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طرح نگهداشت و افزایش تولید 27 مخزن

PIPING MATERIAL SPECIFICATION

نگهداشت و افزایش تولید میدان نفتی بینک

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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
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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, New Gas/Condensate Pipelines (from Binak New GCS to Siahmakan GIS/Binak PU) shall be constructed.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – Surface Facilities; Gas & Gas-Condensate Pipelines
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.

2.0 SCOPE

This specification covers the general requirements to be implemented in the design of piping materials of pipes, fittings, flanges, valves and other components to be used for piping work of BINAK Gas & Gas-Condensate Pipelines which is designed by ASME B31.3.

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3.0 NORMATIVE REFERENCES

3.1 LOCAL CODES AND STANDARDS

- IPS-E-TP-350(1) Engineering Standard for Linings
- IPS-M-PI-110(1) Material and Equipment Standard for Valves
- IPS-M-PI-150(2) Material Standard for Flanges and Fittings
- IPS-M-PI-190(3) Material and Equipment Standard for Line Pipe
- IPS-E-PI-140(1) Engineering Standard for Onshore Transportation Pipelines
- IPS-E-PI-221(1) Engineering Standard for Piping Material Selection
- IPS-E-PI-240(2) Engineering Standard for Plant Piping System

3.2 INTERNATIONAL CODES AND STANDARDS

- ASME B1.20.1 Pipe Threads General Purpose (Inch)
- ASME B16.5 Steel Pipe Flanges And Flanged Fittings
- ASME B16.9 Factory–Made Wrought Steel Buttwelding Fittings
- ASME B16.10 Face To Face And End To End Dimension Of Valve
- ASME B16.11 Forged Steel Fittings, Socket Welding And Threaded
- ASME B16.21 Nonmetallic Flat Gaskets For Pipe Flanges
- ASME B16.25 Butt-Welding Ends
- ASME B16.34 Steel Valves, Flanged And Buttwelding Ends
- ASME B16.48 Steel Line Blanks
- ASME B18.2.1 Square And Hex. Bolts And Screws, Inch Series
- ASME B18.2.2 Square And Hex. Nuts
- ASME B31.3 Process Piping
- ASME B31.4 Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids
- ASME B36.10M Welded and Seamless Wrought Steel Pipe
- ASME B36.19M Stainless Steel Pipe
- ASME B31.8 Gas Transmission and Distribution Piping Systems
- ASME B16.20 Metallic Gaskets for Pipe Flanges
- ASME B16.36 Orifice Flanges
- BS EN 10204 Metallic products. Types of inspection documents
- ISO 4427 Plastic piping systems – Polyethylene (PE) pipes and fittings for water supply
- BS 5154 Specification for copper alloy globe, globe stop and check, check and gate valves
- API 6FA Specification for Fire Test For Valves
- API 608 Metal Ball Valves-Flanged, Threaded, and Welding End

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- BS-1868 Flanged And Butt-Welding Ends Steel Check Valves For Petroleum And Petrochemical Industries
- BS-1873 Flanged And Butt-Welding Ends Steel Globe Valves For Petroleum And Petrochemical Industries
- BS EN ISO 17292:2015 Metal ball valves for petroleum, petrochemical and allied industries
- BS EN ISO 15761:2002 Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries
- BS 6775 (PART 2) Testing Of Valve Specification For Fire Type Testing Requirement
- MSS SP-83 Class 300 and 6000 pipe unions, socket welding and threaded
- MSS SP-80 Bronze Gate, globe angle and check valves
- MSS SP-95 Swage Nipples And Ball Plugs
- MSS SP-97 Forged Carbon Steel Branch Olet Fittings
- MSS SP-120 Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends
- ANSI/NACE MR0175/ ISO 15156-1:2009(E) Petroleum And Natural Gas Industries - Materials For Use In H2S Containing Environments In Oil And Gas Production
- NACE TM-0284 Standard Test Method - Evaluation Of Pipeline And Pressure Vessel Steels For Resistance To Hydrogen-Induced Cracking
- NACE TM-0177 Laboratory Testing Of Metals For Resistance To Sulfide Stress Cracking And Stress Corrosion Cracking In H2s Environments

3.3 THE PROJECT DOCUMENTS

- BK-PPL-PEDCO-320-PI-RT-0002 Wall Thickness Calculation Report
- BK-PPL-PEDCO-320-PI-RT-0001 Corrosion Study & Material Selection Report
- BK-GNRAL-PEDCO-000-PI-DC-0001 Piping Design Criteria
- BK-GNRAL-PEDCO-000-PI-SP-0008 Specification For Material Requirements in Sour service

3.4 ENVIRONMENTAL DATA

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

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3.5 ORDER OF PRECEDENCE

In case of any conflict between requirements specified herein & the requirements of any other referenced document, this subject shall be reflected to CLIENT and the final decision will be made by CLIENT.

4.0 ABBREVIATIONS

AFC:	Approved for Construction
AFD:	Approved for Design
# :	CLASS
A/G:	ABOVE GROUND
ASB :	ASBESTOS
BB :	BOLTED BONNET
BC :	BOLTED COVER
BE :	BEVEL ENDS
BLE :	BEVELED LARGE END
BW :	BUTT WELDING
C.A:	CORROSION ALLOWANCE
CONC :	CONCENTRIC
CS :	CARBON STEEL
ECC :	ECCENTRIC
FB:	FULL BORE
FLGD:	FLANGED
FR :	FLAT RING
GJ. :	GASKET JOINT
GO:	GEAR OPERATED
GR. :	GRADE
HEX :	HEXAGONAL
HO:	HANDWHEEL OPERATED
LR :	LONG RADIUS
MO:	MOTOR OPERATED
NB :	NOMINAL BORE

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NPS :	NOMINAL PIPE SIZE
NPT:	NOMINAL PIPE THREAD
OS&Y :	OUTSIDE SCREW & YOKE
PBE:	PLAIN BOTH END
PSE :	PLAIN SMALL END
PTFE:	POLYTETRAFLUOROETHYLENE
RB :	REDUCED BORE
RED :	REDUCER/REDUCING
RF :	RAISED FACE
S.S.:	STAINLESS STEEL
SB :	SCREWED BONNET
SCH :	SCHEDULE
SCR'D :	SCREWED
SF :	SERRATED FINISH
SG :	SCREWED GLAND
SMLS :	SEAMLESS
SPW :	SPIRAL WOUND
STD :	STANDARD
SW :	SOCKET WELDING
TBE :	THREADED BOTH ENDS
THK :	THICKNESS
THRD:	THREADED
TLE :	THEREADED LARGE END
TR :	TRIM
TSE :	THEREADED SMALL END
UB :	UNION BONNET
W.T :	WALL THICKNESS
WB :	WELDED BONNET
WN :	WELDING NECK
XS :	EXTRA STRONG
XXS :	DOUBLE EXTRA STRONG

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5.0 PIPING COMPONENTS

5.1 PIPE

- 5.1.1 For carbon steel pipes, dimensions shall conform to ASME B36.10M or API 5L where applicable. The nominal thickness for "Stainless Steel Pipe" shall be selected in accordance with ASME B36.19M. Tolerances of pipes shall meet the requirements of IPS-M-PI-190(4).
- 5.1.2 End pipe for sizes 1/2" to 1 1/2" shall be plain end, for size 2" and above shall be beveled end. End of galvanized pipe shall be threaded.
- 5.1.3 For all Materials Carbon Content and $CE = C + (Mn/6) + (Cu+Ni)/15 + (Cr+Mo+V)/5$ shall meet the requirements of IPS-M-PI-190(3). In addition, all the main piping and related materials shall be according to the requirements of NACE MR 0175 / ISO 15156 and IPS-M-PI-190(3) for sour services.
- 5.1.4 Pipes with sizes 1/4", 3/8", 1 1/4", 2 1/2", 3 1/2", 4 1/2", 5", 7", 9", 14", 18", 22", shall not be used, except as may be required by equipment connections.

5.2 FITTING

- 5.2.1 Dimensions and tolerances for butt-weld fitting (be normally used for nominal diameter 2" and larger) shall conform to ASME B16.9.
- 5.2.2 Dimensions and tolerances for Socket weld fittings and/or screwed fitting (be normally used for nominal diameter 1 1/2" and smaller) shall conform to ASME B16.11.

5.3 FLANGES

- 5.3.1 Machining shall be in accordance with ASME B16.5. Roughness of RF shall be between 3.2 and 6.3 micrometers (125 to 250 micro inches AARH)
- 5.3.2 Orifice flanges shall conform to ASME B16.36. Quantities shown on Material Requisition must be understood as "pair" of orifice flanges supplied with assembly bolting.

5.4 VALVES

- 5.4.1 All socket welded ball valves of nominal sizes 1/2" to 1 1/2" shall have extended ends (Sch. 160 nipples) with an overall length of 400mm.
- 5.4.2 Valve trim numbers for gate, globe and check valves are as API 600 (2015) Table 8.

5.5 GASKETS

- 5.5.1 Spiral wound gaskets shall conform to ASME B16.20 and Non-metallic flat gaskets shall conform to ASME B16.21.

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5.6 BOLTS AND NUTS

- 5.6.1 Thread shall be in accordance with ASME B1.1 and Nuts shall conform to ASME B18.2.2.
- 5.6.2 Stud bolts shall be threaded full length and chamfered both ends. Length for standard flange assembly shall be in accordance with ASME B16.5. Stud bolts shall be supplied with 2 Heavy Hex nuts.

5.7 BRANCH CONNECTIONS

- 5.7.1 Branches shall be as specified in the individual line classes.
- 5.7.2 For pipe line to be pigged, tee or branch with 40% or more of the main line diameter shall be equipped with scraper guide bars.

5.8 UG SERVICE COATING

- 5.8.1 For UG services, all Pipes & Fittings Shall be Solvent Free Epoxy .

6.0 GENERAL TESTING REQUIRMENTS

- 6.1 Pressure testing of the following piping shall be in accordance with ASME B31.3 test procedures. The test pressure shall be held for a sufficient time to allow detection of any leaks and for a minimum time of 1 hour.
- a) Metallic piping including carbon steel, lined carbon steel, stainless steel, corrosion resistant alloys and ductile iron but excluding copper shall normally be tested at 1.5 x the design pressure.
- 6.2 Pipelines designed to ASME B31.8 where the operating pressure results in a hoop stress greater than 30% of the specified minimum yield strength shall be hydrostatically tested or tested with air or gas. The type of test and the test pressure is dependent on Location Class as defined in ASME B31.8 Para. 841.3.2. Test duration shall be a minimum of 2 hours.

7.0 PIPING AND PIPELINE CLASSES

7.1 PIPING CLASSES NUMBERING

Each piping class is identified from two alphabetical characters which precede a two digit figure. The first alphabetical character indicates pressure rating of flange and the second alphabetical character indicates material as follows:

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1st alphabetical character		2nd alphabetical character	
A	Class 150	N	Carbon Steel
C	Class 300	S	Stainless Steel
F	Class 600	X	Non Metal Pipe
G	Class 900	Z	Galvanized Carbon Steel
H	Class 1500		

The third figure indicates the design code and the forth figure indicates corrosion allowance for metallic as follows

3rd figure		4th figure for metal pipe			4th figure for non-metal pipe	
Fig.	Design standard	Fig.	C.A.	NACE MR 0175 / ISO 15156 Requirement	Fig.	Material type
0	ASME B 31.3 (For Inside of Plant)	0	0 mm	No	1	GRE
		1	1 mm	No	2	PE
1	ASME B 31.4 (For Liquid Pipeline)	2	1 mm	Yes	3	RTP (Reinforced Thermoplastic pipe)
		4	3 mm	No		
2	ASME B 31.8 (For Gas Pipeline)	5	3 mm	Yes		
		6	6 mm	No		
		7	6 mm	Yes		

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7.2 SUMMARY OF PIPING AND PIPELINE CLASSES

Table 1: piping classes

Piping Class	ANSI Rating /Facing	Max Pipe Size (In)	Base Material	MAX TEMP. °C	C.A. (mm)	Service
AN01	150/RF	10	Carbon Steel	85	1	Oily Water
AN07	150/RF	10"	Carbon Steel NACE MR0175/ISO15156	85	6	Hydrocarbon Gas
CN05	300/RF	6"	Carbon Steel NACE MR0175/ISO15156	85	3	Gas Condensate
FN05	600/RF	8"	Carbon Steel NACE MR0175/ISO15156	85	3	Gas
FN07	600/RF	8"	Carbon Steel NACE MR0175/ISO15156	85	6	Gas

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							
شماره پیمان:	PIPING MATERIAL SPECIFICATION							شماره صفحه : 13 از 29
053 – 073 – 9184	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال	
	BK	PPL	PEDCO	320	PI	SP	0001	
								D02

8.0 CLASSES DESCRIPTION

SERVICES: Oily Water					CLASS: AN01			C.A.:1 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : No			Rating: 150#
DES. (PRES.)	BARG	18.2			Design Code: ASME B31.3			
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE
	FROM	TO						
PIPES	1/2	1 1/2	PBE/TOE/TBE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M	NOTE 1
	2	6	BE	SCH.40	Seamless	ASTM A106 Gr.B	ASME B36.10M	
	8	10	BE	SCH.20	Seamless	ASTM A106 Gr.B	ASME B36.10M	
Nipples	1/2	1 1/2	PBE/PSE/BLE	Same as Pipe	Nipples	ASTM A106 Gr.B	MSS SP-95	
FITTINGS	1/2	1 1/2	SW	3000#	Cap	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Reducer Conc.&Ecc.	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Union	ASTM A105	MSS SP-83	
	1/2	1 1/2	SW	3000#	Coupling	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Elbow 45° & 90°	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Sockolet	ASTM A105	MSS SP-97	
	1/2	1 1/2	THD	2000#	Hex. Head Plug	ASTM A105	ASME B16.11	
	2	10	BW	Same as Pipe	Cap	ASTM 234 WPB	ASME B16.9	
	2	10	BW	Same as Pipe	Tee Eq. & Red	ASTM 234 WPB	ASME B16.9	
	2	10	BW	Same as Pipe	Reducer Conc.&Ecc.	ASTM 234 WPB	ASME B16.9	
	2	10	BW	Same as Pipe	Elbow 45° & 90° LR, SMLS	ASTM 234 WPB	ASME B16.9	
	2	10	BW	Same as Pipe	Weldolet	ASTM A105	MSS SP-97	
FLANGES	1/2	1 1/2	SW	150#	Socket welded, RF,SW,SF	ASTM A105	ASME B16.5	
	1/2	1 1/2	SW	300#	Socket welded, RF,SF	ASTM A105	ASME B16.5	
	2	10	BW	Same as Pipe 150#	Weld Neck, RF, SF	ASTM A105	ASME B16.5	
	2	10	BW	Same as Pipe 300#	Weld Neck, RF, SF	ASTM A105	ASME B16.5	
	1/2	10	-	150#	Blind, RF, SF	ASTM A105	ASME B16.5	
	1/2	10	-	300#	Blind, RF, SF	ASTM A105	ASME B16.5	
	2	10	BW	Same as Pipe 300#	Orifice, With 2 Hole ½” NPT Female, RF	ASTM A105	ASME B16.36	
CLOUSERS	1/2	10	-	150#	Spectacle Blind, RF	ASTM A516-Gr.60	ASME B16.48	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION								شماره صفحه : 14 از 29
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	
	BK	PPL	PEDCO	320	PI	SP	0001	D02	

SERVICES: Oily Water					CLASS: AN01			C.A.:1 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : No			Rating: 150#
DES. (PRES.)	BARG	18.2			Design Code: ASME B31.3			
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE
	FROM	TO						
GASKETS	1/2	10	-	150#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20	
	1/2	10	-	300#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20	
Nut & Bolt	1/2	10	-	150#	Stud bolt, Unified threaded	ASTM A 193-B7	ASME B18.2.1	
	1/2	10	-	150#	Nut, two heavy nuts for each bolt	ASTM A 194 -2H	ASME B18.2.2	
	1/2	10	-	300#	Stud bolt, Unified threaded	ASTM A 193-B7	ASME B18.2.1	
	1/2	10	-	300#	Nut, two heavy nuts for each bolt	ASTM A 194 -2H	ASME B18.2.2	
Gate Valve	1/2	1 1/2	SW/THRD	800#	Solid wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A105 ,Trim No.8	API 602	
	2	10	FLGD	150#	Flexible wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A216 GR. WCB, Trim No.8	API 600	
Globe Valve	1/2	1 1/2	SW/THRD	800#	OS&Y,BB, Renewable Seat Ring, HO	Body: A 105 .Trim No.8	ISO 15761	
	2	6	FLGD	150#	OS&Y,BB, Renewable Seat Ring, HO	Body: A216 GR. WCB., Trim No.8	BS 1873	
	8	10	FLGD	150#	OS&Y,BB, Renewable Seat Ring, GO		BS 1873	
Check Valve	1/2	1 1/2	SW	800#	Lift Type, Piston Type, Renewable Seat Ring	Body: A 105 .Trim No.8	ISO 15761	
	2	10	FLGD	150#	Swing Type	Body: A216 GR. WCB., Trim No.8	BS 1868	
Ball Valve	1/2	1 1/2	SW	800#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A105, Ball: 13Cr Stem: 13Cr Trim:13Cr+PTFE	ISO 17292	Note 2
	2	3	FLGD	150#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A216 Gr. WCB, Ball: 13Cr Stem: 13Cr Trim:13Cr+PTFE	API 6D	Note 2
	4	6	FLGD	150#	RB, Soft Seat, Trunnion		API 6D	Note 2



SERVICES: Oily Water					CLASS: AN01			C.A.:1 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : No			Rating: 150#
DES. (PRES.)	BARG	18.2			Design Code: ASME B31.3			
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE
	FROM	TO						
					mounted, Renewable Seat Ring, Lever Operated			
	8	10	FLGD	150#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, GO	API 6D	Note 2	
STRAINER	1/2	1 1/2	SW	800#	Y-TYPE	Body: A105 , Screen :A 182 GR. F316L		
	2	3	FLGD	150#	Y-TYPE	Body: A216 , Screen :A 182 GR. F316L		
	4	10	FLGD	150#	T-TYPE	Body: A216 , Screen :A 182 GR. F316L		

Note 1: Thread end will be used just for Orifice flange connections

Note 2: Fire Safe per API 6FA Anti-Static, and Blow-Out Proof Stem shall be considered for these valves.

Note 3: For UG service, all Pipes & Fittings Shall be Solvent Free Epoxy.

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 16 از 29
	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال	
	BK	PPL	PEDCO	320	PI	SP	0001	D02

PIPE CLASS : AN01

BRANCH	10	T										
	8	E	T									
	6	E	E	T								
	4	E	E	E	T							
	3	W	W	E	E	T						
	2	W	W	W	E	E	T					
	11/2	S	S	S	S	S	T					
	1	S	S	S	S	S	E	T				
	3/4	S	S	S	S	S	E	E	T			
	1/2	S	S	S	S	S	E	E	E	T		
	ND	10	8	6	4	3	2	11/2	1	3/4	1/2	
HEADER												

LEGEND	
S	Sockolet
W	Weldolet
E	Reducing Tee
T	Equal Tee

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 17 از 29	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001		D02

SERVICES: Hydrocarbon Gas				D02		CLASS: AN07			C.A.:6 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : Yes			Rating: 150#	
DES. (PRES.)	BARG	18.2			Design Code: ASME B31.3				
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE	
	FROM	TO							
PIPES	1/2	1 1/2	PBE/TOE/TBE	SCH.XXS	Seamless	ASTM A106 Gr.B	ASME B36.10M	NOTE 1	
	2	2	BE	SCH.160	Seamless	ASTM A106 Gr.B	ASME B36.10M		
	3	6	BE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M		
	8	8	BE	SCH.60	Seamless	ASTM A106 Gr.B	ASME B36.10M		
	10	10	BE	SCH.40	Seamless	ASTM A106 Gr.B	ASME B36.10M		
Nipples	1/2	1 1/2	PBE/PSE/BLE	Same as Pipe	Nipples	ASTM A106 Gr.B	MSS SP-95		
FITTINGS	1/2	1 1/2	SW	9000#	Cap	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	9000#	Reducer Conc.&Ecc.	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	9000#	Union	ASTM A105	MSS SP-83		
	1/2	1 1/2	SW	9000#	Coupling	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	9000#	Elbow 45° & 90°	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	9000#	Sockolet	ASTM A105	MSS SP-97		
	1/2	1 1/2	THD		Hex. Head Plug	ASTM A105	ASME B16.11		
	2	10	BW	Same as Pipe	Cap	ASTM 234 WPB	ASME B16.9		
	2	10	BW	Same as Pipe	Tee Eq. & Red	ASTM 234 WPB	ASME B16.9		
	2	10	BW	Same as Pipe	Reducer Conc.&Ecc.	ASTM 234 WPB	ASME B16.9		
	2	10	BW	Same as Pipe	Elbow 45° & 90° , LR, SMLS	ASTM 234 WPB	ASME B16.9		
	2	10	BW	Same as Pipe	Weldolet	ASTM A105	MSS SP-97		
FLANGES	1/2	1 1/2	SW	150#	Socket welded, RF,SW,SF	ASTM A105	ASME B16.5		
	1/2	1 1/2	SW	300#	Socket welded, RF,SF	ASTM A105	ASME B16.5		
	2	10	BW	Same as Pipe 150#	Weld Neck, RF, SF	ASTM A105	ASME B16.5		
	1/2	10	-	150#	Blind, RF, SF	ASTM A105	ASME B16.5		
	1/2	10	-	300#	Blind, RF, SF	ASTM A105	ASME B16.5		
	2	10	BW	Same as Pipe 300#	Orifice, With 2 Hole ½" NPT Female, RF	ASTM A105	ASME B16.36		
CLOUSERS	1/2	10	-	150#	Spectacle Blind, RF	ASTM A516-Gr.60	ASME B16.48		
GASKETS	1/2	10	-	150#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20		
	1/2	20	-	300#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20		
Nut & Bolt	1/2	20	-	150#	Stud bolt, Unified threaded	ASTM A 193-B7M	ASME B18.2.1	Zinc Plated	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 18 از 29	
	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001	D02	

SERVICES: Hydrocarbon Gas			D02		CLASS: AN07			C.A.:6 mm	
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : Yes			Rating: 150#	
DES. (PRES.)	BARG	18.2			Design Code: ASME B31.3				
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE	
	FROM	TO							
		1/2	20	-	150#	Nut, two heavy nuts for each bolt	ASTM A 194 -2HM		ASME B18.2.2
		1/2	20	-	300#	Stud bolt, Unified threaded	ASTM A 193-B7M		ASME B18.2.1
	1/2	20	-	300#	Nut, two heavy nuts for each bolt	ASTM A 194 -2HM	ASME B18.2.2		
Gate Valve	1/2	1 1/2	SW/THRD	800#	Solid wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A105 ,Trim No.12	API 602		
	2	10	FLGD	150#	Flexible wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A216 GR. WCB, Trim No.12	API 600		
Globe Valve	1/2	1 1/2	SW/THRD	800#	OS&Y,BB, Renewable Seat Ring, HO	Body: A 105 Trim No.12	ISO 15761		
	2	6	FLGD	150#	OS&Y,BB, Renewable Seat Ring, HO	Body: A216 GR. WCB., Trim No.12	BS 1873		
	8	10	FLGD	150#	OS&Y,BB, Renewable Seat Ring, GO		BS 1873		
Check Valve	1/2	1 1/2	SW	800#	Lift Type, Piston Type, Renewable Seat Ring	Body: A 105 .Trim No.12	ISO 15761		
	2	10	FLGD	150#	Swing Type	Body: A216 GR. WCB., Trim No.12	BS 1868		
Ball Valve	1/2	1 1/2	SW	800#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A105, Ball: 316 Stem: 316 Trim:316+PTFE	ISO 17292	Note 2	
	2	3	FLGD	150#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A216 Gr. WCB, Ball: 316 Stem: 316 Trim:316+PTFE	API 6D	Note 2	
	4	6	FLGD	150#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Lever Operated		API 6D	Note 2	
	8	10	FLGD	150#	RB, Soft Seat, Trunnion mounted,		API 6D	Note 2	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 20 از 29
	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال	
	BK	PPL	PEDCO	320	PI	SP	0001	
							D02	

PIPE CLASS : AN07

BRANCH	10	T										
	8	E	T									
	6	E	E	T								
	4	E	E	E	T							
	3	W	W	E	E	T						
	2	W	W	W	E	E	T					
	11/2	S	S	S	S	S	T					
	1	S	S	S	S	S	E	T				
	3/4	S	S	S	S	S	E	E	T			
	1/2	S	S	S	S	S	E	E	E	T		
	ND	10	8	6	4	3	2	11/2	1	3/4	1/2	
HEADER												

LEGEND	
S	Sockolet
W	Weldolet
E	Reducing Tee
T	Equal Tee

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 21 از 29	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001		D02

SERVICES: Gas Condensate					CLASS: CN05			C.A.:3 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE 175 Requirements : Yes			Rating: 300#
DES. (PRES.)	BARG	47.7			Design Code: ASME B31.3			
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE
	FROM	TO						
PIPES	1/2	1 1/2	PBE/TOE/TBE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M	NOTE 1
	2	2	BE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M	
	3	6	BE	SCH.40	Seamless	ASTM A106 Gr.B	ASME B36.10M	
Nipples	1/2	1 1/2	PBE/PSE/BLE	Same as Pipe	Nipples	ASTM A106 Gr.B	MSS SP-95	
FITTINGS	1/2	1 1/2	SW	3000#	Cap	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Reducer Conc.&Ecc.	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Union	ASTM A105	MSS SP-83	
	1/2	1 1/2	SW	3000#	Coupling	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Elbow 45° & 90°	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	3000#	Sockolet	ASTM A105	MSS SP-97	
	1/2	1 1/2	THD	3000#	Hex. Head Plug	ASTM A105	ASME B16.11	
	2	6	BW	Same as Pipe	Cap	ASTM 234 WPB	ASME B16.9	
	2	6	BW	Same as Pipe	Tee Eq. & Red	ASTM 234 WPB	ASME B16.9	
	2	6	BW	Same as Pipe	Reducer Conc.&Ecc.	ASTM 234 WPB	ASME B16.9	
	2	6	BW	Same as Pipe	Elbow 45° & 90° LR, SMLS	ASTM 234 WPB	ASME B16.9	
	2	6	BW	Same as Pipe	Weldolet	ASTM A105	MSS SP-97	
FLANGES	1/2	1 1/2	SW	300#	Socket welded, RF,SW,SF	ASTM A105	ASME B16.5	
	2	6	BW	Same as Pipe 300#	Weld Neck, RF, SF	ASTM A105	ASME B16.5	
	1/2	6	-	300#	Blind, RF, SF	ASTM A105	ASME B16.5	
CLOUSERS	1/2	6	-	300#	Spectacle Blind, RF	ASTM A516-Gr.70	ASME B16.48	
GASKETS	1/2	6	-	300#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20	
Nut & Bolt	1/2	6	-	300#	Stud bolt, Unified threaded	ASTM A 193-B7M	ASME B18.2.1	
	1/2	6	-	300#	Nut, two heavy nuts for each bolt	ASTM A 194 - 2HM	ASME B18.2.2	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 22 از 29
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	PPL	PEDCO	320	PI	SP	0001	D02

SERVICES: Gas Condensate					D02		CLASS: CN05			C.A.:3 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE 175 Requirements : Yes			Rating: 300#		
DES. (PRES.)	BARG	47.7			Design Code: ASME B31.3					
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE		
	FROM	TO								
Gate Valve	1/2	1 1/2	SW/THRD	800#	Solid wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A105 ,Trim No.12	API 602			
	2	6	FLGD	300#	Flexible wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A216 GR. WCB, Trim No.12	API 600			
Globe Valve	1/2	1 1/2	SW	800#	OS&Y,BB,Renewable Seat Ring, HO	Body: A 105 Trim No.12	ISO 15761			
	2	6	FLGD	300#	OS&Y,BB,Renewable Seat Ring, HO	Body: A216 GR. WCB., Trim No.12	BS 1873			
Check Valve	1/2	1 1/2	SW	800#	Lift Type, Piston Type, Renewable Seat Ring	Body: A 105 .Trim No.12	ISO 15761			
	2	6	FLGD	300#	Swing Type	Body: A216 GR. WCB., Trim No.12	BS 1868			
Ball Valve	1/2	1 1/2	SW	800#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A105, Ball: 316 Stem: 316 Trim:316+RPTFE	ISO 17292	Note 2		
	2	3	FLGD	300#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A216 Gr. WCB, Ball: 316 Stem: 316 Trim:316+RPTFE	API 6D	Note 2		
	4	4	FLGD	300#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Lever Operated		API 6D	Note 2		
	6	6	FLGD	300#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Gear Operated		API 6D	Note 2		
STRAINER	1/2	1 1/2	SW	800#	Y-TYPE	Body: A105 , Screen :A 182 GR. F316L				
	2	3	FLGD	300#	Y-TYPE	Body: A216 GR. WCB , Screen :A 182 GR. F316L				
	4	6	FLGD	300#	T-TYPE	Body: A216 GR. WCB , Screen :A 182 GR. F316L				

Note 1: Thread end will be used just for Orifice flange connections

Note 2: Fire Safe per API 6FA. Anti Static, and Blow-Out Proof Stem shall be considered for these valves.

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 23 از 29
	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال	
	BK	PPL	PEDCO	320	PI	SP	0001	D02

PIPE CLASS : CN05

BRANCH	10	T										
	8	E	T									
	6	E	E	T								
	4	E	E	E	T							
	3	W	W	E	E	T						
	2	W	W	W	E	E	T					
	11/2	S	S	S	S	S	S	T				
	1	S	S	S	S	S	S	E	T			
	3/4	S	S	S	S	S	S	E	E	T		
	1/2	S	S	S	S	S	S	E	E	E	T	
	ND	10	8	6	4	3	2	11/2	1	3/4	1/2	
HEADER												

LEGEND	
S	Sockolet
W	Weldolet
E	Reducing Tee
T	Equal Tee

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 24 از 29	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001	D02	

SERVICES: Gas				D02		CLASS: FN05			C.A.: 3 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : Yes			Rating: 600#	
DES. (PRES.)	BARG	60			Design Code: ASME B31.3				
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE	
	FROM	TO							
PIPES	1/2	1 1/2	PBE/TOE/TBE	SCH.160	Seamless	ASTM A106 Gr.B	ASME B36.10M	NOTE 1	
	2	2	BE	SCH.160	Seamless	ASTM A106 Gr.B	ASME B36.10M		
	3	3	BE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M		
	4	6	BE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M		
	8	8	BE	SCH.80	Seamless	ASTM A106 Gr.B	ASME B36.10M		
Nipples	1/2	1 1/2	PBE/PSE/BLE	Same as Pipe	Nipples	ASTM A106 Gr.B	MSS SP-95		
FITTINGS	1/2	1 1/2	SW	6000#	Cap	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	6000#	Reducer Conc.&Ecc.	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	6000#	Union	ASTM A105	MSS SP-83		
	1/2	1 1/2	SW	6000#	Coupling	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	6000#	Elbow 45° & 90°	ASTM A105	ASME B16.11		
	1/2	1 1/2	SW	6000#	Socketlet	ASTM A105	MSS SP-97		
	1/2	1 1/2	THD		Hex. Head Plug	ASTM A105	ASME B16.11		
	2	8	BW	Same as Pipe	Cap,SMLS	ASTM A234 WPB	ASME B16.9		
	2	8	BW	Same as Pipe	Tee Eq. & Red, SMLS	ASTM A234 WPB	ASME B16.9		
	2	8	BW	Same as Pipe	Reducer Conc.&Ecc, SMLS	ASTM A234 WPB	ASME B16.9		
	2	8	BW	Same as Pipe	Elbow 45° & 90°, SMLS,LR	ASTM A234 WPB	ASME B16.9		
	2	8	BW	Same as Pipe	Weldolet	ASTM A105	MSS SP-97		
FLANGES	1/2	1 1/2	SW	600#	Socket welded, RF,SW,SF	ASTM A105	ASME B16.5		
	2	8	BW	Same as Pipe 600#	Weld Neck, RF, SF	ASTM A105	ASME B16.5		
	1/2	8	-	600#	Blind, RF, SF	ASTM A105	ASME B16.5		
CLOUSERS	1/2	8	-	600#	Spectacle Blind, RF	ASTM A516-Gr.70	ASME B16.48		
GASKETS	1/2	8	-	600#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20		
Nut & Bolt	1/2	8	-	600#	Stud bolt, Unified threaded	ASTM A 193-B7M	ASME B18.2.1		

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 25 از 29	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001	D02	

SERVICES: Gas					D02		CLASS: FN05			C.A.: 3 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : Yes			Rating: 600#		
DES. (PRES.)	BARG	60			Design Code: ASME B31.3					
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE		
	FROM	TO								
		1/2	8	-	600#	Nut, two Heavy Hex nuts for each bolt	ASTM A 194 - 2HM		ASME B18.2.2	
Gate Valve	1/2	1 1/2	SW/THRD	800#	Solid wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A105 ,Trim No.12	API 602			
	2	8	FLGD-RF	600#	Flexible wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A216 GR. WCB, Trim No.12	API 600			
Globe Valve	1/2	1 1/2	SW	800#	OS&Y,BB,Renewable Seat Ring, HO	Body: A 105 . Trim No.12	ISO 15761			
	2	4	FLGD-RF	600#	OS&Y,BB,Renewable Seat Ring, HO	Body: A216 GR. WCB., Trim No.12	BS 1873			
	6	8	FLGD-RF	600#	OS&Y,BB,Renewable Seat Ring, GO		BS 1873			
Check Valve	1/2	1 1/2	SW	800#	Piston Lift Type,BC, Renewable Seat Ring,Horizontal Install Type	Body: A 105 .Trim No.12	ISO 15761			
	2	6	FLGD-RF	600#	Swing Type,BC	Body: A216 GR. WCB., Trim No.12	BS 1868			
Ball Valve	1/2	1 1/2	SW	800#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A105, Ball: A182 Ball: 316 Stem: 316 Trim:316+RPTFE	ISO 17292	Note 2		
	2	34	FLGD-RF	600#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Lever Operated	Body: A216 Gr. WCB, Ball: SS316 Trim:316+RPTFE	API 6D	Note 2		
	4	8	FLGD-RF	600#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Gear Operated	Body: A216 Gr. WCB, Ball: SS316 Trim:316+RPTFE	API 6D	Note 2		
STRAINER	1/2	1 1/2	SW	800#	Y-TYPE	Body: A105 , Screen :A 182 GR. F316L				
	2	2	FLGD-RF	600#	Y-TYPE	Body: A216 , Screen :A 182 GR. F316L				
	3	8	FLGD-RF	600#	T-TYPE	Body: A234WPB, Screen :A 182 GR. F316L				

Note 1: Thread end will be used just for Orifice flange connections

Note 2: Fire Safe per API 6FA. Anti Static, and Blow-Out Proof Stem shall be considered for these valves.

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 26 از 29
	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال	
	BK	PPL	PEDCO	320	PI	SP	0001	
							D02	

PIPE CLASS FN07:

BRANCH	10	T										
	8	E	T									
	6	E	E	T								
	4	E	E	E	T							
	3	W	W	E	E	T						
	2	W	W	W	E	E	T					
	11/2	S	S	S	S	S	T					
	1	S	S	S	S	S	E	T				
	3/4	S	S	S	S	S	E	E	T			
	1/2	S	S	S	S	S	E	E	E	T		
	ND	10	8	6	4	3	2	11/2	1	3/4	1/2	
HEADER												

LEGEND	
S	Sockolet
W	Weldolet
E	Reducing Tee
T	Equal Tee

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک							 	
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 27 از 29	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001		D02

SERVICES: Gas					CLASS: FN07			C.A.: 6 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : Yes			Rating: 600#
DES. (PRES.)	BARG	60			Design Code: ASME B31.3			
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE
	FROM	TO						
PIPES	1/2	1 1/2	PBE/TOE/TBE	SCH.XXS	Seamless	ASTM A106 Gr.B	ASME B36.10M	NOTE 1
	2	2	BE	SCH.XXS	Seamless	ASTM A106 Gr.B	ASME B36.10M	
	3	3	BE	SCH.160	Seamless	ASTM A106 Gr.B	ASME B36.10M	
	4	6	BE	SCH.120	Seamless	ASTM A106 Gr.B	ASME B36.10M	
	8	8	BE	SCH.100	Seamless	ASTM A106 Gr.B	ASME B36.10M	
Nipples	1/2	1 1/2	PBE/PSE/BLE	Same as Pipe	Nipples	ASTM A106 Gr.B	MSS SP-95	
FITTINGS	1/2	1 1/2	SW	9000#	Cap	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	9000#	Reducer Conc.&Ecc.	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	9000#	Union	ASTM A105	MSS SP-83	
	1/2	1 1/2	SW	9000#	Coupling	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	9000#	Elbow 45° & 90°	ASTM A105	ASME B16.11	
	1/2	1 1/2	SW	9000#	Sockolet	ASTM A105	MSS SP-97	
	1/2	1 1/2	THD		Hex. Head Plug	ASTM A105	ASME B16.11	
	2	8	BW	Same as Pipe	Cap,SMLS	ASTM A234 WPB	ASME B16.9	
	2	8	BW	Same as Pipe	Tee Eq. & Red, SMLS	ASTM A234 WPB	ASME B16.9	
	2	8	BW	Same as Pipe	Reducer Conc.&Ecc, SMLS	ASTM A234 WPB	ASME B16.9	
	2	8	BW	Same as Pipe	Elbow 45° & 90°, SMLS,LR	ASTM A234 WPB	ASME B16.9	
	2	8	BW	Same as Pipe	Weldolet	ASTM A105	MSS SP-97	
FLANGES	1/2	1 1/2	SW	600#	Socket welded, RF,SW,SF	ASTM A105	ASME B16.5	
	2	8	BW	Same as Pipe 600#	Weld Neck, RF, SF	ASTM A105	ASME B16.5	
	1/2	8	-	600#	Blind, RF, SF	ASTM A105	ASME B16.5	
CLOUSERS	1/2	8	-	600#	Spectacle Blind, RF	ASTM A516-Gr.70	ASME B16.48	
GASKETS	1/2	8	-	600#	Spiral Wound, 4.45 mm Thick., RF, SF	S.S 316 Winding /Graphite Filler, C.S. Outer& S.S 316L Inner Ring	ASME B16.20	
Nut & Bolt	1/2	8	-	600#	Stud bolt, Unified threaded	ASTM A 193-B7M	ASME B18.2.1	

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 - 073 - 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 28 از 29	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001	D02	

SERVICES: Gas					CLASS: FN07			C.A.: 6 mm
DES. (TEMP.)	°C	85	Basic Material	Carbon Steel	NACE MR 0175 / ISO 15156 Requirements : Yes			Rating: 600#
DES. (PRES.)	BARG	60			Design Code: ASME B31.3			
ITEM	SIZES (In)		END	SCH./RATING	DESCRIPTION	MATERIAL	STANDARD	NOTE
	FROM	TO						
	1/2	8	-	600#	Nut, two Heavy Hex nuts for each bolt	ASTM A 194 - 2HM	ASME B18.2.2	
Gate Valve	1/2	1 1/2	SW/THRD	800#	Solid wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A105 ,Trim No.12	API 602	
	2	8	FLGD-RF	600#	Flexible wedge, BB, OS.&Y, Renewable Seat Ring, HO	Body: A216 GR. WCB, Trim No.12	API 600	
Globe Valve	1/2	1 1/2	SW	800#	OS&Y,BB,Renewable Seat Ring, HO	Body: A 105 . Trim No.12	ISO 15761	
	2	4	FLGD-RF	600#	OS&Y,BB,Renewable Seat Ring, HO	Body: A216 GR. WCB., Trim No.12	BS 1873	
	6	8	FLGD-RF	600#	OS&Y,BB,Renewable Seat Ring, GO		BS 1873	
Check Valve	1/2	1 1/2	SW	800#	Piston Lift Type,BC, Renewable Seat Ring,Horizontal Install Type	Body: A 105 .Trim No.12	ISO 15761	
	2	6	FLGD-RF	600#	Swing Type,BC	Body: A216 GR. WCB., Trim No.12	BS 1868	
Ball Valve	1/2	1 1/2	SW	800#	RB, Soft Seat, Floating Ball, Renewable Seat Ring, Lever Operated	Body: A105, Ball: A182 Ball: 316 Stem: 316 Trim:316+RPTFE	ISO 17292	Note 2
	2	34	FLGD-RF	600#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Lever Operated	Body: A216 Gr. WCB, Ball: SS316 Trim:316+RPTFE	API 6D	Note 2
	4	8	FLGD-RF	600#	RB, Soft Seat, Trunnion mounted, Renewable Seat Ring, Gear Operated	Body: A216 Gr. WCB, Ball: SS316 Trim:316+RPTFE	API 6D	Note 2
STRAINER	1/2	1 1/2	SW	800#	Y-TYPE	Body: A105 , Screen :A 182 GR. F316L		
	2	2	FLGD-RF	600#	Y-TYPE	Body: A216 , Screen :A 182 GR. F316L		
	3	8	FLGD-RF	600#	T-TYPE	Body: A234WPB, Screen :A 182 GR. F316L		

Note 1: Thread end will be used just for Orifice flange connections

Note 2: Fire Safe per API 6FA. Anti Static, and Blow-Out Proof Stem shall be considered for these valves.

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث خطوط انتقال گاز/مایعات گازی از ایستگاه تقویت فشار گاز بینک تا ایستگاه تزریق گاز سیاهمکان/واحد بهره برداری بینک								
شماره پیمان: 053 – 073 – 9184	PIPING MATERIAL SPECIFICATION							شماره صفحه : 29 از 29	
	پروژه	بسته کاری	صادرکننده	تجهیزات	رشته	نوع مدرک	سریال		نسخه
	BK	PPL	PEDCO	320	PI	SP	0001		D02

PIPE CLASS FN07:

BRANCH	10	T											
	8	E	T										
	6	E	E	T									
	4	E	E	E	T								
	3	W	W	E	E	T							
	2	W	W	W	E	E	T						
	11/2	S	S	S	S	S	S	T					
	1	S	S	S	S	S	S	E	T				
	3/4	S	S	S	S	S	S	E	E	T			
	1/2	S	S	S	S	S	S	E	E	E	T		
	ND	10	8	6	4	3	2	11/2	1	3/4	1/2		
HEADER													

LEGEND	
S	Sockolet
W	Weldolet
E	Reducing Tee
T	Equal Tee