

# شرکت ومد پتوابران HIRGAN ENERGY

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

	SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه		
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# طرح نگهداشت و افزایش تولید 27 مخزن

## SPECIFICATION FOR PIPELINE CONSTRUCTION

نگهداشت و افزایش تولید میدان نفتی بینک

Class. 2		CLIENT Des Number 507				
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	<b>CLIENT Approval</b>
D00	JAN. 2022	IFC	A.Khosravi	M.Fakharian	M.Mehrshad	
D01	MAR. 2022	IFA	A.Khosravi	M.Fakharian	M.Mehrshad	
D02	MAY. 2023	AFD	A.M.Noori	M.Fakharian	A.M.Mohseni	

Class: 2 CLIENT Doc. Number: F0Z-707162

Status:

IDC: Inter-Discipline Check
IFC: Issued For Comment
IFA: Issued For Approval
AFD: Approved For Design
AFC: Approved For Construction
AFP: Approved For Purchase
AFQ: Approved For Quotation
IFI: Issued For Information
AB-R: As-Built for CLIENT Review
AB-A: As-Built —Approved



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#### 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.

#### **GENERAL DEFINITION**

The following terms shall be used in this document.

CLIENT: National Iranian South Oilfields Company (NISOC)

PROJECT: Binak Oilfield Development – General Facilities

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.





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#### 2.0 SCOPE

This specification gives amendment and supplement to IPS-C-PI-140(1), "Construction Standard for Transportation Pipelines (Onshore)".

It shall be used in conjunction with data/requisition sheets for present document subject.

IPS-C-PI-140(1) contains 19 parts outlines requirements for a procedure to specify responsibility of CLIENT and EXECUTOR in handing over, loading, hauling, unloading, keeping list of inventory and storing of materials required for installation of pipeline except for explosive materials which are dealt with in part 4 of this Standard.

#### 3.0 NORMATIVE REFERENCES

### 3.1 LOCAL CODES AND STANDARDS

•	IPS-C-PI-140(1) IPS-D-PI-143(0)	Construction Standard for Transportation Pipelines (Onshore) Pipeline Right of Way
•	IPS-D-PI-175(0) IPS-G-PI-280(2)	Pipeline Road Crossing Major & Secondary Road Crossing General Standard for Pipe Supports
•	IPS-E-PI-140	Engineering Standard For Onshore Transportation Pipelines
•	IPS-E-TP-100	Engineering Standard For Paints
•	IPS-C-TP-101	Construction Standard for Surface preparation
•	IPS-C-PI-270	Construction Standard For Welding Of Transportation Pipeline
•	IPS-C-PI-370	Construction Standard For Transportation Pipelines (Onshore) Pressure Testing
•	IPS-C-PI-274	Construction Standard Protective Coating
•	IPS-C-TP-820	Construction Standard for Cathodic Protection
•	IPS-D-PI-103	Pipeline Spacing
•	IPS-D-PI-111	Pipeline Scraper Trap
•	NISOC-S4-L-6501	PIPELINE SCRAPER TRAPS
•	NISOC-S4-L-6502	PIPELINE ROAD CROSSINGS
•	NISOC-S4-L-6503	نگهدارنده لوله اي مرتفع ساختمان خط لوله





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• NISOC-S4-L-6505 PIPELINE RIGHT - OF - WAY

NISOC-S4-L-6508 PIPELINE MARKERS & TEST POINTS

• NISOC-S4-L-6509 SADDLE ANCHORS FOR PIPE LINES

ALL GRADES

• NISOC-S4-L-6510 PIPELINE HILLSIDE ANCHORS

#### 3.2 INTERNATIONAL CODES AND STANDARDS

ANSI/ASME B31.4

•	ASME B 16.5	Steel Pipe Flanges and Flanged Fittings
•	ASME B16.9	Factory-Made Wrought Steel Butt-welding Fittings
•	ASTM E92	Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials
•	ASTM D3839	Standard Guide for Underground Installation of Fibreglass Pipe (ADD.)
•	AWWA C950	Fiberglass Pressure Pipe
•	AWWA M45	Fiberglass Pipe Design
•	AWWA M55	PE Pipe Design and Installation
•	DIN 8074	Polyethylene (PE) Pipes
•	DIN 8075	Polyethylene (PE) Pipes – General Quality Requirements, Testing
•	API Spec. 5L	Specification for Line Pipe
•	API 15HR	Specification for High Pressure Fibreglass line pipe
•	API 15LR	Specification for Low Pressure Fibreglass line pipe and Fittings
•	API RP5L1	Recommended Practice for Railroad Transportation of Line Pipe
•	API RP5L5	Recommended Practice for Marine Transportation of Line Pipe
•	API RP15S	Recommended Practice for Qualification of Spoolable Reinforced Plastic Line Pipe
•	API RP1102	Steel Pipelines Crossing Railroads and Highways
•	ANSI/ASME B31.8	Gas Transmission and Distribution Piping Systems

Slurries

Pipeline Transportation Systems for Liquids and





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•	ANSI/ASME B16.20	Metallic Gaskets for Pipe Flanges
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ANSI/ASME B16.25 Buttwelding Ends

ANSI/ASME Sec.V Non-Destructive Examination

ANSI/ASME Sec.IX Welding, Brazing and Fusing Qualification
 API 1104 Welding of Pipelines and Related Facilities

ASTM E165 Standard Practice for Liquid Penetrant testing for

General industry

ASTM E709 Standard Guide for Magnetic Particle Testing

BS- EN-10204 Metallic Products; Types of Inspection Document

• NACE MR-0175/ISO 15156 Petroleum and natural gas industries — Materials for

use in H2S-containing environments in oil and gas

production

NACE TM-0284 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

Specification for Pineline Flushing Cleaning and

Environments

#### 3.3 PROJECT DOCUMENTS

•	BK-GNRAL-PEDCO-000-PL-SP-0008	Hydrostatic Testing
•	BK-SSGRL-PEDCO-110-PI-SP-0001	Piping Material Specification
•	BK-SSGRL-PEDCO-110-PL-SP-0001	Pipeline Material Specification
•	BK-GNRAL-PEDCO-000-PL-DW-0001 ~0014	Pipeline Standard Drawings
•	WPS & PQR: (Shall be prepared and approved during construction)	
•	BK-GNRAL-PEDCO-000-PL-SP-0009	Specification for welding of Transportation Pipelines
•	BK-GNRAL-PEDCO-000-PL-SP-0008	Specification For Pipeline Flushing, Cleaning And Hydrostatic Testing
•	BK-GNRAL-PEDCO-000-PL-SP-0003	Specification for Pipeline Cold Bending
•	BK-GNRAL-PEDCO-000-PL-SP-0007	Specification for Pipeline Coating
•	BK-GNRAL-PEDCO-000-PI-SP-0002	Specification for transportation, handling, storage of pine

storage of pipe





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#### 3.4 ENVIRONMENTAL DATA

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

#### 3.5 CONFLICT REQUIREMENT

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 PROJECT PIPELINES SPECIFICATION

PROJECT includes pipelines with following general specification:

- Construction and installation of 8 Inch Gas transfer Pipeline from Binak New Gas Compressor Station to Siahmakan Gas injection unit. (UG)
- Construction and installation of 4 Inch Condenstae Pipeline from Binak Gas Compressor Station to Binak Production Unit unit. (AG).
- Construction and installation of 6 new flow lines from Binak Oil Filed to Manifold (AG).

Below requirements shall be met for pipeline construction:

- A pre-construction survey shall be carried out based on AFC drawings to specify the pipeline corridor considering crossings.
- Aeolian sand shall be used for initial backfilling. CLIENT's representative shall approve the source and quality of the sand or soft earth.
- Rock shield shall be used to protect coating in rocky lands.
- Temporary cathodic protection system shall be installed when burying the pipe before installation of permanent cathodic protection system.
- Cathodic protection and coating evaluation tests including DCVG, CIPS and PCM shall be done after burying the pipe.
- Necessary arrangements shall be considered to replace corrosion monitoring devices using retrievers.



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## **PART 1 MATERIAL HANDLING**





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#### **PART 2 RIGHTS OF WAY**





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### **PART 3 DITCHING**



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## PART 4 SUPPLY, STORING, HANDLINGAND USE OF EXPLOSIVE MATERIALS





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## **PART 5 STRINGING**





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## **PART 6 PREPARATIONS OF PIPES**





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## **PART 7 CHANGE OF DIRECTION**





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PART 8 WELDING AND LAYING OF PIPE (MOD.)





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#### 1.0 SCOPE

No amendments or supplements are to state.

#### 2.0 WELDING WORK

#### 2.1 WELDING OF PIPE OVER THE DITCH

Reference shall be made to IPS-C-PI-270

#### 2.2 WELDING OF PIPE AT DOUBLE JOINTING YARD

All welding work, welding materials, qualification tests for welding procedure and welders, inspection and testing, acceptance criteria, repair or removal of defects shall conform to requirements cited in IPS-C-PI-270.

Non-destructive and destructive tests shall be as per requirements of IPS-C-PI-270.

#### 2.3 CAPPING PIPE ENDS.

No amendments or supplements are to state.

#### 3.0 LAYING OPERATION



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### PART 9 CORROSION PROTECTION COATING FOR BURIED PIPELINES

Reference shall be made to IPS-C-TP-274.





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**PART 10 BACKFILLING** 



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### **PART 11 CROSSING**





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**PART 12 CASING INSTALLATIONS (MOD.)** 





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#### 1.0 SCOPE

No amendments or supplements are to state.

#### 2.0 GENERAL

Crossing of plant roads, major public roads, freeways, railways and such other facilities shown on working drawings shall be made by laying pipeline in "steel casings (preferably 3 layers polyethylene coated)".

#### 3.0 PERMITS AND AUTHORIZATIONS

No amendments or supplements are to state.

#### 4.0 METHODS OF CASING INSTALLATION

No amendments or supplements are to state.

#### 5.0 INSPECTION OF CASING PIPE

5.1

5.1 No amendments or supplements are to state.

5.2

Welding of casing pipes shall be in accordance with IPS-C-PI-270.

5.3

No amendments or supplements are to state.

#### 6.0 PAINTING AND COATING

No amendments or supplements are to state.

#### 7.0 BACKFILLING AND TAMPTING

No amendments or supplements are to state.

#### 8.0 SAFETY OF TRAFFIC AND PIPELINE





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PART 13 PREFABRICATED ASSEMBLIES (MOD.)





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شماره صفحه: 24 از 31

#### 1.0 SCOPE

No amendments or supplements are to state.

#### 2.0 CHECKS

No amendments or supplements are to state.

#### 3.0 INSTALLATIONS

#### 3.1

No amendments or supplements are to state.

#### 3.2

No amendments or supplements are to state.

#### 3.3

If possible for some parts of assembly, piping, pipe fittings and special components connected to the valves or to scraper traps shall be assembled by the Executor in the ditch or at field workshop.

Such parts of assembly which might be fabricated in workshop shall receive corrosion protective coating as per IPS-E-TP-100 and IPS-C-TP-101 before transportation to installation site.

#### 4.0 COATING AND PAINTING

#### 4.1

Surface of all buried parts of prefabricated assemblies shall be cleaned, coated and inspected as specified in IPS-C-TP- 101 and IPS-C-TP-102.

#### 4.2

All above ground parts of prefabricated assemblies shall be cleaned and painted as specified in IPS-E-TP-100.



# HIRGAN ENERGY

شماره صفحه: 25 از 31

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION										
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه			
BK	GNRAL	PEDCO	000	PL	SP	0012	D02			

## **PART 14 PRESSURE TESTING**

Reference shall be made to IPS-C-PI-370 and Project Specification

BK-GNRAL-PEDCO-000-PL-SP-0008



# HIRGAN ENERGY

شماره صفحه: 26 از 31

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GNRAL	PEDCO	000	PL	SP	0012	D02	

### PART 15 CLEAN-UP OPERATION AND RESTORATION ACTIVITIES





شماره صفحه: 27 از 31

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GNRAL	PEDCO	000	PL	SP	0012	D02	

## **PART 16 CATHODIC PROTECTION**

Reference shall be made to IPS-C-TP-820.





شماره صفحه: 28 از 31

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GNRAL	PEDCO	000	PL	SP	0012	D02	

PART 17 RECORDS AND AS-BUILT SURVEY (MOD.)



# مرک قور توایان HIRGAN

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GNRAL	PEDCO	000	PL	SP	0012	D02	

شماره صفحه: 29 از 31

#### 1.0 SCOPE

No amendments or supplements are to state.

#### 2.0 RECORDS

#### 2.1

No amendments or supplements are to state.

#### 2.2

The Executor shall maintain during the works record books describing and locating repairs, of whatever nature, to the pipe and pipeline and shall make 3 copies of them available to the Engineer.

The Executor shall provide and submit to the Engineer all reports, documentations cited in individual parts of this Standard, as well as result of inspection and tests performed in accordance with Standards IPS-C-PI-270, IPS-C-PI-370 and project "Specification For Pipeline Coating" Spec. No.: BK-GNRAL-PEDCO-000-PL-SP-0007.

Together with the final survey drawings the Executor shall submit a technical report on the as built survey which follows construction work as well as copies of all field books used on the survey and copies of all computations made during the survey. The report on the survey and its computations shall give full details of all basic data used, methods employed, instruments used, adjustments made, Standards of accuracy observed, reference and bench marks established, special problems or difficulties experienced, index of all drawings and data used and associated with the survey. The Executor shall submit final survey drawings in 5 copies.

#### 3.0 AS-BUILT SURVEY





شماره صفحه: 30 از 31

# عمومی و مشترک

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GNRAL	PEDCO	000	PL	SP	0012	D02	

### **PART 18 ABOVE-GROUND PIPELINES**





شماره صفحه: 31 از 31

# عمومي و مشترك

شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR PIPELINE CONSTRUCTION								
پروژه	بسته کاری	صادر کننده	تسهيلات	رشته	نوع مدرك	سريال	نسخه	
BK	GNRAL	PEDCO	000	PL	SP	0012	D02	

PART 19 DISTRICT (RIGHT-OF-WAY)

OF

**GAS TRANSMISSION PIPELINES** 

IN

**NORTHERN REGIONS OF IRAN** 

DELETED.