

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک							  	
	MECHANICAL DATA SHEETS FOR LEAN GLYCOL STORAGE TANK								
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طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR LEAN GLYCOL STORAGE TANK

نگهداشت و افزایش تولید میدان نفتی بینک

D05	DEC.2024	AFC	V.Amjadi	M.Fakharian	M.Sadeghian	
D04	SEP.2024	AFC	V.Amjadi	M. Fakharian	M. Sadeghian	
D03	APR.2024	AFC	H.Ghadyani	M.Fakharian	S.Faramarzpour	
D02	AUG.2023	IFA	H.Ghadyani	M.Fakharian	M.A.Mohseni	
D01	DEC.2021	IFA	H.Adineh	M.Fakharian	M.Mehrshad	
D00	NOV.2021	IFC	H.Adineh	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: : 1 CLIENT Doc. Number: F0Z-708847

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



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General Notes

- The asterisk * denotes information and/or confirmation required from vendor. the vendor shall be fully responsible for design and supply of the tank. the tank shall be supplied in accordance with project "Specification For Atmospheric Above Ground Welded Steel Tanks.
- To be finalized/specified by VENDOR.
- The VENDOR/BIDDER shall design and supply the storage tank in accordance with "Specification For Atmospheric Above Ground Welded Steel Tanks", Document No.: "BK-GNRL-PEDCO-000-ME-SP-0002" and "Standard Detail Drawing For Storage Tanks", Document No.: BK-GNRL-PEDCO-000-ME-DW-0002'. VENDOR/BIDDER shall provide completed datasheets with bid.
- Tank height shall be checked based on Freeboard calculation by vendor.
- The VENDOR/BIDDER shall be fully responsible for the complete mechanical design of the tank.
- External and internal surface of tank shall be coated in accordance with BK-GNRL-PEDCO-000-PI-SP-0006 & BK-GNRL-PEDCO-000-PI-SP-0007 respectively.
- All materials for pressure parts shall fulfill the impact test requirements of API-650 standard.
- For standard detail of earth lug execution refer to the project "standard detail drawing for storage tanks Doc. NO. "BK-GNERL-PEDCO-000-ME-DW-0002" and provide minimum two earthing terminals.
- 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 vessel to 1.5 x Safe Working Load (SWL) and shall be marked accordingly.
- Instrument and piping nozzle flanges shall be in accordance with ASME B 16.5.
- Minimum width of shell courses plates shall be 1.5 m.
- Stairways shall meet the requirements of for IPS-G-ME-100 (Sec. 3.8.10), IPS-D-CE-141 & IPS-D-CE-142 and IPS-E-SF-400. The angle of stairways to horizontal plane shall not exceed 45°.
- Stand pipe connections on equipment shall be at least 3", 150# and for instruments installation on the stand pipe at least 2", 300# flanges shall be considered as per BK-GNRL-PEDCO-000-IN-SP-0001.
- If any imposed load (by nozzles or their connections) causes high local stress in any part of shell and roof, the subjected component shall be investigated according to appendix 'P' of API Std. 650.
- Cone roof angle and roof plates joint shall be so selected that tank roof plate thickness will not be greater than 12mm.
- All nozzles equal / greater than 2" shall have reinforcement pad.
- All nozzles connection weld to tank shall be with full penetration.
- Necessity of wind girder and stiffening ring will be finalized by vendor.
- Allowable stress of anchor bolts shall not be greater than those are recommended in API 650 standard.
- The requirement of internal and external cathodic protection shall be considered by VENDOR.
- Seal materials shall have enough resistance against temperature changes, expansion & contraction, fluid weight changes and etc.
- Will be specified later.
- All dimensions are in "mm" unless otherwise specified.
- Vent size and quantity shall be specified/verified by vendor according to API 2000.
- Projection of Horizontal and Vertical nozzles are specified from tank centerline and top of top angle (roof line) respectively.
- For standard detail of earth lug execution refer to the project "standard detail drawing for storage tanks DOC. NO. "BK-GNRL-PEDCO-000-ME-DW-0002" and provide minimum two earthing terminals and two cables per tank.
- All actual thicknesses shall be checked and calculated by vendor under mechanical guarantee accordingly.
- All nozzle loads shall not be less than specified values in the "Specification For Atmospheric Above Ground Welded Steel Tanks", Document No.: "BK-GNRL-PEDCO-000-ME-SP-0002"



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GENERAL INFORMATION (TO BE COMPLETED BY PURCHASER)

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1	1. PURCHASER / AGENT: <i>NISOC</i>
2	ADDRESS:
3	CITY: <i>Bushehr</i> PROV.: POSTAL CODE: PHONE:
4	2. USER:
5	3. ERECTION SITE: NAME OF PLANT: <i>Binak</i>
6	LOCATION: <i>BINAK, 20 km NORTHWEST of GENAVEH CITY</i>
7	4. TANK NO. <i>TK-2102</i> NOMINAL CAPACITY: <i>62</i> m ³ NET WORKING CAPACITY: <i>44</i> m ³
8	QTY. REQ'D: <i>1 Sets</i> OVERFILL PROTECTION (API RP 2350): m
9	5. PUMPING RATES: IN <i>3.3</i> (Note(22)) m ³ /hr OUT <i>5.5</i> (Note(22)) m ³ /hr
10	6. MIN./MAX. OPERATING TEMPERATURE: <i>AMB.</i> °C OPERATING PRESSURE: <i>0.01~0.05 barg</i>
11	7. PRODUCT STORED: <i>Lean Glycol Storage Tank</i> DESIGN SPEC. GRAVITY: <i>1.1</i> AT <i>163</i> °C
12	DESIGN TEMPERATURE: <i>85</i> °C VAPOR PRESSURE: kPa
13	8. CORROSION ALLOWANCE:
14	SHELL: <i>3.2</i> mm ROOF: <i>1.6</i> mm
15	BOTTOM: <i>3.2</i> mm STRUCTURALS: - mm
16	9. SHELL DESIGN: BASIC STANDARD API 650 <i>YES</i> APPENDIX A <i>YES</i> APPENDIX F <i>YES</i> IPS-G-ME-100 IPS-G-ME-110
17	DESIGN PRESSURE: <i>Full of Liquid +160 mbarg /-7mbarg</i>
18	10. ROOF DESIGN: BASIC STANDARD API 650 <i>YES</i> IPS-G-ME-100 <i>YES</i> IPS-G-ME-110 <i>NO</i>
19	APPENDIX G (ALUMINUM DOME) <i>NO</i>
20	FRANGIBLE ROOF JOINT <i>NO</i>
21	11. ROOF DESIGN INFORMATION:
22	UNIFORM LIVE LOAD: <i>1.2</i> kPa (g)
23	SPECIAL LOADS (PROVIDE SKETCH): kPa (g)
24	INSULATION LOAD: - kPa (g)
25	MAXIMUM DESIGN ROOF TEMPERATURE: °C
26	GASES IN THE VAPOUR SPACE:
27	
28	12. EARTHQUAKE DESIGN: (APPENDIX E) ROOF TIE RODS (5.10.4.5):
29	SEISMIC ZONE: <i>(ASCE7-10)</i> IMPORTANCE FACTOR <i>1.25</i> <i>Fa : 1</i> <i>Fv : 1.33</i>
30	SITE CLASS: <i>D</i> SITE COEFFICIENT: <i>Ss : 1.125</i> <i>SI : 0.46</i>
31	13. WIND LOAD: WIND CODE: <i>(ASCE7-10)</i>
32	VELOCITY: <i>232</i> km/hr (DIRECTION: NW TO SE)
33	PROVIDE INTERMEDIATE WIND GIRDER (5.9.7):
34	14. ENVIRONMENTAL EFFECTS:
35	MAXIMUM RAINFALL mm/year TOTAL SNOW ACCUMULATION mm
36	
37	15. SIZE RESTRICTIONS:
38	MAXIMUM DIAMETER <i>4000</i> mm MAXIMUM HEIGHT <i>5000</i> mm
39	16. FOUNDATION TYPE: CONCRETE RINGWALL <i>YES</i>
40	EARTH OTHER
41	17. APPLICABLE STANDARDS:
42	<i>API 650</i> & <i>IPS-G-ME-100 (1)</i>
43	17. SERVICE TYPE
44	<i>NO</i> SOUR <i>NO</i> NON-SOUR
45	LETHAL NON-LETHAL
46	18. NACE REQUIREMENT
47	<i>NO</i> SSC <i>NO</i> HIC
48	19. THE PROJECT DOCUMENTS:
49	<i>Mechanical Design Criteria</i> <i>BK-GNRAL-PEDCO-000-ME-DC-0001</i>
50	<i>Specification For field fabricated Large Welded Low Pressure Storage Tanks</i> <i>BK-GCS-PEDCO-120-ME-SP-0010</i>
51	<i>Piping Corrosion Study & Material Selection Report</i> <i>BK-GCS-PEDCO-120-PI-RT-0001</i>
52	<i>Process Basis of Design</i> <i>BK-GNRAL-PEDCO-000-PR-DB-0001</i>
53	<i>Process Design Criteria</i> <i>BK-GNRAL-PEDCO-000-PR-DC-0001</i>
54	<i>P&ID</i> <i>BK-GCS-PEDCO-120-PR-PI-0014</i>
55	<i>Specification for Painting</i> <i>BK-GNRAL-PEDCO-000-PI-SP-0006</i>
56	<i>Specification for Insulation</i> <i>BK-GNRAL-PEDCO-000-PI-SP-0019</i>
57	<i>Specification for Lining</i> <i>BK-GNRAL-PEDCO-000-PI-SP-0007</i>
58	REMARKS:
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CONSTRUCTION DETAILS (TO BE COMPLETED BY MANUFACTURER AND/OR PURCHASER)

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1	1. MANUFACTURER									
2	ADDRESS:									
3	CITY:		PROV.:			POSTAL CODE:			PHONE:	
4	SERIAL NUMBER:									
5	2. FABRICATOR:									
6	ADDRESS:									
7	CITY:		PROV.:			POSTAL CODE:			PHONE:	
8	SERIAL NUMBER:									
9	3. MATERIAL SPECIFICATIONS:									
10	SHELL :					PIPE :				
11	A-283 GR.C					A-106 GR.B				
12	ROOF :					FLANGE :				
13	A-283 GR.C					A-105				
14	BOTTOM / ANNULAR BOTTOM :					EXT. BOLT / NUT :				
15	A-283 GR.C					A-193 GR.B7 / A-194 GR.2H				
16	FIXED INTERNALS :					INT. BOLT / NUT :				
17	C.S.					S.S.				
18	REMOVABLE INTERNALS :									
19	S.S.									
20	STRUCTURALS :					A-36				
21	4. NO. OF SHELL COURSES									
22	5. PLATE WIDTHS AND THICKNESSES (INCLUDING CORROSION ALLOWANCE) (NOTE 27)									
23	1. 1500		4. 500		7. 10.					
24	2. 1500		5. 11.		8. 12.					
25	3. 1500		6. 12.		9. 12.					
26	6. TANK BOTTOM: PLATE THICKNESS mm (Note 27) YES LAP BUTT SEAMS									
27	SLOPE 1:120 mm per meter TO YES FROM CENTER									
28	7. MINIMUM WIDTH AND THICKNESS OF BOTTOM ANNULAR PLATES (5.5) :									
29	8. ROOF-TO SHELL DETAIL (FIGURE F-2 'API-650') :									
30	Detail B (Note 15)									
31	9. INTERMEDIATE WIND GIRDER (Note 18) NO TOP WIND GIRDER FOR USE AS WALKWAY :									
32	10. ROOF TYPE : YES CONE (Supported) DOME SPHERE									
33	SLOPE OR RADIUS : 1:5 (Note 15)									
34	11. ROOF PLATE: THICKNESS (Note 27) mm YES LAP BUTT JOINT									
35	12. PAINT: (Note 6)									
36	SHELL :		EXTERIOR		YES		INTERIOR		YES	
37	SURFACE PREPARATION									
38	BOTTOM :		UNDERSIDE		YES		INTERIOR		YES	
39	SURFACE PREPARATION									
40	ROOF :		EXTERIOR				INTERIOR		YES	
41	SURFACE PREPARATION									
42	STRUCTURAL STEEL :		EXTERIOR		YES		INTERIOR		-	
43	SPECIFICATION :									
44	13. TANK BOTTOM COATING:		INTERIOR		YES		MATERIAL			
45	APPLICATION SPECIFICATION									
46	14. INSPECTION BY:		SHOP		FILED					
47	15. WELD EXAMINATION: Radiograph (extent of radiography as per IPS-G-ME-100)									
48	Supplementary liquid penetrant or ultrasonic									
49	JOINT EFFICIENCY: As Per Code									
50	16. FILMS : PROPERTY OF									
51	17. LEAK TESTING:									
52	YES BOTTOM		YES ROOF		YES SHELL					
53	18. MILL TEST REPORTS: REQUIRED									
54	PLATE STRUCTURAL SHAPES									
55	19. PURCHASER'S REFERENCE DRAWING :									
56	20. TANK SIZE :		DIAMETER		4000		mm HEIGHT		5000 mm	
57	DATE OF STANDARD 650 EDITION/REVISION :									
58	The Latest Edition									
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APPURTENANCES (TO BE COMPLETED BY MANUFACTURER AND/OR PURCHASER)

1	1. STAIRWAY STYLE (Note 12)	YES	CIRCULAR	STRAIGHT	ANGLE TO HORIZONTAL	DEGREES
2	2. WALKWAY:		ROLLING LADDER			
3	3. DRAW -OFF SUMP:	YES	STANDARD	SPECIAL		
4	4. BOLTED DOOR SHEET :	NO	(APPENDIX A TANKS ONLY)	RAISED	FLUSH	
5	5. SCAFFOLD HITCH					
6	6. INTERNAL PIPING:		SWING LINE	SUCTION LINE		
7	7. ROOF DRAIN:		HEATING COIL SURFACE AREA		m ²	
8	8. NO. AND SIZE OF SHELL MANHOLES	1x 24"				
9	9. NO. AND SIZE OF ROOF MANHOLES	1 x 20"				

SHELL NOZZLES LIST (Notes 1,2,16,17 , 24 , 27 & 28)

MARK	QTY.	DESCRIPTION	PIPE			FLANGE			PROJ. (mm)	REINF.		REMARKS
			Size(in.)	Thk.	Sch.	Type	Rate.	Face		Thk.	O.D.	
A	1	Inlet	2			WN	150 #	RF	2150			
B1	1	Outlet	2			WN	150 #	RF	2150			
M1	1	Manhole	24			WN	150 #	RF	2500			
L1,2	2	Stand Pipe	3			WN	150 #	RF	2180			
L3,4	2	Level Transmitter	2			WN	300 #	RF	2150			
CC	1	Corrosion Coupon	2			WN	300 #	RF	2150			
S	1	Utility Connection	2			WN	150 #	RF	2150			
D	1	Drain	2			WN	150 #	RF	2150			
B2	1	Outlet to Glycol Regeneration Package	2			WN	150 #	RF	2150			
P	1	Pressure Transmitter	2			WN	300 #	RF	2150			

ROOF NOZZLES LIST (Notes 1, 2&27)

MARK	QTY.	DESCRIPTION	PIPE			FLANGE			PROJ. (mm)	REINF.		REMARKS
			Size(in.)	Thk.	Sch.	Type	Rate.	Face		Thk.	O.D.	
V1	1	Vent	6			WN	150 #	RF	See DWG			With Flame Arrestor
V2	1	Gauge Hatch	8			WN	150 #	RF				
M2	1	Roof Manhole	20			WN	150 #	RF				
PVSV 1,2	2	Pressure Vacume Safty Valve	2			WN	150 #	RF				
H	1	Safety Hatch	8			WN	150 #	RF				
N	1	Blanketing	2			WN	150 #	RF				

TOTAL WEIGHT (kg) (Note 2)

FABRICATION	OPERATION	HYDROSTATIC TEST	REMOVABLE STANDARD	LADDER & PLATFORM

LOADING (Note 2)

WINDSHEAR (KG)	WIND OVERTURNING MOMENT (KG.M)	EARTHQUAKE SHEAR (KG)	EARTHQUAKE OVERTURNING MOMENT (KG.M)



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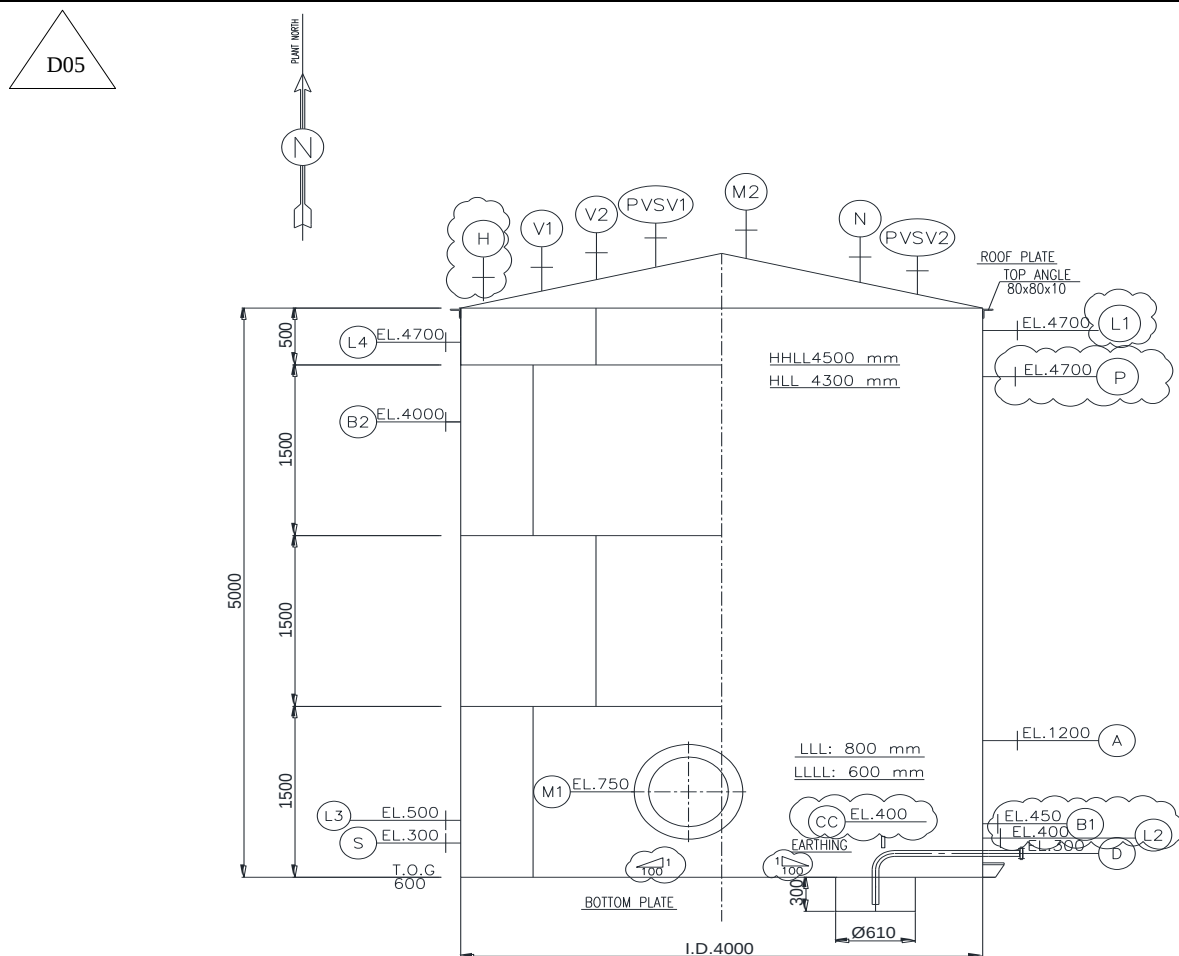
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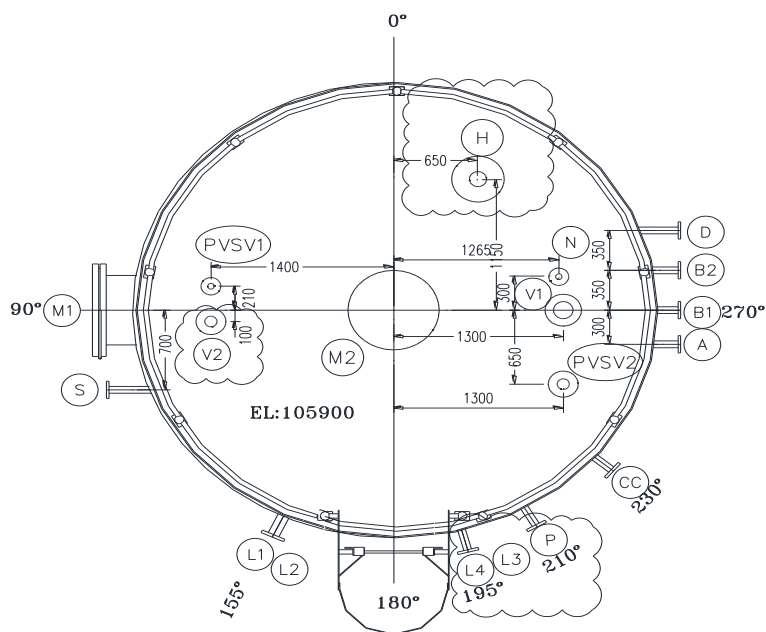
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GENERAL ARRANGEMENT VIEW



ELEVATION VIEW



ORIENTATION VIEW