طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR 2nd STAGE G.C. SUCTION DRUMS

نگهداشت و افزایش تولید میدان نفتی بینک

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Rev.	**Date**	**Purpose of Issue / Status**	**Prepared by:**	**Checked by:**	**Approved by:**	**CLIENT Approval**

Class: 1 **CLIENT Doc. Number: F0Z-708835**

status:

IDC: Inter-Discipline Check

IFC: Issued For Comment

IFA: Issued For Approval

AFD: Approved For Design

AFC: Approved For Construction

AFP: Approved For Purchase

AFQ: Approved For Quotation

IFI: Issued For Information

AB-R: As-Built for CLIENT Review

AB-A: As-Built –Approved

REVISION RECORD SHEET

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3	X	X			
4	X	X			X
5	X	X	X	X	X
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General Notes

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1. The Asterisk * denotes information and/or confirmation required from VENDOR.
2. Deleted
3. VENDOR shall include for the services of a independent verification body for mechanical design, stage inspection, testing and stamping of the equipment (if possible).
4. Painting and coating (external) shall be as per project 'Specification for Painting', Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0006. Specification for Lining', Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0007.
5. Flanges shall comply with ASME B16.5. Nozzle bolt holes shall straddle the natural centrelines for horizontal nozzles. VENDOR to confirm maximum allowable nozzle loads and moments (RF: Raised Face, WN: Welding Neck)
6. All reinforcement pads shall have 1/4" (6mm) tell-tale hole and 1/8" (3mm) vent hole as per Standard Detail Drawing For Pressure Vessels and Heat Exchangers', Doc. No. BK-GNRAL-PEDCO-000-ME-DW-0001".
7. Manways shall be supplied complete with blind flange, external grab handles, internal grab handle and ladder rungs, nuts, bolting, gasket and proof load test davits. Davits shall be proof load tested on the vessels to 1.5 x Safe Working Load (SWL) and shall be marked accordingly.
8. All external bolts and nuts shall be hot dip galvanized. Internal bolts and nuts shall be stainless steel.
9. Loads at support base, Shall be calculated and determined by vendor.
10. Access Ladder & Platform to be considered .
11. Deleted
12. All material, corrosion allowance and their suitability for the process fluid at design pressure and temperature to be confirmed by vendor.
13. Deleted
14. All nozzle locations and orientations to be finalized later.
15. Instrumentation items are excluded from vendor's scope of supply.
16. Any changes in material of construction, location & orientation of the nozzles shall be confirmed by client.
17. All materials shall be new and unused.
18. Fabrication tolerances for vessel shall be in accordance with requirement of ASME code.
19. Location and number of lifting lugs on vessels shall be specificed on VENDOR drawing.
20. All items shall be clearly match marked against vessel drawings to facilitate erection.
21. For instrument's connections please refer to project "Specification For Instrumentation", Doc. No. BK-GNRAL-PEDCO-000-IN-SP-0001 Doc. No. BK-GNRAL-PEDCO-000-IN-SP-0001 and Instrument Hook-up Diagram ,Doc.No.BK-PPL-PEDCO-320-IN-DG-0002
22. Vendor shall supply details of all welding connections and give general specification of used materials.
23. For equipment requiring PWHT, final inspection and acceptance by the CLIENT or its nominated representative shall only be undertaken against NDE after PWHT. All weldings shall be made before vessel heat treatment (if any).
24. Equipment packaging, preparation for shipment and delivery shall be in accordance with the project Packing, Marking, Transportation Procedure Doc. No. "BK-GNRAL-PEDCO-000-QC-PR-0045".
25. Specified accessories and attachments shall be supplied by vendor.
26. Gasket shall be spiral wound type, graphite filled with inner ring and outer ring S.S.316
27. Fire proofing requirement will be specified as per result of fire proofing zone layout. "Area Classification: Zone 2, IIB, T3"
28. Insulation shall be as per project 'Specification for Insulation', Document No. BK-GNRAL-PEDCO-000-PI-SP-0019.
29. Two M12 earthing lugs shall be provided on vessel support. Material of Earthing lugs shall be S.S. 316

General Notes (Cont'd) D04

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30. For standard detail of Earth lug execution refer to the Project "Standard Detail Drawing For Pressure Vessels and Heat Exchangers Doc. No. BK-GNRAL-PEDCO-000-ME-DW-0001".

31. Elliptical heads shall be Ultrasonic Tested for LAMINATION after forming.

32. The projection of equipment's nozzles should be considered as per 'Standard Detail Drawing For Pressure Vessels and Heat Exchangers', Doc. No. BK-GNRAL-PEDCO-000-ME-DW-0001". Projection of Horizontal & Vertical nozzles is from tengent line and centerline respectively.

33. The elevation of equipment's nozzels should be specified as follows :
    I. For vertical vessels : from bottom T.L.
    II. For horizontal vessels : from Left T.L.

34. Nozzles and flanges shall be suitably supported and reinforced based on nozzle loads provided in project Specification for Pressure Vessels, Document No. BK-GNRAL-PEDCO-000-ME-SP-0001.

35. Prior to sealing the vessel for shipping and storage, the inside surface of the equipment shall be 100% visually inspected. Internal surfaces shall be clean and thoroughly dried. The CLIENT or its nominated representative shall witness the cleanliness of internal surfaces. Flange faces shall be protected by wooden or plastic dummy flanges.

36. Minimum requirement for pre-commissioning, commissioning, start up and two years operation and spare parts shall be in accordance with document E&C-QC-SP-1.

37 Lifting Lugs / trunnions shall be provided to facilitate a single point lift. If a single point lift cannot be achieved without the use of a lifting beam, then VENDOR shall provide a suitable, certified, lifting beam.

38. Design pressure specified is at top of vessels. VENDOR design shell include static head for vessels flooded with specific gravity of the handled liquid.

39. VENDOR is to maximize shop fabrication based on the following transportation limits:
    - Maximum weight: 96 tonnes
    - Maximum load per axle: 12 tonnes
    - Maximum length: 50.0 m
    - Maximum width: 5.0 m
    - Maximum height: 5.2 m

    For items with dimensions and weights greater than the road capacity specified above, VENDOR may be required to split the package into several components.

40. All external attachments directly welded to the pressure part shall be the same material as vessel grade.

41. The Vendor shall be fully responsible for the complete mechanical design, preparing calculation book and supply of the vessel.

42. All dimensions shown are in mm unless otherwise indicated. All nozzle sizes are in inch.

43. Deleted

44. DEMISTER specification will be finilized later.

45. The material shall be in compliance with NACE MR0175/ISO15156 and Specification For Material Requirements in Sour service Document No. BK-GNRAL-PEDCO-000-PI-SP-0008.

46. Welded carbon and carbon manganess steels for vessel shall comply with the following :
    Carbon content shall not exceed 0.23%.
    Based on the ladel analysis, below equation shall be satisfied.
    Ceq. = C+MN/6+(Cr+Mo+V)/5+(Cu+Ni)/15 < 0.42 %

47. All carbon steel material shall be fully killed, fine grain treated and supplied in the normalized condition.

D04 48. VENDOR to advise (VTA) internal for inlet nozzle.

Mech. Data Sheet For 2nd Stage G.C. Suction Drums (V-2102 A/B/C) / sheet 1 of 4

DATA SHEET

Rev							Rev
	1	Description :	2nd Stage G.C. Suction Drums				
	2	Tag No. :	V-2102 A/B/C	Quantity :	3 Set		
	3	Type :	Pressure Vessel				
	4	**Process Design Data**					
	5	Contents		Corrosive / Erosive		CO2, H2S	
	6	Operating Temp. (°C)	60	Liquid Flow	(kg/h)		
	7	Operating Press. (barg)	18.3	Vap. Molec. Weight	(kg/kmol)		
	8	Gas Flow (kg/h)		Liquid Sp. Gravity		0.01828	
	9	Liquid Viscosity (cP)		Service:		Sour HC	
	10	**Mechanical Design Data**		D04			
	11	Design Temp. (°C)	115.4	Vessel Orientation		Vertical	
	12	Design Press. (barg)	F.V / 22	HHLL	(mm)	950	
	13	Test Press. (barg)	Per Code & Specification	Nor. Liquid Vol.	(m^3)		
	14	Internal Vacuum (barg)	Yes	In. Dia. Of Boots	(mm)	-	
	15	In. Dia. of Shell (mm)	900	Boot Length	(mm)	-	
D04	16	Tan/Tan Dim. (mm)	3000	Boot Head Type		-	
	17	Vessel Head Type	2:1 Elliptical	Corr. Allowance	(mm)	-	
	18	Shell Wall Thk. (mm)	*	Joint Efficiency		0.85 (Shell) / 1 (Head)	
	19	Head Wall Thk. (mm)	* (After Forming)	Ambient Temp.	(°C)		
	20	Seismic Design	Site Class: D, Code: ASCE 7-10	MDMT	(°C)	5	
	21	Wind Design	Speed: 120 Km/hr (Max.), Code: ASCE 7-10	Insulation Required		Yes, PP	
	22	**Materials**					
	23	Code	ASME II / ASTM	Nozzle Necks:		A 106 Gr.B + 3mm Clad SS 316L	
	24	Shell / Heads	A 516 Gr. 70 N + 3mm Clad SS 316L	Pipes		A 106 Gr.B + 3mm Clad SS 316L	
	25	Heads	A 516 Gr. 70 N + 3mm Clad SS 316L	Plates		A 516 Gr.70 N	
	26	Lining / Cladding	- / 3mm SS 316L	Forgings		A 105 N + 3mm Clad SS 316L	
	27	Leg / Pad	A 283 Gr.C / A 516 Gr. 70	Flanges		A 105 N+ 3mm Clad SS 316L	
	28	Platform Gratings	Hot Dip Galvanized C.S.	Fittings		A 234 Gr. WPB + Cladding	
	29	Gaskets	Note 26	External Bolts		A193 Gr B7M (Note 8)	
	30	Lifting Lugs	A 516 Gr.70 N / A 283	External Nuts		A194 Gr 2HM (Note 8)	
	31	Reinforcing Pads	A 516 Gr.70 N	Internal Bolts		A193 Gr B8M	
	32	Ladder & Platform	C.S.	Internal Nuts		A194 8M	
	33	Internal welded Support	SS 316L	Name Plate		S.S	
	34						
	35	**REFERENCE STANDARDS & DOCUMENTS**					
	36	Mechanical Design Code		ASME Sec VIII Div 1, IPS-G-ME-150 (Latest Revision)			
	37	Specification for Pressure Vessels		BK-GNRAL-PEDCO-000-ME-SP-0001			
	38	Process Basis of Design		BK-GNRAL-PEDCO-000-PR-DB-0001			
	39	Piping & Instrument Diagram (P&ID)		BK-GCS-PEDCO-120-PR-PI-0009			
	40	Specification for Painting		BK-GNRAL-PEDCO-000-PI-SP-0006			
	41	Specification for Insulation		BK-GNRAL-PEDCO-000-PI-SP-0019			
	42	Specification For Material Requirements in Sour service		BK-GNRAL-PEDCO-000-PI-SP-0008 (Note 45)			
	43	**Fabrication and Inspection Requirements**					
	44	Inspection Authority	TPI & Client				
	45	Material Certification	In Accordance with BS EN 10204:2004, Type 3.1, Minimum for Pressure Containing and Attachments				
	46	Hydro Test Medium	Water	Hydro Test Procedure		Yes;Per Code & Spec. Requirements	
	47	Post Weld Heat Treatment	Per Code & Spec. Requirements	PT		100%	
	48	MT	100 % on Lifting Lug Fillet Welds	UT		Yes;Per Code & Spec. Requirements	
	49	RT	100 % On T-Joints and Head Joints Butt-Welds,				
	50		Spot On Shell Longitudinal and Circumferential Joints Butt-Welds,				
	51		100 % On Nozzle Neck to Flange & Fabricated Nozzle Neck Longitudinal Butt-Welds,				
	52	RT Report	Yes; Per Code & Spec. Requir.	PT Report		Yes;Per Code & Spec. Requirements	
	53	MT Report	Yes; Per Code & Spec. Requir.	UT Report		Yes;Per Code & Spec. Requirements	
	54	Fabrication Quality Control Plan (With Offer)		Yes			
	55	Welding Procedure Review / Approval		Yes			
	56	Surface Preparation & Coating		Specification for Painting Doc. No.BK-GNRAL-PEDCO-000-PI-SP-0006			
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Mech. Data Sheet For 2nd Stage G.C. Suction Drums (V-2102 A/B/C) / sheet 2 of 4

ACCESSORIES , NOZZLES LIST & LOADS @ BASE

Accessories & Attachments *(Note 25)*

Supporting Saddles	No	Name Plate Bracket	Yes	
Access Ladder & Platform (Note 10)	Yes	Name Plate	Yes	
Insulation Support	Yes	Earthing Lug *(Note 30)*	Yes	
Insulation	Yes	Tailing Lug	Yes	
Insulation Cover	Yes	Cathodic Protection (Sacrificial Anodes)	No	
Fireproofing Support (Note 27)	No	Anchor Bolts	No	
Lifting Lugs	Yes	Instrumentations	No	
Internal/ External Clips	Yes	Skid	No	
Template	No	Support Clips	Yes	
Boot	No	Vortex Breaker	Yes	
Davit for Manhole	Yes	Rung & Grip	No	
Internal Lining (By Painting)	Yes	Heating Coil	No	
Internal Demister Pad (Note 44)	Yes			

Nozzles List * *(Note 1)* D04

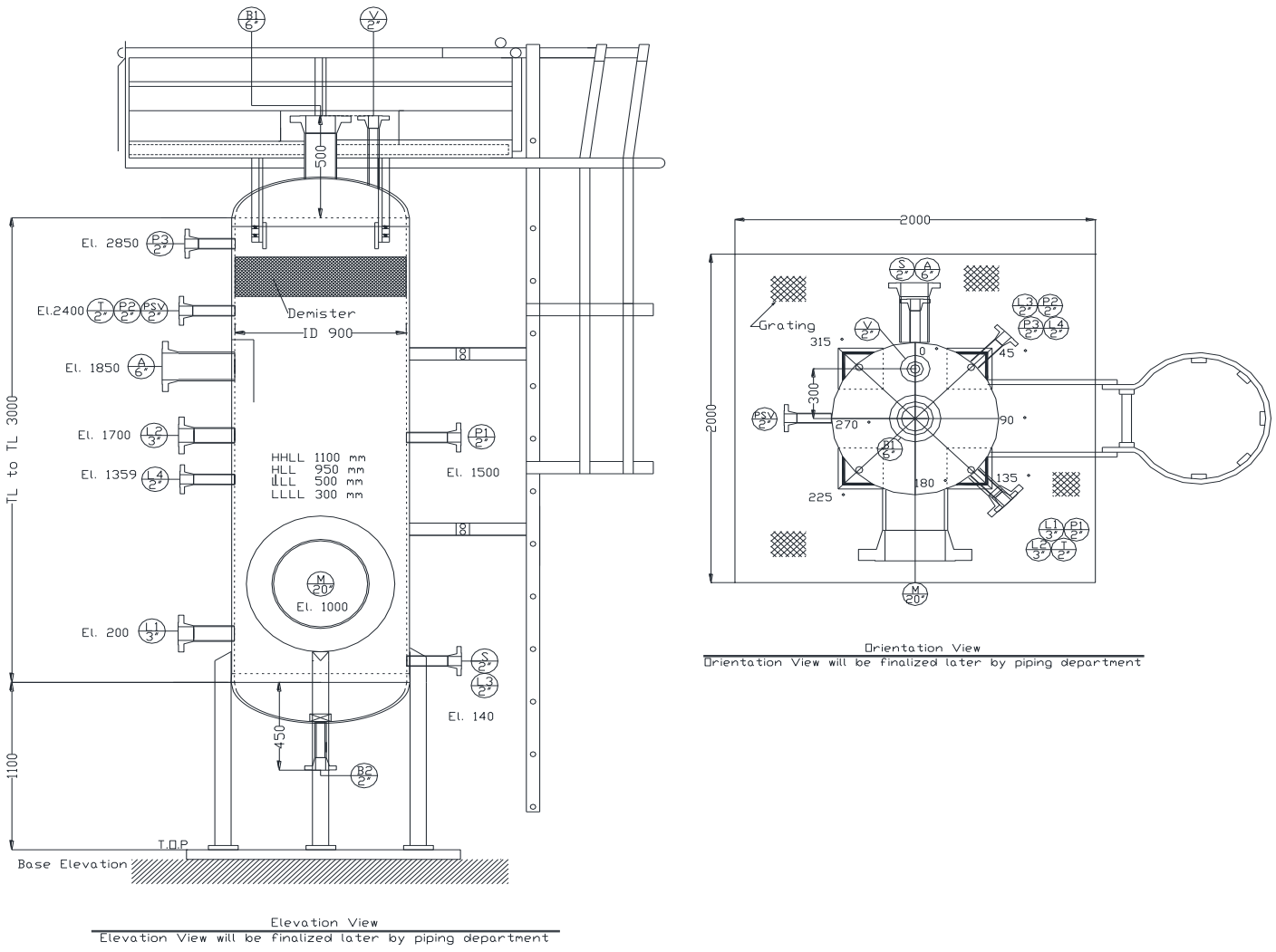
Mark	Qty.	Description	Pipe			Flange			Proj. (mm)	Reinforcement		Remarks	
			Size	Thk.	Sch.	Type	Rate.	Face	*(Note 32)*	Thk.	O.D.		
A	1	*Inlet*	*6"*			*WN*	*#300*	*RF*	*727**	*	*310**	*Note 6*	
B1	1	*Gas Outlet*	*6"*			*WN*	*#300*	*RF*	*500**	*	*310**	*Note 6*	D04
B2	1	*Liquid Outlet*	*2"*			*WN*	*#300*	*RF*	*450**				D04
V	1	*Vent*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
M	1	*Manhole*	*20"*			*WN*	*#300*	*RF*	*827**	*	*870**	*Note 6*	
S	1	*Utility Connection*	*2"*			*WN*	*#300*	*RF*	*659**				
L 1,2	2	*Stand Pipe*	*3"*			*WN*	*#300*	*RF*	*718**	*	*210**	*Note 6*	
L 3,4	2	*Level Transmitter*	*2"*			*WN*	*#300*	*RF*	*718**				
PSV	1	*Pressure Safety Valve*	*2"*			*WN*	*#300*	*RF*	*718**				
P1	1	*Pressure Gauge*	*2"*			*WN*	*#300*	*RF*	*718**				
T	1	*Temperature Gauge*	*2"*			*WN*	*#300*	*RF*	*718**				
P 2,3	2	PDIT	2"			*WN*	*#300*	*RF*	*718**				

Wind and Seismic Loads at Base * *Note(9)*

Load Condition / Load Type	Empty Condition			Operating Condition			Testing Condition		
	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)
WIND									
SEISMIC									

Mech. Data Sheet For 2nd Stage G.C. Suction Drums (V-2102 A/B/C) / sheet 3 of 4

Sketch



All dimensions are in mm.

Mech. Data Sheet For 2nd Stage G.C. Suction Drums (V-2102 A/B/C) / sheet 4 of 4

WEIGHT

WEIGHT CONTROL DATA SHEET SI UNIT *

1/1

Service	:	*2nd Stage G.C. Suction Drums*	Location	:	*Bushehr (Binak Oilfield)*
Type	:		Quotation No.	:	
No. trains	:		Serial No.	:	
No. stages	:				
Supplier	:				
Manufacturer	:				
Model	:				

Note: Information to be completed by equipment vendor.

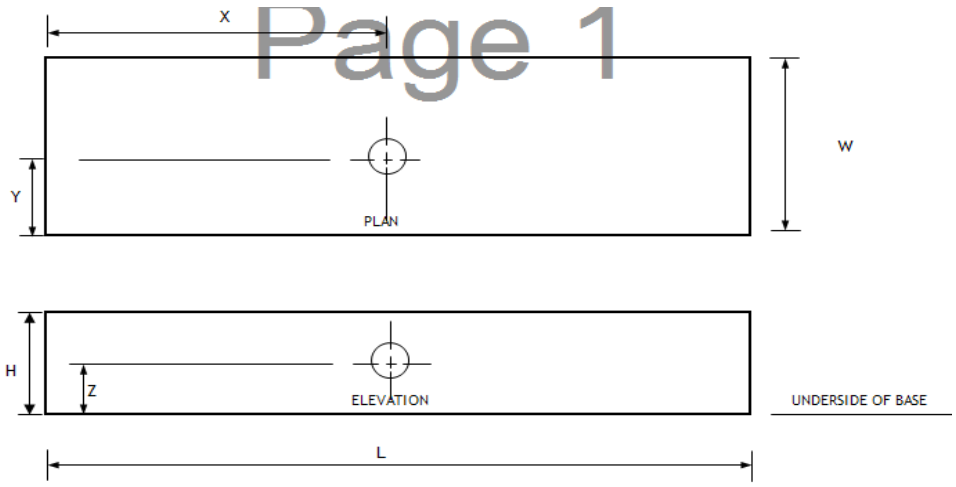
Total weight (kg) *

Fabrication	Erection	Operation	Hydrostatic Test	Removable internal	Ladder & Platform

WEIGHT AND C OF G DATA REQUIRED *

CONDITION	WEIGHT ACCURACY %	WEIGHT (kg)	CENTER OF GRAVITY (mm)		
			X	Y	Z
Dry					

SKETCH



NOTES

1) All lifting points to be load tested and certified.
2) Any spreader beam to be load tested and certified.
3) Lifting / rigging plan for skid mounted equipment to be provided by the Vendor.