

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک							  	
	Process Data Sheets For 1st Stage Gas Air Coolers								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری GCS	صادر کننده PEDCO	تسهیلات 120	رشته PR	نوع مدرک DT	سریال 0003	نسخه D03	شماره صفحه: ۱ از ۵

طرح نگهداشت و افزایش تولید ۲۷ مخزن

Process Data Sheets For 1st Stage Gas Air Coolers

نگهداشت و افزایش تولید میدان نفتی بینک

D03	Aug.2022	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D02	Jun.2022	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D01	Dec.2021	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D00	NOV.2021	IFC	M.Aryafar	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 2 CLIENT Doc. Number: F0Z-708748

- 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



NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

Process Data Sheets For 1st Stage Gas Air Coolers



شماره پیمان:
۰۵۳ - ۰۷۳ - ۹۱۸۴

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
D03	0003	DT	PR	120	PEDCO	GCS	BK

شماره صفحه: ۲ از ۵

CHANGE RECORD SHEET

PAGE	D00	D01	D02	D03
1	X	X	X	X
2	X	X	X	X
3	X	X	X	
4	X	X	X	
5	X	X	X	
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		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض								
		Process Data Sheets For 1st Stage Gas Air Coolers								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		پروژه BK	بسته کاری GCS	صادر کننده PEDCO	تسهیلات 120	رشته PR	نوع مدرک DT	سریال 0003	نسخه D03	شماره صفحه: ۳ از ۵
1	Note									Rev
2		Service Of Unit			1st Stage Gas Compression Cooler		Case		Summer Case	
3		Service Type			Sour Service		Tag No.		AE-2101 A/B/C	
4	7	Heat Duty(Normal x Overdesign)	MW	0.332	x	1.1	No. Req'd	3	Working	2 Standby 1 Total 3
5		Draught			Induced Draft Type		Winterization Control		☐ Yes ☒ No	
6		Cyclic Service			-		Misc. Conn's:		☐ TI ☐ PI	
7		P&ID Number BK-GCS-PEDCO-120-PR-PI-0008								
8		TUBE SIDE PERFORMANCE OF ONE UNIT								
9		Fluid Name Hydrocarbon								
10		Fluid Quantity Total (Normal)			kg/hr	8664	IN			Out
11					IN	Out	Molecular Weight	(V)	-	24.52
12		- Vapor	kg/h	8664	8664		(L)	-	-	-
13		- Liquid	kg/h	-	-	Density	(V)	kg/m ³	15.38	18.28
14							(L)	-	-	-
15		- Water	kg/h	-	-	Thermal Cond.	(V)	W/m-K	0.042	0.033
16							(L)	-	-	-
17		Temperature	°C	124.8 (1)	60	Specific Heat	(V)	kJ/kgmol°C	54.53	50.54
18		Operating Pressure	barg	19	18.3		(L)	-	-	-
19		Pressure Drop	bar Allowable	0.7		Viscosity	(V)	cP	0.015	0.013
20		Pour Point/Freeze Point	°C	-	/		(L)	-	-	-
21						Latent Heat	kJ/kg	-	-	-
22						Fouling Resistance	m ² °C/W	0.0002		
23		AIR SIDE PERFORMANCE OF ONE UNIT								
24		Inlet Air Temperature	°C	50.26	Min. Ambient Air Temperature	°C	5			
25		Barometric Pressure	milibar	914.2 -990.7	Elevation from sea level	m	12.5			
26		Air Side Fouling Resistance	m ² °C/W	0.00035						
27		Type Of Control								
28		Louver	☒ Yes ☐ No	Action Control	☐ Auto ☒ Manual					
29		Fan Pitch	☒ Yes ☐ No	Action Control	☒ Auto ☐ Manual					
30		VFD	☐ Yes ☒ No							
31		CONSTRUCTION								
32		Design Pressure	barg	22	Header Material	SS 316L (4)				
33		Vacuum Pressure @ Temp. of		-	Header Corr. Allow.	- mm				
34		Design Temperature	°C	155	Tube Material	SS 316L (4)				
35		MDMT	°C	-28	P.W.H.T.(Process Reason)					
36	2	Slope	%	Note2	Nozzle Size	in -Inlet	6			
37		Chemical Cleaning	☐ Yes ☒ No	Nozzle Size	in -Outlet	6				
38		Heating Fluid								
39		Heating Fluid		Flow Rate	kg/s					
40		Temperature(in/out)	°C	/	Inlet Pressure	barg	/			
41		Design Temperature	°C		Pressure Drop(allowable)	bar				
42		Inlet/Outlet Nozzle	in	/	Design Pressure	barg				
43		NOTES								
44	1	It will be finalized after receiving compressor supplier data.								
45	2	Bundle to be self draining. The last row should 1% sloped.								
46	3	Deleted.								
47	4	Deleted.								
48	5	For maximum, minimum and average temperature, min design relative humidity refer to "BK-GNRL-PEDCO-000-PR-DB-0001".								
49	6	Material requirement should be in compliance with NACE MR 0175/ISO 15156 and Technical Specification for Material Requirements in Sour service								
50		BK-GNRL-PEDCO-000-PI-SP-0008, <u>IPS-MPM-200</u> .								
51	7	Air coolers over sizing shall be considered 10 % on maximum duty or flow rate, whichever is greater.								

		نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض												
		Process Data Sheets For 1st Stage Gas Air Coolers												
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴		پروژه BK	بسته کاری GCS	صادر کننده PEDCO	تسهیلات 120	رشته PR	نوع مدرک DT	سریال 0003	نسخه D03	شماره صفحه: ۴ از ۵				
1	Note									REV				
2	Service Of Unit	1st Stage Gas Compression Cooler				Case		Winter Case						
3	Service Type	Sour Service				Tag No.		AE-2101 A/B/C						
4	7	Heat Duty(Normal x Overdesign)	MW	0.242	x	1.1	No. Req'd	3	Working	2	Standby	1	Total	3
5		Draught	Induced Draft Type				Winterization Control		☐ Yes ☒ No					
6		Cyclic Service	-				Misc. Conn's:		☐ TI ☐ PI					
7		P&ID Number	BK-GCS-PEDCO-120-PR-PI-0008											
8	TUBE SIDE PERFORMANCE OF ONE UNIT													
9		Fluid Name	Hydrocarbon											
10		Fluid Quantity Total (Normal)	kg/hr	7585		IN			Out					
11				IN		Out	Molecular Weight	(V) -	21.56	21.56				
12		- Vapor	kg/h	7585		7585		(L)	-	-				
13		- Liquid	kg/h	-		-	Density	(V) kg/m³	13.85	15.81				
14								(L)	-	-				
15		- Water	kg/h	-		-	Thermal Cond.	(V) W/m-K	0.042	0.035				
16								(L)	-	-				
17		Temperature	°C	113.1 (1)		60	Specific Heat	(V) kJ/kgmol°C	48.40	45.63				
18		Operating Pressure	barg	19		18.3		(L)	-	-				
19		Pressure Drop	bar Allowable	0.7			Viscosity	(V) cP	0.014	0.013				
20		Pour Point/Freeze Point	-		/	-		(L)	-	-				
21							Latent Heat	kJ/kg	-	-				
22							Fouling Resistance	m² °C/W	0.0002					
23	AIR SIDE PERFORMANCE OF ONE UNIT													
24		Inlet Air Temperature	°C	50.26		Min. Ambient Air Temperature	°C	5						
25		Barometric Pressure	milibar	914.2 -990.7		Altitude	m	12.5						
26		Air Side Fouling Resistance	m²°C/W	0.00035										
27	Type Of Control													
28		Louver	☒ Yes ☐ No		Action Control		☐ Auto ☒ Manual							
29		Fan Pitch	☒ Yes ☐ No		Action Control		☒ Auto ☐ Manual							
30		VFD	☐ Yes ☒ No											
31	CONSTRUCTION													
32		Design Pressure	barg	22		Header Material	SS 316L (4)							
33		Vacuum Pressure @ Temp. of		-		Header Corr. Allow.	-	mm						
34		Design Temperature	°C	155		Tube Material	SS 316L (4)							
35		MDMT	°C	-28		P.W.H.T.(Process Reason)								
36		Slope	%	Note2		Nozzle Size	in	-Inlet	6					
37		Chemical Cleaning	☐ Yes ☒ No			Nozzle Size	in	-Outlet	6					
38	Heating Fluid													
39		Heating Fluid					Flow Rate	kg/s						
40		Temperature(in/out)	°C	/		Inlet Pressure	barg	/						
41		Design Temperature	°C			Pressure Drop(allowable)	bar							
42		Inlet/Outlet Nozzle	in	/		Design Pressure	barg							
43	NOTES													
44	1	It will be finalized after receiving compressor supplier data.												
45	2	Bundle to be self draining. The last row should 1% sloped.												
46	3	Deleted.												
47	4	Deleted.												
48	5	For maximum, minimum and average temperature, min design relative humidity refer to "BK-GNRL-PEDCO-000-PR-DB-0001".												
49	6	Material requirement should be in compliance with NACE MR 0175/ISO 15156 and Technical Specification for Material Requirements in Sour service												
50		BK-GNRL-PEDCO-000-PI-SP-0008, <u>IPS-MPM-200</u> .												
51	7	Air coolers over sizing shall be considered 10 % on maximum duty or flow rate, whichever is greater.												



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض



Process Data Sheets For 1st Stage Gas Air Coolers

شماره پیمان:

یروڑہ

نته کاری

صادر کنندہ

تسهيلات

رشته

نوع مدرک

سویاں

نسخه

شماره ۵ صفحه: ۵ از ۵

• 03 - • 73 - 9184

Bk

GC5

PEDCO

120

PR

DT

0003

D03

1	Note
2	TUBE SIDE ENTHALPY / PHYSICAL PROPERTIES PROFILES
3	
4	INLET PRESSURE (19 BARG)
	Vapour PropertiesLiquid Properties
5	Temperature CEnthalpy [kJ/kgmol]Vapor FracVapour Density [kg/m3]Vapour Mass Specific Heat [kJ/kg-C)Vapour Viscosity [Cp]Vapour Thermal Conductivity [W/m K]Liquid Density [kg/m3]Liquid Mass Specific Heat [kJ/kg-C)Liquid Viscosity [Cp]Liquid Thermal Conductivity [W/m K]Surface Tension dyn/cmPseudo Pc (Barg)Pseudo Tc (C)
6	
7	
8	125-859421.0015.382.220.0150.042-- -- -- -- --
9	118-862941.0015.672.210.0150.041-- -- -- -- --
10	112-866431.0015.982.190.0140.040-- -- -- -- --
11	105-869901.0016.302.170.0140.039-- -- -- -- --
12	99-873341.0016.632.150.0140.038-- -- -- -- --
13	92-876751.0016.972.140.0140.037-- -- -- -- --
14	86-880141.0017.342.120.0140.036-- -- -- -- --
15	79-883501.0017.722.110.0130.036-- -- -- -- --
16	73-886841.0018.122.090.0130.035-- -- -- -- --
17	66-890151.0018.542.080.0130.034-- -- -- -- --
18	60-893451.0018.992.070.0130.033-- -- -- -- --
19	OUTLET PRESSURE (18.3 BARG)
20	Vapour PropertiesLiquid Properties
21	Temperature CEnthalpy [kJ/kgmol]Vapor FracVapour Density [kg/m3]Vapour Mass Specific Heat [kJ/kg-C)Vapour Viscosity [Cp]Vapour Thermal Conductivity [W/m K]Liquid Density [kg/m3]Liquid Mass Specific Heat [kJ/kg-C)Liquid Viscosity [Cp]Liquid Thermal Conductivity [W/m K]Surface Tension dyn/cmPseudo Pc (Barg)Pseudo Tc (C)
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23	
24	125-859271.0014.832.220.0150.042-- -- -- -- --
25	118-862781.0015.112.200.0150.041-- -- -- -- --
26	112-866271.0015.402.190.0140.040-- -- -- -- --
27	105-869731.0015.702.170.0140.039-- -- -- -- --
28	99-873161.0016.022.150.0140.038-- -- -- -- --
29	92-876571.0016.352.130.0140.037-- -- -- -- --
30	86-879951.0016.702.120.0130.036-- -- -- -- --
31	79-883311.0017.062.100.0130.036-- -- -- -- --
32	73-886641.0017.452.090.0130.035-- -- -- -- --
33	66-889951.0017.852.070.0130.034-- -- -- -- --
34	60-893231.0018.282.060.0130.033-- -- -- -- --
35	Note:
36	Refer to hazardous area classification layout, all instrumentation and electrical devices shall be suitable for: Zone:2,Gas Group:IIA ,
37	Temperature Class:T3
38	