



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

شماره پیمان:

· 54 - · 74 - 4 1 1 4

		CHEMICA	L CONSU	MPTIO	N LIST		
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه
BK	GCS	PEDCO	120	PR	П	0005	D02

شماره صفحه: ۱ از ۹

طرح نگهداشت و افزایش تولید ۲۷ مخزن

CHEMICAL CONSUMPTION LIST

نگهداشت و افزایش تولید میدان نفتی بینک

D02	JAN.2023	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D01	SEP.2022	IFA	M.Aryafar	M.Fakharian	M.Mehrshad	
D00	MAR.2022	IFC	M.Aryafar	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 1 CLIENT Doc. Number: F0Z-708811

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



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره صفحه: ۲ از ۹

ه پیمان:	شمار
----------	------

· 24 - · 74 - 4 1 1 4 +

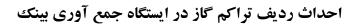
	CHEMICAL CONSUMPTION LIST									
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه			
BK	GCS	PEDCO	120	PR	LI	0005	D02			

REVISION RECORD SHEET

			1		KEVIOI
PAGE	D00	D01	D02	D03	D04
1	X	X	X		
2	X X X X X X	Χ	Х		
3	- X				
4	Ŷ				
5 6	X	Х	X		
7	X		X		
8	X	Х			
9	X	X X			
10					
11					
12 13					
13					
14					
15 16					
16					
17					
18 19					
19 20					
21					
21 22					
23					
23 24					
25					
26					
27					
28					
29					
30					
31					
32					
33 34					
34					
35 36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49 50					
50 51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65			l .		

PAGE	D00	D01	D02	D03	D04
66					
67					
68 69					
70					
71					
72					
73					
74 75					
76					
77					
78					
79 80					
81					
82					
83	ļ				
84	1				
85 86					
87					
88					
89					
90					
91 92					
93					
94					
95					
96					
97 98					
99					
100					
101					
102 103					
103					
105					
106					
107					
108 109					
110	t				
111					
112					
113	-				
114 115					
116					
117					
118	ļ				
119	1				
120 121	 				
122					
123					
124	ļ				
125	1				
126 127	 				
127					
129					
130					







شماره پیمان:

· ۵۳ - · ۷۳ - 9 1 1 4 F

		CHEMICA	L CONSU	MPTIO	N LIST		
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه
BK	GCS	PEDCO	120	PR	LI	0005	D02

شماره صفحه: ۳ از ۹

CONTENTS

1.0	INTRODUCTION	4
2.0	SCOPE	
3.0	NORMATIVE REFERENCES	
3.1	Codes and Standards	5
3.2	The Project Documents.	
3.3	ENVIRONMENTAL DATA	
3.4	Order of Precedence	
4.0	CHEMICAL CONSUMPTION LIST	6
4.1	CORROSION INHIBITOR	6
4.2	METHANOL INJECTION	



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

· 54 - · 74 - 4 176

		CHEMICA	L CONSU	MPTIO	N LIST		
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه
BK	GCS	PEDCO	120	PR	LI	0005	D02

شماره صفحه: ٤ از ٩

1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

As a part of the Project, a New Gas Compressor Station (adjacent to existing Binak GCS) shall be constructed to gather of 15 MMSCFD (approx.) associated gases and compress & transfer them to Siahmakan GIS.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT: National Iranian South Oilfields Company (NISOC)

PROJECT: Binak Oilfield Development – Surface Facilities; New

Gas Compressor Station

EPD/EPC CONTRACTOR (GC): Petro Iran Development Company (PEDCO)

EPC CONTRACTOR: Joint Venture of : Hirgan Energy – Design & Inspection

(D&I) Companies

VENDOR: The firm or person who will fabricate the equipment or

material.

EXECUTOR: Executor is the party which carries out all or part of

construction and/or commissioning for the project.

THIRD PARTY INSPECTOR (TPI): The firm appointed by EPD/EPC CONTRACTOR (GC)

and approved by CLIENT (in writing) for the inspection

of goods.

SHALL: Is used where a provision is mandatory.

SHOULD: Is used where a provision is advisory only.

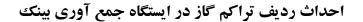
WILL: Is normally used in connection with the action by

CLIENT rather than by an EPC/EPD CONTRACTOR,

supplier or VENDOR.

MAY: Is used where a provision is completely discretionary.







ىيمان:	شماده

· 54 - · 74 - 9 1 1 4 ·

	CHEMICAL CONSUMPTION LIST							
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GCS	PEDCO	120	PR	Ц	0005	D02	

شماره صفحه: ٥ از ٩

2.0 SCOPE

This document defines process design basis for Binak Compressor Station to process sour gas from Golkhari booster/cluster and Binak production unit with cumulative rate of 15 MMSCFD. The new compressors will be added "future" section of existing Binak compressor station plant.

3.0 NORMATIVE REFERENCES

3.1 CODES AND STANDARDS

Not Applicable.

3.2 THE PROJECT DOCUMENTS

• BK-GNRAL-PEDCO-000-PR-DB-0001 Process Basis Of Design

BK-GNRAL-PEDCO-000-PR-DC-0001 Process Design Criteria

BK-PPL-PEDCO-320-PR-PI-0001
 P&ID - Gas Pipeline (to Siahmakan G.I. Station)

• BK-GCS-PEDCO-120-PR-PF-0001 Process Flow Diagram (PFD)

• BK-GCS-PEDCO-120-PR-UF-0001 Utility Flow Diagrams (UFD)

BK-GCS-PEDCO-120-PR-PI-0002~0025
 P&IDs

3.3 ENVIRONMENTAL DATA

Refer to "Process Basis of Design; Doc. No. BK-GNRAL-PEDCO-000-PR-DB-0001".

3.4 ORDER OF PRECEDENCE

In case of any conflict between the contents of this document or any discrepancy between this document and other project documents or reference standards, this issue must be reported to the CLIENT. The final decision in this situation will be made by CLIENT.



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

.04 - . 14 - 914

	CHEMICAL CONSUMPTION LIST									
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه			
BK	GCS	PEDCO	120	PR	LI	0005	D02			

شماره صفحه: ٦ از ٩

4.0 CHEMICAL CONSUMPTION LIST

4.1 CORROSION INHIBITOR

Refer to Process Flow Diagram and Utility Flow Diagram corrosion inhibitor injection is required for gas pipelines to manage corrosion due to H₂S and CO₂ in presence of water. Reported gas composition in the process flow diagram should be delivered to Vendors (chemical supplier) to determine required injection rate.

The corrosion inhibitor injection package has been considered as part of design where its design, including injection rate, should be finalized after clarification with chemical supplier.

Table 1 - Corrosion Inhibitor Consumption

Injection Point	FI	owrate (lit/h	r)	Operating	Continuous /	Notes	
Injection Foint	Min.	Max.	Rated	Pre. (barg)	Intermittent	INOTES	
Gas Pipeline Pig Launcher (PL-3201)	0.280	0.283	0.340	52.9	Continuous	1,2,4	
Gas Discharge Drum Outlet (V-2103)	0.282	0.284	0.341	53.9	Continuous	1,2,4	
Gas Pig Receiver Outlet (PR-1002)	0.098	0.098	0.117	7.5	Continuous	1,3,4	
Gas Pig Receiver Outlet (PR-2002)	0.188	0.188	0.225	7.5	Continuous	1,3,4	
Fuel Gas K.O. Drum (V-2205)	0.00013	0.00014	0.0002	4.9	Continuous	1,3,4	
Inlet K.O. Drum Outlet (V-2105)	0.285	0.285	0.342	5.1	Continuous	1,3,4	
Slug Catcher Drum Outlet (V-2104)	0.188	0.188	0.226	5.3	Continuous	1,3,4	



Notes:

1) Gas corrosion inhibitor injection rates are considered as 1 Pint/MMSCF (each pint equals to 0.47 liter) for gas compressor station lines with assumption of making 70% (fuel oil) - 30% (corrosion inhibitor) solution (will be finalized by chemical Vendor).

2) Assumption High Pressure Injection:

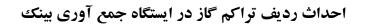
The Maximum consumption of Gas Corrosion inhibitor has been considered as injection to outlet of Gas Discharge Drum (V-2103) and injection to Gas Pipeline Pig Launcher (PL-3201).

<u>V-2103</u>: 14.51 MMSCFD <u>PL-3201</u>: 14.45 MMSCFD

Total: 14.51+14.45=28.96 MMSCFD & (((0.47*28.96)/24)/0.3)=1.89 lit/hr

The Minimum consumption of Gas Corrosion inhibitor has been considered as injection to outlet of Gas Discharge Drum (V-2103) and injection to Gas Pipeline Pig Launcher (PL-3201).







شماره پیمان:

· 54 - · 74 - 4 176

CHEMICAL CONSUMPTION LIST								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GCS	PEDCO	120	PR	LI	0005	D02	

شماره صفحه: ۷ از ۹

<u>V-2103</u>: 14.39 MMSCFD PL-3201: 14.31 MMSCFD

Total: 14.39+14.31=28.70 MMSCFD & (((0.47*28.70)/24)/0.3)=1.87 lit/hr

3) Assumption Low Pressure Injection:

The maximum consumption of Gas Corrosion inhibitor has been considered as injection to outlet of Gas Pig Receiver (PR-1002), injection to outlet of Gas Pig Receiver (PR-2102), injection to Fuel Gas K.O. Drum (V-2205) and injection to inlet of K.O. Drum Outlet (V-2105).

PR-1002: 4.99 MMSCFD PR-2002: 9.58 MMSCFD V-2205: 0.006 MMSCFD V-2105: 14.57 MMSCFD V-2104: 9.6 MMSCFD



Total: 4.99 + 9.58 + 0.006 + 14.57 + 9.6 = 38.74 MMSCFD & (((0.47*38.74)/24)/0.3)=2.52 lit/hr

The minimum consumption of Gas Corrosion inhibitor has been considered as injection to outlet of Gas Pig Receiver (PR-1002), injection to outlet of Gas Pig Receiver (PR-2102), injection to Fuel Gas K.O. Drum (V-2205) and injection to inlet of K.O. Drum Outlet (V-2105).

PR-1002: 4.99 MMSCFD PR-2102: 9.58 MMSCFD V-2205: 0.01 MMSCFD V-2105: 14.57 MMSCFD V-2104: 9.6 MMSCFD



Total: 4.99 + 9.58 + 0.01 + 14.57 + 9.6 = 38.75 MMSCFD & (((0.47*38.75)/24)/0.3)=2.53 lit/hr

4) Laboratory evaluation of corrosion inhibitor, based on NACE PUBLICATION 31215, NACE 1D196 and ASTM G170 standards shall be approved by employer-approved laboratories.



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

.04 - . 14 - 4114

CHEMICAL CONSUMPTION LIST								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GCS	PEDCO	120	PR	LI	0005	D02	

شماره صفحه: ۸ از ۹

4.2 METHANOL INJECTION

Refer to Process Flow Diagram and Utility Flow Diagram methanol injection is required for gas pipelines to prevent formation of hydration. Reported gas composition in the PFD should be delivered to Vendors (chemical supplier) to determine required injection rate.

The methanol injection package has been considered as part of design where its design, including injection rate, should be finalized after clarification with chemical supplier.

Table 2 - Methanol Injection Consumption

Injection Point	FI	owrate (lit/h	Continuous /	Notes	
injection Point	Min.	Max.	Rated	Intermittent	Notes
Gas Discharge Drum Outlet (V-2102A/B/C)	12.632	-	15.159	Intermittent	-
Gas Discharge 2nd Stage Gas Compression Air Cooler (AE-2102A/B/C)	35.834	-	43.0	Intermittent	2
Gas Discharge Drum Outlet (V-2103)	44.433	-	53.319	Intermittent	3
Dehydration Package Outlet (PK-2101)	50.208	-	60.249	Intermittent	4
Gas Pipeline	12.528	-	15.033	Intermittent	5

Notes:

1) Assumption:

The Maximum consumption of low pressure Methanol has been considered for the BDV-2131 A/B/C of Composite Gas Discharge 2nd Stage Gas Compression Suction DRUM (V-2102A/B/C) Maximum consumption for (BDV-2131A/B/C) = 5.819 kg/h

Mass density of Methanol =767.8 kg/m3

((5.819 *1000)/767.8)= 7.579 lit/hr

Total: 7.58 lit/hr *2 =15.159

2) Assumption:

The Maximum consumption of high pressure Methanol has been considered for the BDV-2132 A/B/C of Composite Gas Discharge 2nd Stage Gas Compression Air Cooler (AE-2102A/B/C)

Maximum consumption for (BDV-2132A/B/C) = 16.508 kg/h

Mass density of Methanol =767.8 kg/m3

((16.508 *1000)/767.8)= 21.5 lit/hr

Total: 21.5 lit/hr *2 =43.0

3) Assumption:

The Maximum consumption of high pressure Methanol has been considered for the BDV-2141 of



احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک



شماره پیمان:

·04 - · 14 - 9 1 1 4 ·

CHEMICAL CONSUMPTION LIST								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GCS	PEDCO	120	PR	LI	0005	D02	

شماره صفحه: ۹ از ۹

Composite Gas Discharge Drum Outlet (V-2103)

Maximum consumption for (BDV-2141) = 40.938 kg/h

Mass density of Methanol =767.8 kg/m3

((40.938 *1000)/767.8)= 53.319 lit/hr

Total: 53.319 lit/hr

4) Assumption:

The Maximum consumption of high pressure Methanol has been considered for the BDV-2151 of Composite Gas Dehydration Package Outlet (PK-2101)

Maximum consumption for (PDV 2151) = 46.250 kg/b

Maximum consumption for (BDV-2151) = 46.259 kg/h

Mass density of Methanol =767.8 kg/m³

((46.259 *1000)/767.8)= 60.249 lit/hr

Total: 60.249 lit/hr

5) Methanol consumption calculation for injection to 8" pipeline have been study based on pipeline hydrate formation study.

Methanol will be injected between 9.618 ~11.542 kg/hr. (Max flow when (PK-2101) is not in service, Max flow when destination pressure is 40 barg and (PK-2101) is not in service.

Maximum ((11.542*1000)/767.8)=15.033 lit/hr

Minimum (9.618*1000)/767.8=12.528 lit/hr

Note: Considering that the maximum amount of methanol consumption is 60.249 lit/hr, while the existing pump (X-4704P-1A) is working with capacity of 101 lit/hr, this amount is acceptable.