 106 GR B
 - III SA 106 GR B/SA 516 GR 70 TO SA 105
 - IV SA 516 GR 70 TO SA 234 GR. WPB
 - V SA 516 GR 70 TO IS 2062 GR B
 - VI IS 2062 GR B TO IS 2062 GR B
- GASKET EXTERNAL :- SPIRAL WOUND GASKET WITH SS 316 METAL WINDING & GRAFIL FILLER MATERIAL WITH CS OUTER RING AS PER ASME B 16.20.
- ALL SHARP CORNERS AND WELD SURFACES SHALL BE ROUNDED OFF TO SMOOTH PROFILE AND WELDS SHALL BE FREE FROM UNDER CUTS.
- SPARES :- GASKETS 200% & FASTENERS 10% (MIN. 2 NOS.)
- ALL NOZZLES WITHOUT BLIND FLANGES SHALL BE BLANKED WITH METALLIC COVERS BEFORE DISPATCH.
- NORMALISING CYCLE FOR DISHED END (TOP & BOTTOM)
 - i) LOADING TEMP. : 300°C (MAX.)
 - ii) HOLDING TEMP. : 913 °C ±13°
 - iii) HEATING RATE ABOVE 300°C : 150°C/Hr. (MAX.)
 - iv) SOAKING TIME : 85 MINUTES (MIN)
 - v) RATE OF COOLING (UP TO 300°C) : 150°C/Hr
 - vi) COOLING BELOW 300°C : IN STILL AIR
- ALL EXTERNAL SURFACE SHALL BE BLAST CLEANED TO SA 2 1/2 & APPLY ONE COAT OF (AMERCOAT 736) PRIMER (125 MICRON DFT).
- CATALYST UNLOADING NOZZLES 19A & 19B TO BE FLUSHED WITH THE BOTTOMS OF CATALYST SUPPORT BEAMS. REFER DETAIL E IN POS 581.8 OF 13 FLUSH COVER/RETAINING PLATE TO BE PROVIDED.
- THE CATALYST SUPPLIER IS SUD-CHEM. REACTOR CONSISTS OF TWO CATALYST BEDS AS PER FOLLOWS.

TYPE	SIZE AND FORM	VOLUME
UPPER	OLEMAX 350	1.6MM CDS EXTRUSION 3.8M ³
LOWER	OLEMAX 452	1.6MM CDS EXTRUSION 3.8M ³
- CATALYST BULK DENSITY IS 480 Kg/M³. EXPECTED CATALYST CYCLE LENGTH IS 12-18 MONTHS. MAXIMUM DENSITY OF INERT BALLS IS 1500 Kg/M³.
- FLOW DIRECTION IS DOWNWARD DURING NORMAL OPERATION & DURING REGENERATION.
- ALL REACTORS INTERNAL TRAY, DECK AND CATALYST SUPPORTS TO HAVE A 600MM x 700MM (MIN.) RECTANGULAR CENTRAL MANWAY.
- PIPES/PIPES FITTINGS EXTENDED INTERNALLY OR OUTSIDE THE VESSEL FROM NOZZLES SHALL HAVE THE THICKNESS/SCHEDULE SAME AS THAT OF NOZZLE PIPE.
- PROJECTION OF NOZZLE 17 & 31 (1060 MM) FROM CENTER LINE OF REACTOR.

AS BUILT

HOLD POINTS

- DELETED.

B										A														
DESIGN DATA																								
CONSTRUCTION CODE					ASME SECTION VIII DIV.-1 ED 2007 + 2008 ADDENDA																			
WORKING PRESSURE					Kg/cm ² (g)					TOP - SEE TABLE					BOT - SEE TABLE									
DESIGN PRESSURE					Kg/cm ² (g)					INT - TOP(SEE TABLE)					EXT - SEE TABLE									
WORKING TEMPERATURE					°C					TOP - SEE TABLE					BOT - SEE TABLE									
DESIGN TEMPERATURE					°C					SEE TABLE														
MDMT					°C					1														
CORROSION ALLOWANCE					mm					3														
TYPES OF HEADS					2:1 ELLIPTICAL																			
JOINT EFFICIENCY					SHELL 1.0 / HEAD 1.0																			
RADIOGRAPHY					SHELL : FULL / HEAD : FULL																			
POST WELD HEAT TREATMENT					NIL																			
HEAT TREATMENT					HEAD AS PER SPEC.																			
OPERATING MEDIUM					HC																			
SPEC. GRAVITY					TOP - 0.568 BOT - 0.453																			
WIND SPECIFICATION					IS - 875 (47 m/SEC.)																			
SEISMIC					IS 1893/SITE SPECTRA																			
CAPACITY					M ³					21.4														
PAINTING / CLEANING					AS PER JOB SPECIFICATION.																			
INSULATION TYPE / THICKNESS					mm					HOT/(H)155														
FIRE PROOFING					YES																			
HYDROSTATIC TEST PRESSURE (NEW & COLD)					Kg/cm ² (g)					HORZ. - (53.324)△					VERTICAL - (51.74) (AT TOP)									
INSPECTED BY					(EIL)△																			
FABRICATED WT.					Kgs.					29114 △														
OPERATING WEIGHT.					Kgs.					48079														
HYDROTEST WT. (SHOP) / (FIELD)					Kgs.					52705 / 60472														

OPERATING CONDITIONS										DESIGN CONDITIONS									
TEMPERATURE (°C)					PRESSURE Kg/cm ²					TEMPERATURE (°C)					PRESSURE Kg/cm ²				
SOR		EOR			SOR		EOR			TEMPERATURE (°C)		PRESSURE Kg/cm ²							
38		51			25		25			200		39.8							
TOP																			
BOTTOM		111 116			24.4		23			200		39.8							
REGENERATION		460(MAX)					1			505		3.5							
REGENERATION										150		F.V.							

NOZZLE SCHEDULE											
NOZZLE MARK		SERVICE		QTY.	SIZE NB	SCH. THK	FLANGES RATING TYPE/FACE		PROJ. (NOTE-4)	PAD W x THK	REMARKS
1 A-C		MANHOLE+B/F.+DAVIT		3	600	14 THK.	300	WNRF	1060	300 x 26	-
11		FEED FROM REGEN GAS		1	150	120	300	WNRF	SEE DRG.	85 x 26	-
12		FEED FROM 113-LZ-302 & 113-PA-404/B		1	200	80	300	WNRF	960	110 x 26	-
13		FEED FROM 113-LZ-302		1	50	160	300	WNRF	910	-	-
17		UG. BOTTOM OUTLET TO 114-EE-602		1	250	80	300	WNRF	SEE DRG.	115 x 26	△ NOTE-31
19 A-B		CATALYST DRAW OFF+B/F.		2	200	80	300	WNRF	960	110 x 26	-
21		VAPOUR DRAW OFF TO 114-EE-603		1	150	120	300	WNRF	960	85 x 26	-
31		DRAIN		1	80	160	300	WNRF	SEE DRG.	45 x 26	△ NOTE-31
35		UTILITY CONNECTION		1	50	160	300	WNRF	910	-	-
36		PRESSURE GAUGE		1	40	15.875	300	LWNRF	910	-	-
37		PRESSURE CONTROLLER		1	40	15.875	300	LWNRF	SEE DRG.	-	-
38 A-D		DIFFERENTIAL PRESS. TAP		4	40	15.875	300	LWNRF	910	-	-
40 A-F		MULTI POINT TEMPERATURE WELLS		6	50	16.67	300	LWNRF	910	-	-
45 A-B		STAND PIPE		2	50	160	300	WNRF	910	-	-
46 A-B		LTD(P)		2	50	16.67	300	LWNRF	910	-	-
A0		ACCESS OPENING		1	450						-
SKV1-3		SKIRT VENT OPENING		3	100						-

ANNEXURE-II									

GA DRAWING OF C4/C5 REACTOR 114-RB-601