

 TechnipFMC		 IndianOil		PROJECT		Standby SRU & Additional Tanks	
				CLIENT		INDIAN OIL CORPORATION LIMITED	
DATA SHEET		Project NO. 080557C001		Document No. 080557C-090-SP-0810-008		Rev. No. B	
						Page 1 of 4	
DATA SHEET TGTU (090) FUEL GAS KO DRUM 090-V-008							
B	7-May-2020	ISSUED FOR DESIGN	KSK	KH	MSS	JMC	
A	29-Nov-2019	ISSUED FOR DESIGN	KSK	KH	MSS	JMC	
REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED	AUTHORIZED	

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 	PROJECT	Standby SRU & Additional Tanks IOCL- Paradip Refinery		
	CLIENT	INDIAN OIL CORPORATION LIMITED		
DATA SHEET	Project No. 080557C001	Document No. 080557C-090-SP-0810-008	Rev. No. B	Page 2 of 4

The following notes to be considered for :

PDRP42208100-CE-089-0281 (**090-V-008** : Equipment Datasheet for Fuel Gas KO Drum)

General Notes

- Information shown below supersedes the information indicated in the following pages.**
- This document shall be read along with IOCL Specifications, Technip Specifications & FWEL Specifications.
- Wherever "IOCL" is mentioned inside FWEL document, the same shall be read as PMC.
- Wherever "Vendor" is mentioned, same shall be read as CONTRACTOR & VENDOR.
- All dimensions in mm unless specified otherwise.
- All thicknesses specified on the drawing / sketch are minimum after forming and machining. The LSTK contractor / Detail Engineering Contractor (DEC) shall be responsible for detail design.
- All Nozzle sizes, Projections, Elevations, Locations are preliminary and to be finalized during detail design.
- Flange ratings shall also be checked for impact due to loads from connected piping & shall be increased, if required. See code requirements .
- All removable Internals shall be designed to pass through Manhole.
- All carbon steel material shall be in killed quality.
- SS316 spiral wound gasket with graphite filler, SS316 inner ring & CS outer ring shall be used as gasket material.
- Local load analysis for process nozzles shall be carried out as per WRC 107 / 297 or FEA.
- Skirt Height and Anchorage are preliminary. 4.6 type anchor bolt considered. To be finalized by DEC.
- For Additional Technical Requirements, refer other specifications in ITB.

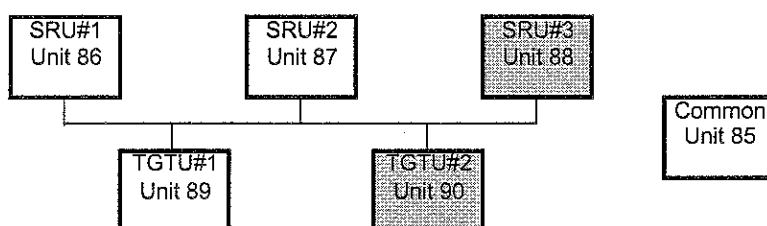
Specific Notes for **090-V-008**

- Quantity : ONE.
- Refer Painting specification for details of surface preparation and Painting.
- Nozzle Flange Type : WN-RF
- Body Flange for Vessel : If standard flange is used as body flange, Minimum 300# shall be followed. Also Body flange thk shall be verified as per ASME Sec VIII, Div-1, Appendix-2 and if required, thickness to be increased.
- Body Flange Gasket : SS 316 Kamprofile gasket with Graphite layers. Min. width of Gasket shall be 15 mm.
- All Pressure part and non-pressure part material shall be as per ASME. ASTM material is not to be used. Wherever ASTM is specified in this document, the same to be read as ASME.
- Nozzle reinforcement : All nozzle openings shall be completely reinforced including those openings in skirt.

FOSTER WHEELER ENERGY LIMITED					PROCESS SPECIFICATION	
CUSTOMERS NAME: Indian Oil Corporation Ltd (IOCL)					PROJECT No:	1-14-4200
LOCATION: Paradip, Orissa State, India					UNIT No:	TGTU#1 UNIT : 89- 090
SERVICE: FUEL GAS KO DRUM					ITEM No:	090-V-008 No. REQD: 1
					DOCUMENT CAT.	CLASS 1
REV	O1	F1			DOCUMENT No.	PDRP4220-8110-PS-089-0015
DATE	13-Jul-09	02-Oct-09			SHEET	1 OF 1
ORIG. BY	SMR	DJL <i>DJL</i>			DOCUMENT SEQUENCE No.	17773
APP. BY	SRB	SMR <i>SMR</i>				

GENERAL NOTES.

G1. The Licensor Basic Design Package for the SRU/TGTU consists of 3 x 50% SRU trains and 2 x 100% TGTU trains. There being a single redundant SRU train and a single redundant TGTU train. However, at project sanction the redundant units (Units 88 & 90) were deferred as shown in grey below.



G2. The Basic Design Package (BDP) has been provided by a licensor (Black & Veatch). Bidders/vendors should not communicate with Black & Veatch directly with regard to this enquiry. Any questions or clarifications should be forwarded to Foster Wheeler Energy Ltd for resolution with the client IOCL. Note that there are specific instances where design details/specifications must be submitted to Black & Veatch for approval.

NOTES SPECIFIC TO THE EQUIPMENT WITHIN THIS SPECIFICATION

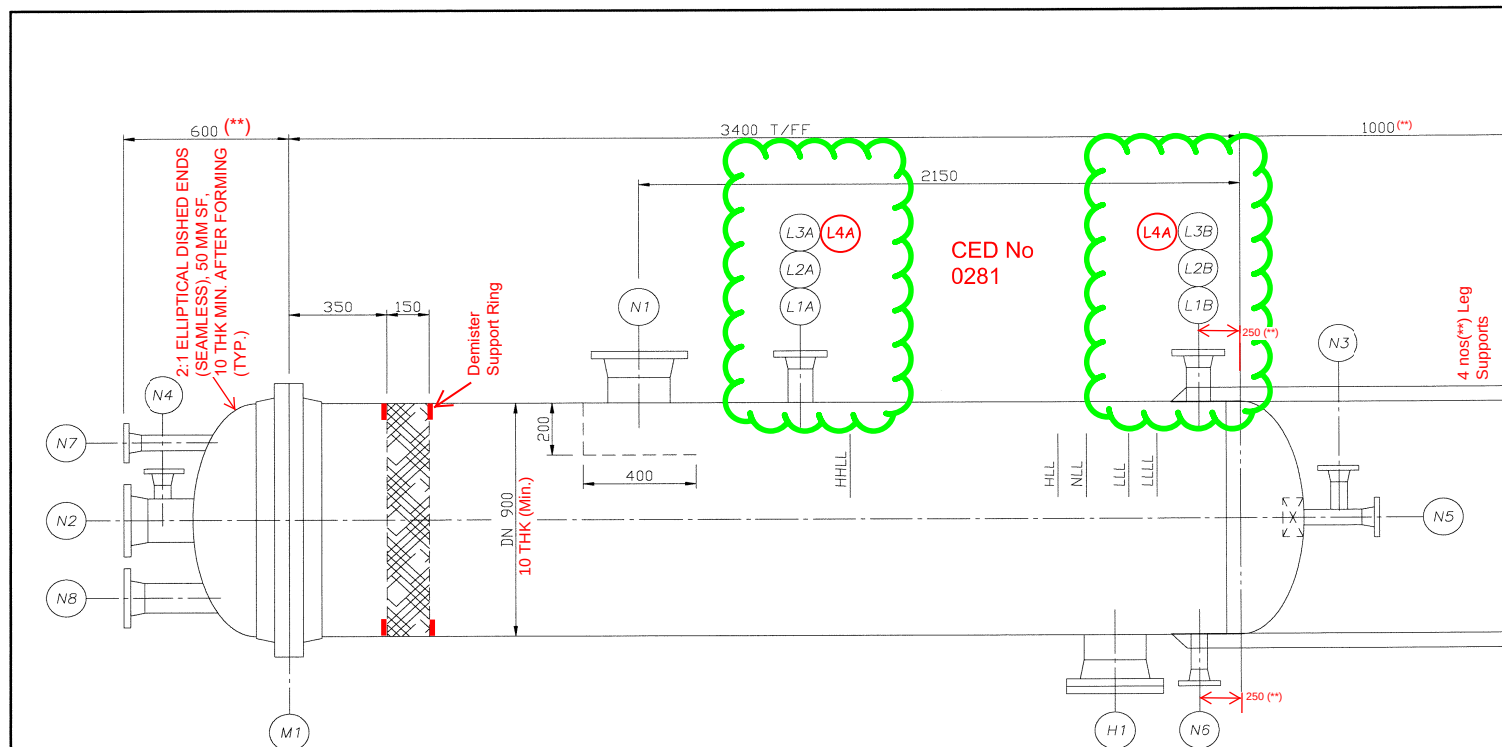
Referring to the attached licensor engineering datasheet the following notes apply, taking precedence over notes stated in the Black and Veatch Specification Sheets

1. ~~Reference to unit 090 shall be ignored~~

~~2. The quantity required is ONE~~

3. Nozzle N2 size is 200mm not 150mm.

4. See nozzle schedule for revisions to flange ratings and inclusions of PSV nozzle sizes. 



ASME B 16.47 Series B
#300 WN-RF flanges

PSV nozzle size to 80mm (HOLD)

Note 4 Specified Flange Rating is indicative. However Contractor/Vendor to verify the adequacy for connected piping Loads.

- NOTES:**
1. Leg Height is approximate and to be confirmed by DEC during detailed engineering.
 2. Gaskets to be Spiral Wound 316L SS 100% expanded graphite filled windings, CS outside rings.

LIQUID LEVELS ARE AS FOLLOWS:
HHLL: 1400 mm
HLL: 650 mm
NLL: 550 mm
LLL: 400 mm
LLLL: 300 mm

MESH PAD PROCESS DATA

PROPERTY	VAPOUR	LIQUID
MASS FLOW kg/hr	4,725	-
TEMPERATURE °C	40.0	-
PRESSURE kg/cm ² g	3.0	-
MOL WT	20.09	44.00
COMPRESSIBILITY	0.99	-
VISCOSITY cP	0.010	0.6
DENSITY kg/m ³	3.075	562
SURF. TENS dynes/cm	-	12
REMOVAL EFFICIENCY	99%	> 100µm
ΔP ALLOWED kg/cm ²	-	-

NOZZLE SCHEDULE

MARK	SIZE (mm) (NB)	RATING	TYPE	DESCRIPTION	NOZZLE ELEV. (mm)	PROJ. (mm)	REMARKS
N1	200	150#	RF	FUEL GAS INLET			W/ DEFLECTOR
N2	200	150#	RF	FUEL GAS OUTLET			W/ VORTEX BREAKER
N3	50	150#	RF	FUEL CONDENSATE OUTLET			
N4	50	150#	RF	VENT			
N5	50	150#	RF	DRAIN			
N6	50	150#	RF	UTILITY CONNECTION			
N7	80	150#	RF	RELIEF VALVE			HOLD SIZE
N8	100	150#	RF	AIR MOVER			
L1A/B	80	150#	RF	LEVEL BRIDGE CONNECTION			
L2A/B	80	150#	RF	LEVEL TRANSMITTER CONNECTION			
L3A/B	80	150#	RF	LEVEL TRANSMITTER CONNECTION			
L4A/B	80	150#	RF	LEVEL TRANSMITTER CONNECTION			
M1	900	150#	RF	BOILER FLANGE			W/ BLIND & Hinge
H1	200	150#	RF	HANDHOLE			

VESSEL DESIGN DATA				1
CODE:	ASME SECTION VIII	Division I	2019 Edition	2
STAMP:	NO	NAT'L BOARD		3
INTERNAL DESIGN PRESSURE:	6.0 kg/cm ² g @	65 °C		4
EXTERNAL DESIGN PRESSURE	FV kg/cm ² g @	175 °C		5
OPERATING PRESSURE:	3.0 kg/cm ² g @	40 °C		6
MINIMUM OPERATING TEMPERATURE:		°C		7
MINIMUM DESIGN METAL TEMPERATURE:		10 °C		8
PWHT:	No	STRESS RELIEVING: FOR BOTH DISHED ENDS		9
RADIOGRAPHY:	Spot			10
OTHER NDE:				11
JOINT EFFICIENCY:	SHELL: 0.85	HEADS: 1.00		12
CORROSION ALLOWANCE:	VESSEL: 3.0 mm	SUPT: 1.5 mm		13
WIND DESIGN:	REFER SPECIFICATION - 080557C-088-JSD-0400-001			14
SEISMIC DESIGN:	REFER SPECIFICATION - 080557C-088-JSD-0400-001			15
INSULATION TYPE:	NONE	THK: NONE		16
LIQUID SP. GR.:	0.566	DESIGN LIQ HT.:	1400 mm	17
SHOP HYDROTEST PRESSURE	By Vendor			18
MATERIAL SPECIFICATIONS				19
HEADS:	SA-516-70 N			20
SHELL:	SA-516-70 N			21
LEGS / RF PLATE:	A-36 (or) IS 2062 E 250 Gr. BR / B0 / SA-516-70N			22
NOZZLE NECKS:	SA-106B			23
FLANGES:	SA-105N			24
REPADS FOR NOZZLES:	SA-516-70 N			25
FIXED INTERNALS:	SA-516-70 N			26
REMOVABLE INTERNALS:	SA-516-70 N			27
TRAYS/PACKING:				28
VACUUM/INSULATION RINGS:	SA-516-70			29
DEMISTER PAD & GRIDS:	316SS			30
GASKETS:	316SS Spiral Wound		(NOTE 2)	31
BOLTING:	SA-193-B7/SA-194-2H			32
FOUNDATION DATA				33
Empty Weight (Shop Fabricated)			2,750 Kg	34
Operating Weight			3,300 Kg	35
Hydrotest Weight (at Site)			5,300 Kg	36
				37
				38
				39
				40
				41
				42
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				47
ACCESSORIES SUPPLIED BY VENDOR				48
INSULATION FURNISHED & INSTALLED BY:				49
INSULATION SUPTS/NO:		SIZE:		50
FIREPROOF SUPTS./I.S. SKIRT:		O.S. SKIRT:		51
DEMISTER MODEL:	MESH PAD	THK:	150 mm	52
DEMISTER FURNISHED BY:	VENDOR	INSTALLED BY:	VENDOR	53
TRAYS/PACKING FURNISHED BY:				54
TRAYS/PACKING TYPE:				55
TRAYS/PACKING INSTALLED BY:				56
SUPPORT RINGS/BOLTING BAR SIZE:				57
LIFTING LUGS:	YES	TAILING LUG:		58
TOWER DAVIT:		GROUNDING LUG:	Yes	59
				60
				61
CLEANING AND PAINTING				62
SURFACE PREPARATION:	PER SPEC.			63
PRIMER:	PER SPEC.			64
FINISH:	PER SPEC.			65
EXTERNAL CLIPS				66
QUANTITIES INDICATED ARE TOTAL (NOT PAIRS)				67
LADDER & PLATFORM		PIPE SUPPORT		68
TYPE	QUANTITY	TYPE	QUANTITY	69
1		5		70
2		6		71
3		7		72
4A		8		73
4B		9		74
		10		75
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Indian Oil Corporation Limited (IOCL)
Paradip Refinery Project (PDRP)
Paradip, Orissa State, India
089-V-008-090-V-008 Fuel Gas KO Drum
Note 1 (DN 900 mm x 3,400 mm T/FF)

JOB/REQ.	BY	DRAWING NO.	ISSUE
160796.1000	CWD	D5-089/090-V-008	0

Note 1