طرح نگهداشت و افزایش تولید 27 مخزن

DATA SHEETS FOR CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD

نگهداشت و افزایش تولید میدان نفتی بینک

Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	Client Approval
D06	JAN.2023	AFC	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D05	DEC.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D04	NOV.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D03	OCT.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D02	AUG.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D01	JUN.2022	IFA	P.Hajisadeghi	M.Fakharian	M.Mehrshad	
D00	MAR.2022	IFC	P.Hajisadeghi	M.Fakharian	M.Mehrshad	

Class: 1 | **Client Doc. Number: F9Z-707976**

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

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
053 - 073 – 9184	BK	W007S	PEDCO	110	IN	DT	0006	D06

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D05	D06	D07	D08	D09
1	X	X	X	X	X	1	X	X			
2	X	X	X	X	X	2	X	X			
3	X	X				3	X				
4	X	X				4	X				
5	X	X	X	X	X	5	X				
6	X	X	X	X	X	6	X				
7	X	X	X	X	X	7	X				
8	X	X	X	X	X	8	X				
9	X	X	X	X	X	9	X				
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REFERENCE DOCUMENTS :

Specification For Instrumentation	BK-GNRAL-PEDCO-000-IN-SP-0001
Process Basis Of Design	BK-GNRAL-PEDCO-000-PR-DB-0001
P&ID - Extension of Binak B/C Manifold	BK-W007S-PEDCO-110-PR-PI-0001
Piping Material Specification	BK-SSGRL-PEDCO-110-PI-SP-0001
Instrument & Control System Design Criteria	BK-SSGRL-PEDCO-110-IN-DC-0002
Process Flow Diagram - Extension of Binak B/C Manifold	BK-W007S-PEDCO-110-PR-PF-0001
Specification for Control Valve	BK-GNRAL-PEDCO-000-IN-SP-0005
Process Design Criteria	BK-GNRAL-PEDCO-000-PR-DC-0001
Specification For Painting	BK-GNRAL-PEDCO-000-PI-SP-0006

GENERAL NOTES:

1-The electrical equipment shall be suitable for hazardous area Zone 2, gas group IIB, temperature class T4.

2-Flow direction shall be specified on the valve body.

3- All flanges shall be in accordance with ASME B16.5.

4- Each valve shall be furnished with name plate as per "specification for control valves" with No. "BK-GNRAL-PEDCO-000-IN-SP-0005".

5- The following items shall be considered:

Design standard for globe valves: IPS-M-IN-160, BS1873

Design standard for plug valves: IPS-M-IN-160 API 599

Valve bonnet and bottom flanges shall be of bolted construction with fully retained gaskets

Trim and seat shall be easily replaceable. seat should be damped or backed up by a seat retainer

Packing material / Packing construction: Teflon/Chevron type

Material test certificate

Dimensional check

Hydrostatic test

Performance and mechanical operation test

Testy certificate including pressure test, visual, Dimensional and nude

Seal leakage test

Casting examination for valves 6 inches and larger in class 600 and higher as per ANSI B 16.34

Casting quality valves shall NDT (RT tested)

Mill test certificate for all metallic parts

6- Screwed bolt-type limit stops, e.g. on the control valve stem, adjustable over the full length of the stroke shall be applied. the vendor shall set the limit/travel stops at the required minimum or maximum valve opening.

7- Environmental Condition For Field Instrumentation Of BINAK oilfield Shall Be Considered As Per The Following:

Maximum ambient temperature: 50 (°C)
Minimum ambient temperature: -5 (°C)
Maximum steel surface exposed to sun: 85 (°C)
Maximum summer dry bulb: - (°C)
DB/RH for Summer HVAC Design: 41 °C / 61 % (Note */ Note**)
DB FOR Winter HVAC Design: 6 °C Note *

* Refer to " HVAC Design Criteria; N.I.O.C. NO.: F-1-B-422001".
** Refer to “NISOC Meteorological Studies Report".

Relative Humidity:

Maximum Design relative humidity (%): 100Minimum Design relative humidity (%): 0

8- Below content to be considered in process condition for all control valves:

H2S Mol% = W007S ,W035 , W028 , W046S =0.0003 / W018S , W008N = 0.0004

CO2 Mol%= W007S ,W035 , W028 , W046S = 0.0014 / W018S, W008N = 0.0022

CL- Content in formation water is 133504 ppm

MAX. Water CUT: ASMARI =20% , BANGESTAN =60%

9- All Control valves shall be IP 65 and weather proof.

10- Standard ISA75.01 for sizing of Control valves shall be considered by vendor.

11- In accordance to IPS-E-IN-160, Control valve body size normally shall not be less than half of normal line size.

12- 2 Nos. Eye-Bolt and 2 Nos. Jack Bolt for each valve to be supplied by vendor.

13- Quick Change Trim type control valve to be designed by vendor.

14- Main parameters such as Noise level, vibration, actuator sizing, valve construction material, CV factor, Fluid specification, … to be specified as per standard by vendor.

15- The stroking time shall be lower than 5 second for valves up to 4” and 1 second per inch diameter for bigger ones. (VTC)

16- Actuators shall be sized for a minimum air pressure of 3 barg. The normal operating pressure is 4.5 barg, and the maximum operating pressure is 8 barg. The capacity of the secured instrument air buffer vessel shall be sized for a minimum instrument air supply pressure of 3 barg.

17- Body color of valves shall be selected same as pipe color and actuator shall be green . For more details refer to the latest revision of "Specification For Painting Doc No."BK-GNRAL-PEDCO-000-PI-SP-0006 ".

نگهداشت و افزایش تولید میدان نفتی بینک

فعالیت های رو زمینی در بسته‌های کاری تحت‌الارض

ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تسهیلات

برق‌رسانی مربوط به موقعیت W007S و توسعه چندراهه کلاستر بینک

DATA SHEETS FOR CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه
D06	0006	DT	IN	110	PEDCO	W007S	BK

شماره پیمان: 053 - 073 – 9038

Control Valve

GENERAL	1	Tag No.			FCV-1701A	
	2	Service			FROM W018S	
	3	Line No.	P&ID No.		CRD-110-171A-FN05-4"-PT	BK-W007S-PEDCO-110-PR-PI-0001-D03 (3 of 6)
	4	Area Classification			Zone 2, IIB,T4	
	5	Ambient Temperature °C	Min.	Max.	-5	50
	6	Available Air Supply Pressure barg	Min.	Max.	4.5	8
	7	Nace Requirement:			Required	
PIPE & LINE	8	Pipe Class	Pipe Sch.		FN05	SCH. 80
	9	Pipe Line Insulation |Line Size	Pipe Material		PT / 4"	ASTM A 106-Gr.B, SMLS,ASME B36.10M

PROCESS CONDITIONS	10	Fluid			Crude oil	
	11	State			Mixed Gas,Hydrocarbon,Water /3 phase	
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP			93/93	
	13				Units	Max / Norm. / Min.
	14	Flow Rate(vapor/liquid)			kg/h	195.88/12285.84 / 178.076/11168.95 / 59.35/3722.98
	15	Inlet Pressure			bar-g	12.78 / 12.78 / 12.78
	16	Pressure Drop			bar	1.5
	17	Inlet Temperature(max)			ºC	36.31
		Molecular Weight(MIX)				77.41
	18	Liquid Specific Gravity (Gl) / Gas Specific Gravity				0.908/0.8
	19	Compressibility Factor(Z)(vapour)			-	0.94
	20	Viscosity (vapour/oil/water)			cP	0.011/8.89/0.69
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)			-	1.27/1.13
	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)			bar-g	12.78
	23	Critical Pressure (liquid)			bar-g	291.2
CALCULATED RESULTS	24	Flow Coefficient Cv (max-case)			-	20.32 (VTC)
	25	Travel (max-case)			%	BY VENDOR
	26	Sound Pressure Level			dBA	Max. 85 dBA(VTC) / Max. 85 dBA(VTC) / Max. 85 dBA(VTC)

BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)		
	28	Rated Cv		VTA		
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		
	30	Leakage class		IV		
	31	Body/Bonnet Material		ASTM A216 GR. WCB		
	32	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		
	34	Packing Material		P.T.F.E.		
	35	Trim Type		SINGLE SEATED/CAGE		
	36	Characteristic		EQUAL PERCENTAGE (VTC)		
	37	Guiding		(NOTE 4)		
	38	Rated Travel		(NOTE 4)		
	39	Plug/Disk Material		SS316 (Note 6)		
	40	Seat Material		SS316 (Note 6)		
	41	Cage/Guid Material		SS316 (Note 6)		
	42	Stem Material		SS316 (Note 6)		
	43	Trim Material		SS316 (Note 6)		
	44	MFR	Model	(NOTE 4)	(NOTE 4)	
ACTUTOR	45	Size	Eff.Area	(NOTE 4)	(NOTE 4)	
	46	Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED	
	47	Air Action	Orientation	AIR TO OPEN	VERT. UP	
	48	Actuator Type		Spring Return and Diaphragm Type		
	49	AIR Min/ Max/ Des. (Barg)		3 (Note3)	7	8
	50	MFR	Model	(NOTE 4)	(NOTE 4)	
PURCHASE		Manufacturer		(Note 4)		
		Model		(Note 4)		

POSITIONER (Note 5)	50	Type			Electro-Pneumatic Smart
	51	Input Signal			4~20 mA-HART Smart
	52	Power Supply			24 VDC loop powered
	53	Electrical Connection			ISO M20x 1.5
	54	Increase/Decrease Air			Increase to Open(VTC)
	55	Lock Last Position			Failure Position/Close
	56	Output Signal			3-15 Psi
	57	I.P./Ex.Protec.	Gauge	65 / EExia	Yes
	58	MFR/Model	LCD requirement	(NOTE 4)	Yes
SOLENOID VALVE	59	Type	Qty.	N/A	N/A
	60	MFR	Model	N/A	N/A
	61	I.P.	Ex.Protec.	N/A	N/A
	62	MFR	Model	N/A	N/A
SWITCHES	63	Type	Qty.	N/A	N/A
	64	Power Supply		N/A	
	65	Contacts / Rating		N/A	
	66	Switching Position		N/A	
	67	I.P.	Ex.Protec.	N/A	N/A
	68	MFR	Model	N/A	N/A
AIR SET	69	Set Pressure		Yes (NOTE 4)	
	70	Filter	Gauge	Yes	Yes
	71	Pnumatic Conn.		1/4 " NPTF	
	72	MFR	Model	(NOTE 4)	(NOTE 4)
TESTS	73	Hydro. Pressure		API 598	
	74	Leakage Class		Certificate Required	
	75	Performance Test		Required	
OPTIONS	76	Internal Tubing		Required(with Double Ferrule Compression conn.)	
	77	Tube Material		316 S.S L	
	78	Cable Gland		M20, Nickel plated brass	
	79	Cable Entry		M20 x 1.5	

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimmum of instrument air pressure supply is 4.5 barg but 3 barg working pressure as minimmum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellited facing shall be supplied for valve plugs and guides with solid stellited seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

Control Valve

GENERAL	1	Tag No.			FCV-1701B	
	2	Service			FROM W046S	
	3	Line No.	P&ID No.		CRD-110-171B-FN05-4"-PT	BK-W007S-PEDCO-110-PR-PI-0001-D03 (3 of 6)
	4	Area Classification			Zone 2, IIB,T4	
	5	Ambient Temperature ºC	Min.	Max.	-5	50
	6	Available Air Supply Pressure barg	Min.	Max.	4.5	8
	7	Nace Requirement:			Required	
PIPE & LINE	8	Pipe Class	Pipe Sch.		FN05	SCH. 80
	9	Pipe Line Insulation |Line Size	Pipe Material		PT / 4"	ASTM A 106-Gr.B, SMLS,ASME B36.10M
PROCESS CONDITIONS	10	Fluid			Crude oil	
	11	State			mixed / 3 phase	
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP			93/93	
	13				Units	Max / Norm. / Min.
	14	Flow Rate(vapor/liquid)			kg/h	712.24/18451.85 / 647.492/16774.41 / 431.66/11182.94
	15	Inlet Pressure			bar-g	12.78 / 12.78 / 12.78
	16	Pressure Drop			bar	1.5
	17	Inlet Temperature(max)			ºC	31.37
		Molecular Weight(MIX)				39.09
	18	Liquid Specific Gravity (Gl) / Gas Specific Gravity				0.952/0.8
	19	Compressibility Factor(Z)(vapour)			-	0.94
	20	Viscosity (vapour/oil/water)			cP	0.011/6.25/0.77
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)			-	1.276/3.66
	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)			bar-g	12.78
	23	Critical Pressure (liquid)			bar-g	1140
CALCULATED RESULTS	24	Flow Coefficient Cv (max-case)			-	40.052 (VTC)
	25	Travel (max-case)			%	BY VENDOR
	26	Sound Pressure Level			dBA	Max. 85 dBA(VTC) / Max. 85 dBA(VTC) / Max. 85 dBA(VTC)

BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)		
	28	Rated Cv		VTA		
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		
	30	Leakage class		IV		
	31	Body/Bonnet Material		ASTM A216 GR. WCB		
	32	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		
	34	Packing Material		P.T.F.E.		
	35	Trim Type		SINGLE SEATED/CAGE		
	36	Characteristic		EQUAL PERCENTAGE (VTC)		
	37	Guiding		(NOTE 4)		
	38	Rated Travel		(NOTE 4)		
	39	Plug/Disk Material		SS316 (Note 6)		
	40	Seat Material		SS316 (Note 6)		
	41	Cage/Guid Material		SS316 (Note 6)		
	42	Stem Material		SS316 (Note 6)		
	43	Trim Material		SS316 (Note 6)		
	44	MFR	Model	(NOTE 4)	(NOTE 4)	
ACTUTOR	45	Size	Eff.Area	(NOTE 4)	(NOTE 4)	
	46	Air Failure	Handwheel	FAIL CLOSE	TOP MOUNTED	
	47	Air Action	Orientation	AIR TO OPEN	VERT. UP	
	48	Actuator Type		Spring Return and Diaphragm Type		
	49	AIR Press. Min/ Max/ Des. (Barg)		3 (Note3)	7	8
	50	MFR	Model	(NOTE 4)	(NOTE 4)	
PURCHASE		Manufacturer		(Note 4)		
		Model		(Note 4)		

POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart	
	52	Input Signal		4~20 mA-HART Smart	
	53	Power Supply		24 VDC loop powered	
	54	Electrical Connection		ISO M20x 1.5	
	55	Increase/Decrease Air		Increase to Open(VTC)	
	56	Lock Last Position		Failure Position/Close	
	57	Output Signal		3-15 Psi	
	58	I.P./Ex.Protec.	Gauge	65 / EExia	Yes
	59	MFR/Model	LCD requirement	(NOTE 4)	Yes
SOLENOID VALVE	60	Type	Qty.	N/A	N/A
	61	MFR	Model	N/A	N/A
	62	I.P.	Ex.Protec.	N/A	N/A
	63	MFR	Model	N/A	N/A
SWITCHES	64	Type	Qty.	N/A	N/A
	65	Power Supply		N/A	
	66	Contacts / Rating		N/A	
	67	Switching Position		N/A	
	68	I.P.	Ex.Protec.	N/A	N/A
	69	MFR	Model	N/A	N/A
AIR SET	70	Set Pressure		Yes (NOTE 4)	
	71	Filter	Gauge	Yes	Yes
	72	Pnumatic Conn.		1/4 " NPTF	
	73	MFR	Model	(NOTE 4)	(NOTE 4)
TESTS	74	Hydro. Pressure		API 598	
	75	Leakage Class		Certificate Required	
	76	Performance Test		Required	
OPTIONS	77	Internal Tubing		Required(with Double Ferrule Compression conn.)	
	78	Tube Material		316 S.S L	
	79	Cable Gland		M20, Nickel plated brass	
	80	Cable Entry		M20 x 1.5	

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimmum of instrument air pressure supply is 4.5 barg but 3 barg working pressure as minimmum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellited facing shall be supplied for valve plugs and guides with solid stellited seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

Control Valve

GENERAL	1	Tag No.			FCV-1701C		
	2	Service			FROM W008N		
	3	Line No.	P&ID No.		CRD-110-171C-FN05-4"-PT	BK-W007S-PEDCO-110-PR-PI-0001-D03 (4 of6)	
	4	Area Classification			Zone 2, IIB,T4		
	5	Ambient Temperature °C	Min.	Max.	-5	50	
	6	Available Air Supply Pressure barg	Min.	Max.	4.5	8	
	7	Nace Requirement:			Required		
PIPE & LINE	8	Pipe Class	Pipe Sch.		FN05	SCH. 80	
	9	Pipe Line Insulation |Line Size	Pipe Material		PT / 4"	ASTM A 106-Gr.B, SMLS,ASME B36.10M	
PROCESS CONDITIONS	10	Fluid			Crude oil		
	11	State			mixed / 3 phase		
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP			93/93		
	13				Units	Max	Norm. / Min.
	14	Flow Rate(vapor/liquid)			kg/h	218.94/12262.78	199.04/11147.99 / 66.34/3715.99
	15	Inlet Pressure			bar-g	12.78	12.78 / 12.78
	16	Pressure Drop			bar	1.5	
	17	Inlet Temperature(max)			°C	46.19	
		Molecular Weight(MIX)				77.41	
	18	Liquid Specific Gravity (Gl) / Gas Specific Gravity				0.901/0.8	
	19	Compressibility Factor(Z)(vapour)			-	0.94	
	20	Viscosity (vapour/oil/water)			cP	0.011/7.60/0.58	
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)			-	1.25/1.17	
	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)			bar-g	11.78	
	23	Critical Pressure (liquid)			bar-g	291.2	
CALCULATED RESULTS	24	Flow Coefficient Cv (max-case)			-	21.03 (VTC)	
	25	Travel (max-case)			%	BY VENDOR	
	26	Sound Pressure Level			dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC) / Max. 85 dBA(VTC)

BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)	POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart
	28	Rated Cv		VTA		52	Input Signal		4~20 mA-HART Smart
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53	Power Supply		24 VDC loop powered
	30	Leakage class		IV		54	Electrical Connection		ISO M20x 1.5
	31	Body/Bonnet Material		ASTM A216 GR. WCB		55	FlowDirection		Flow to Open(VTC)
	32	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		56	Lock Last Position		Failure Position/Close
						57	Output Signal		3-15 Psi
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		58	I.P./Ex.Protec.	Gauge	65 / EExia / Yes
	34	Packing Material		P.T.F.E.		59	MFR/Model	LCD requirement	(NOTE 4) / Yes
	35	Trim Type		SINGLE SEATED/CAGE	SOLENOID VALVE	60	Type	Qty.	N/A / N/A
	36	Characteristic		EQUAL PERCENTAGE (VTC)		61	MFR	Model	N/A / N/A
	37	Guiding		(NOTE 4)		62	I.P.	Ex.Protec.	N/A / N/A
	38	Rated Travel		(NOTE 4)		63	MFR	Model	N/A / N/A
	39	Plug/Disk Material		SS316 (Note 6)	SWITCHES	64	Type	Qty.	N/A / N/A
	40	Seat Material		SS316 (Note 6)		65	Power Supply		N/A
	41	Cage/Guid Material		SS316 (Note 6)		66	Contacts / Rating		N/A
	42	Stem Material		SS316 (Note 6)		67	Switching Position		N/A
	43	Trim Material		SS316 (Note 6)		68	I.P.	Ex.Protec.	N/A / N/A
	44	MFR	Model	(NOTE 4) / (NOTE 4)		69	MFR	Model	N/A / N/A
ACTUTOR	45	Size	Eff.Area	(NOTE 4) / (NOTE 4)	AIR SET	70	Set Pressure		Yes (NOTE 4)
	46	Air Failure	Handwheel	FAIL CLOSE / TOP MOUNTED		71	Filter	Gauge	Yes / Yes
	47	Air Action	Orientation	AIR TO OPEN / VERT. UP		72	Pnumatic Conn.		1/4 " NPTF
	48	Actuator Type		Spring Return and Diaphragm Type		73	MFR	Model	(NOTE 4) / (NOTE 4)
	49	AIR Press. Min/ Max/ D (Barg)		3 (Note3) / 7 / 8	TESTS	74	Hydro. Pressure		API 598
	50	MFR	Model	(NOTE 4) / (NOTE 4)		75	Leakage Class		Certificate Required
						76	Performance Test		Required
					OPTIONS	77	Internal Tubing		Required(with Double Ferrule Compression conn.)
						78	Tube Material		316 S.S L
PURCHASE		Manufacturer		(Note 4)		79	Cable Gland		M20, Nickel plated brass
		Model		(Note 4)		80	Cable Entry		M20 x 1.5

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimmum of instrument air pressure supply is 4.5 barg but 3 barg working pressure as minimmum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellited facing shall be supplied for valve plugs and guides with solid stellited seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

NISOC	نگهداشت و افزایش تولید میدان نفتی بینک فعالیت های رو زمینی در بسته‌های کاری تحت‌الارض ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تسهیلات برق‌رسانی مربوط به موقعیت W007S و توسعه چندراهه کلاستر بینک DATA SHEETS FOR CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD	

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: 8 از 10
053 - 073 – 9038	BK	W007S	PEDCO	110	IN	DT	0006	D06	

Control Valve

GENERAL	1	Tag No.			FCV-1701D		
	2	Service			FROM W028		
	3	Line No.	P&ID No.		CRD-110-171D-FN05-4"-PT	BK-W007S-PEDCO-110-PR-PI-0001-D03 (4 of 6)	
	4	Area Classification			Zone 2, IIB,T4		
	5	Ambient Temperature ºC	Min.	Max.	-5	50	
	6	Available Air Supply Pressure barg	Min.	Max.	4.5	8	
	7	Nace Requirement:			Required		
PIPE & LINE	8	Pipe Class	Pipe Sch.		FN05	SCH. 80	
	9	Pipe Line Insulation |Line Size	Pipe Material		PT / 4"	ASTM A 106-Gr.B, SMLS,ASME B36.10M	
PROCESS CONDITIONS	10	Fluid			Crude oil		
	11	State			mixed / 3 phase		
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP			93/93		
	13				Units	Max	Norm.	Min.
	14	Flow Rate(vapor/liquid)			kg/h	1316.60/30623.54	1196.917/27839.59	718.15/16703.75
	15	Inlet Pressure			bar-g	12.78	12.78	12.78
	16	Pressure Drop			bar	1.5		
	17	Inlet Temperature(max)			ºC	44.41		
		Molecular Weight(MIX)				39.09		
	18	Liquid Specific Gravity (Gl) / Gas Specific Gravity				0.951/0.8		
	19	Compressibility Factor(Z)(vapour)			-	0.94		
	20	Viscosity (vapour/oil/water)			cP	0.012/5.39/0.60		
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)			-	1.24/1.12		
	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)			bar-g	11.95		
	23	Critical Pressure (liquid)			bar-g	1081		
CALCULATED RESULTS	24	Flow Coefficient Cv (max-case)			-	70.72 (VTC)		
	25	Travel (max-case)			%	BY VENDOR		
	26	Sound Pressure Level			dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)	Max. 85 dBA(VTC)

BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)	POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart
	28	Rated Cv		VTA		52	Input Signal		4~20 mA-HART Smart
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53	Power Supply		24 VDC loop powered
	30	Leakage class		IV		54	Electrical Connection		ISO M20x 1.5
	31	Body/Bonnet Material		ASTM A216 GR. WCB		55	FlowDirection		Flow to Open(VTC)
	32	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		56	Lock Last Position		Failure Position/Close
						57	Output Signal		3-15 Psi
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		58	I.P./Ex.Protec.	Gauge	65 / EExia / Yes
	34	Packing Material		P.T.F.E.		59	MFR/Model	LCD requirement	(NOTE 4) / Yes
	35	Trim Type		SINGLE SEATED/CAGE	SOLENOID VALVE	60	Type	Qty.	N/A / N/A
	36	Characteristic		EQUAL PERCENTAGE (VTC)		61	MFR	Model	N/A / N/A
	37	Guiding		(NOTE 4)		62	I.P.	Ex.Protec.	N/A / N/A
	38	Rated Travel		(NOTE 4)		63	MFR	Model	N/A / N/A
	39	Plug/Disk Material		SS316 (Note 6)	SWITCHES	64	Type	Qty.	N/A / N/A
	40	Seat Material		SS316 (Note 6)		65	Power Supply		N/A
	41	Cage/Guid Material		SS316 (Note 6)		66	Contacts / Rating		N/A
	42	Stem Material		SS316 (Note 6)		67	Switching Position		N/A
	43	Trim Material		SS316 (Note 6)		68	I.P.	Ex.Protec.	N/A / N/A
	44	MFR	Model	(NOTE 4) / (NOTE 4)		69	MFR	Model	N/A / N/A
ACTUTOR	45	Size	Eff.Area	(NOTE 4) / (NOTE 4)	AIR SET	70	Set Pressure		Yes (NOTE 4)
	46	Air Failure	Handwheel	FAIL CLOSE / TOP MOUNTED		71	Filter	Gauge	Yes / Yes
	47	Air Action	Orientation	AIR TO OPEN / VERT. UP		72	Pnumatic Conn.		1/4 " NPTF
	48	Actuator Type		Spring Return and Diaphragm Type		73	MFR	Model	(NOTE 4) / (NOTE 4)
	49	AIR Press. Min/ Max/ Des. (Barg)		3 (Note3) / 7 / 8	TESTS	74	Hydro. Pressure		API 598
	50	MFR	Model	(NOTE 4) / (NOTE 4)		75	Leakage Class		Certificate Required
						76	Performance Test		Required
					OPTIONS	77	Internal Tubing		Required(with Double Ferrule Compression conn.)
						78	Tube Material		316 S.S L
PURCHASE		Manufacturer		(Note 4)		79	Cable Gland		M20, Nickel plated brass
		Model		(Note 4)		80	Cable Entry		M20 x 1.5

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimmum of instrument air pressure supply is 4.5 barg but 3 barg working pressure as minimmum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellited facing shall be supplied for valve plugs and guides with solid stellited seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

Control Valve

GENERAL	1	Tag No.			FCV-1701E		
	2	Service			FROM W035		
	3	Line No.	P&ID No.		CRD-110-171E-FN05-4"-PT	BK-W007S-PEDCO-110-PR-PI-0001-D03 (5 of 6)	
	4	Area Classification			Zone 2, IIB,T4		
	5	Ambient Temperature °C	Min.	Max.	-5	50	
	6	Available Air Supply Pressure barg	Min.	Max.	4.5	8	
	7	Nace Requirement:			Required		
PIPE & LINE	8	Pipe Class	Pipe Sch.		FN05	SCH. 80	
	9	Pipe Line Insulation |Line Size	Pipe Material		PT / 4"	ASTM A 106-Gr.B, SMLS,ASME B36.10M	
PROCESS CONDITIONS	10	Fluid			Crude oil		
	11	State			mixed / 3 phase		
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP			93/93		
	13				Units	Max	Norm. / Min.
	14	Flow Rate(vapor/liquid)			kg/h	1278.20/30661.96	1162.004/27874.51 / 697.2/16724.7
	15	Inlet Pressure			bar-g	12.78	12.78 / 12.78
	16	Pressure Drop			bar	1.5	
	17	Inlet Temperature(max)			°C	40.71	
		Molecular Weight(MIX)				39.09	
	18	Liquid Specific Gravity (Gl) / Gas Specific Gravity				0.953/0.8	
	19	Compressibility Factor(Z)(vapour)			-	0.94	
	20	Viscosity (vapour/oil/water)			cP	0.012/5.60/0.64	
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)			-	1.25/1.12	
	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)			bar-g	12.4	
	23	Critical Pressure (liquid)			bar-g	1140	
CALCULATED RESULTS	24	Flow Coefficient Cv (max-case)			-	69.02 (VTC)	
	25	Travel (max-case)			%	BY VENDOR	
	26	Sound Pressure Level			dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC) / Max. 85 dBA(VTC)

BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)	POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart
	28	Rated Cv		VTA		52	Input Signal		4~20 mA-HART Smart
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53	Power Supply		24 VDC loop powered
	30	Leakage class		IV		54	Electrical Connection		ISO M20x 1.5
	31	Body/Bonnet Material		ASTM A216 GR. WCB		55	FlowDirection		Flow to Open(VTC)
	32	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		56	Lock Last Position		Failure Position/Close
						57	Output Signal		3-15 Psi
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		58	I.P./Ex.Protec.	Gauge	65 / EExia / Yes
	34	Packing Material		P.T.F.E.		59	MFR/Model	LCD requirement	(NOTE 4) / Yes
	35	Trim Type		SINGLE SEATED/CAGE	SOLENOID VALVE	60	Type	Qty.	N/A / N/A
	36	Characteristic		EQUAL PERCENTAGE (VTC)		61	MFR	Model	N/A / N/A
	37	Guiding		(NOTE 4)		62	I.P.	Ex.Protec.	N/A / N/A
	38	Rated Travel		(NOTE 4)		63	MFR	Model	N/A / N/A
	39	Plug/Disk Material		SS316 (Note 6)	SWITCHES	64	Type	Qty.	N/A / N/A
	40	Seat Material		SS316 (Note 6)		65	Power Supply		N/A
	41	Cage/Guid Material		SS316 (Note 6)		66	Contacts / Rating		N/A
	42	Stem Material		SS316 (Note 6)		67	Switching Position		N/A
	43	Trim Material		SS316 (Note 6)		68	I.P.	Ex.Protec.	N/A / N/A
	44	MFR	Model	(NOTE 4) / (NOTE 4)		69	MFR	Model	N/A / N/A
ACTUTOR	45	Size	Eff.Area	(NOTE 4) / (NOTE 4)	AIR SET	70	Set Pressure		Yes (NOTE 4)
	46	Air Failure	Handwheel	FAIL CLOSE / TOP MOUNTED		71	Filter	Gauge	Yes / Yes
	47	Air Action	Orientation	AIR TO OPEN / VERT. UP		72	Pnumatic Conn.		1/4 " NPTF
	48	Actuator Type		Spring Return and Diaphragm Type		73	MFR	Model	(NOTE 4) / (NOTE 4)
	49	AIR Press. Min/ Max/ Des. (Barg)		3 (Note3) / 7 / 8	TESTS	74	Hydro. Pressure		API 598
	50	MFR	Model	(NOTE 4) / (NOTE 4)		75	Leakage Class		Certificate Required
						76	Performance Test		Required
					OPTIONS	77	Internal Tubing		Required(with Double Ferrule Compression conn.)
						78	Tube Material		316 S.S L
PURCHASE		Manufacturer		(Note 4)		79	Cable Gland		M20, Nickel plated brass
		Model		(Note 4)		80	Cable Entry		M20 x 1.5

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimmum of instrument air pressure supply is 4.5 barg but 3 barg working pressure as minimmum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellited facing shall be supplied for valve plugs and guides with solid stellited seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005

NISOC

نگهداشت و افزایش تولید میدان نفتی بینک
فعالیت های رو زمینی در بسته‌های کاری تحت‌الارض

ساخت موقعیت چاه، تأسیسات سرچاهی، خطوط جریانی، تسهیلات
برق‌رسانی مربوط به موقعیت W007S و توسعه چندراهه کلاستر بینک

DATA SHEETS FOR CONTROL/REGULATOR VALVES - EXTENSION OF BINAK B/C MANIFOLD

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
053 - 073 – 9038	BK	W007S	PEDCO	110	IN	DT	0006	D06

Control Valve

GENERAL	1	Tag No.			FCV-1701F		
	2	Service			FROM W007S		
	3	Line No.	P&ID No.		CRD-110-171F-FN05-4"-PT	BK-W007S-PEDCO-110-PR-PI-0001-D02 (5 of 6)	
	4	Area Classification			Zone 2, IIB,T4		
	5	Ambient Temperature ºC	Min.	Max.	-5	50	
	6	Available Air Supply Pressure barg	Min.	Max.	4.5	8	
	7	Nace Requirement:			Required		
PIPE & LINE	8	Pipe Class	Pipe Sch.		FN05	SCH. 80	
	9	Pipe Line Insulation |Line Size	Pipe Material		PT / 4"	ASTM A 106-Gr.B, SMLS,ASME B36.10M	
PROCESS CONDITIONS	10	Fluid			Crude oil		
	11	State			mixed / 3 phase		
	12	Valve Design Pressure(barg)/ Actuator Shut Off Pressure DP			93/93		
	13				Units	Max	Norm. / Min.
	14	Flow Rate(vapor/liquid)			kg/h	515.64/12260.413	468.769/11145.83 / 5572.91/5572.91
	15	Inlet Pressure			bar-g	12.78	12.78 / 12.78
	16	Pressure Drop			bar	1.5	
	17	Inlet Temperature(max)			ºC	41.77	
		Molecular Weight(MIX)				39.09	
	18	Liquid Specific Gravity (Gl) / Gas Specific Gravity				0.952/0.8	
	19	Compressibility Factor(Z)(vapour)			-	0.94	
	20	Viscosity (vapour/oil/water)			cP	0.012/5.54/0.63	
	21	Specific Heats Ratio(Cp/Cv) (vapour/liquid)			-	1.25/1.12	
	22	Vapour Pressure (True Vapor Pressure of Liquid Phase - HYSYS result)			bar-g	12.27	
	23	Critical Pressure (liquid)			bar-g	1140	
CALCULATED RESULTS	24	Flow Coefficient Cv (max-case)			-	61.76 (VTC)	
	25	Travel (max-case)			%	BY VENDOR	
	26	Sound Pressure Level			dBA	Max. 85 dBA(VTC)	Max. 85 dBA(VTC) / Max. 85 dBA(VTC)

BODY AND TRIM(Note 6)	27	Body size		3" (VTC)(Note4)	POSITIONER (Note 5)	51	Type		Electro-Pneumatic Smart
	28	Rated Cv		VTA		52	Input Signal		4~20 mA-HART Smart
	29	End conn. & Rating IN/OUT		RF Flange # 600 ASME B16.5 (VTC)		53	Power Supply		24 VDC loop powered
	30	Leakage class		IV		54	Electrical Connection		ISO M20x 1.5
	31	Body/Bonnet Material		ASTM A216 GR. WCB		55	Increase/Decrease Air		Increase to Open(VTC)
	32	Body/Bonnet Type		GLOBE (Balanced) / Standard Bolted Flange Bonnet		56	Lock Last Position		Failure Position/Close
						57	Output Signal		3-15 Psi
	33	Flow Direction		FLOW TEND TO OPEN(VTC)		58	I.P./Ex.Protec.	Gauge	65 / EExia / Yes
	34	Packing Material		P.T.F.E.		59	MFR/Model	LCD requirement	(NOTE 4) / Yes
	35	Trim Type		SINGLE SEATED/CAGE	SOLENOID VALVE	60	Type	Qty.	N/A / N/A
	36	Characteristic		EQUAL PERCENTAGE (VTC)		61	MFR	Model	N/A / N/A
	37	Guiding		(NOTE 4)		62	I.P.	Ex.Protec.	N/A / N/A
	38	Rated Travel		(NOTE 4)		63	MFR	Model	N/A / N/A
	39	Plug/Disk Material		SS316 (Note 6)	SWITCHES	64	Type	Qty.	N/A / N/A
	40	Seat Material		SS316 (Note 6)		65	Power Supply		N/A
	41	Cage/Guid Material		SS316 (Note 6)		66	Contacts / Rating		N/A
	42	Stem Material		SS316 (Note 6)		67	Switching Position		N/A
	43	Trim Material		SS316 (Note 6)		68	I.P.	Ex.Protec.	N/A / N/A
	44	MFR	Model	(NOTE 4) / (NOTE 4)		69	MFR	Model	N/A / N/A
ACTUATOR	45	Size	Eff.Area	(NOTE 4) / (NOTE 4)	AIR SET	70	Set Pressure		Yes (NOTE 4)
	46	Air Failure	Handwheel	FAIL CLOSE / TOP MOUNTED		71	Filter	Gauge	Yes / Yes
	47	Air Action	Orientation	AIR TO OPEN / VERT. UP		72	Pnumatic Conn.		1/4 " NPTF
	48	Actuator Type		Spring Return and Diaphragm Type		73	MFR	Model	(NOTE 4) / (NOTE 4)
	49	AIR Press. Min/ Max/ Des. (Barg)		3 (Note3) / 7 / 8	TESTS	74	Hydro. Pressure		API 598
	50	MFR	Model	(NOTE 4) / (NOTE 4)		75	Leakage Class		Certificate Required
						76	Performance Test		Required
					OPTIONS	77	Internal Tubing		Required(with Double Ferrule Compression conn.)
						78	Tube Material		316 S.S L
						79	Cable Gland		M20, Nickel plated brass
						80	Cable Entry		M20 x 1.5
PURCHASE		Manufacturer		(Note 4)					
		Model		(Note 4)					

NOTES:

1- All materials shall be in accordance with 'Piping Material Specification' ,"Document No.: BK-SSGRL-PEDCO-110-PI-SP-0001".

2- VTA: Vendor To Advise VTC: Vendor To Confirm

3- Minimmum of instrument air pressure supply is 4.5 barg but 3 barg working pressure as minimmum , shall be considered for actuator sizing .

4- Shall be finalized by vendor and client agreement at quotaion stage.

5- Bypass line and isolating valve shall be considered for valve positioner by vendor.

6- Trim part material shall be considered as minimum 316SS and hard face or any equal hard steel. Hardened stainless steel or stellited facing shall be supplied for valve plugs and guides with solid stellited seat rings for Erosice or cavitation/flashing services as per Control valve specification BK- GENRL-PEDCO-000-IN-SP-0005