طرح نگهداشت و افزایش تولید 27 مخزن

SPECIFICATION FOR WELDING OF TRANSPORTATION PIPELINE

نگهداشت و افزایش تولید میدان نفتی بینک

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Rev.	**Date**	**Purpose of Issue/Status**	**Prepared by:**	**Checked by:**	**Approved by:**	**CLIENT Approval**

Class:2 | **CLIENT Doc. Number: F0Z-707159**

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

REVISION RECORD SHEET

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0.0 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.

GUIDANCE FOR USE OF THIS DOCUMENT

The amendments/supplement to the related IPS Standard(s) given in this document is directly related to the equivalent sections or clauses in the IPS Standard(s). For clarity, the section and paragraph numbering of the IPS Standard(s) has been used as long as possible. Where clauses in IPS are referenced within this document, it shall mean those clauses are amended by this

document. Clauses in" IPS" that are not amended by this document shall remain valid as written.

For ease of reference, the clause or section numbering of the related IPS Standard(s) has been used throughout this specification. For the purpose of this specification, the following definitions shall hold:

Sub. (Substitution): The IPS Std. Clause is deleted and replaced by a new clause.

Del. (Deletion): The IPS Std. Clause is deleted without any replacement.

Add. (Addition): A new clause with a new number is added.

Mod. (Modification): Part of the IPS Std. Clause is modified, and/or a new description and/or condition is added to that clause.

1.0 SCOPE

This specification gives amendment and supplement IPS-C-PI-270(2), "Construction standard for welding of transportation pipeline "for shop and field fabrication of carbon steel pipeline in this project.

(IPS-C-PI-270(2) covers the arc welding of butt, fillet and socket welds in carbon and low alloy steel for liquid and gas transmission pipelines and related facilities including pig traps. The welding may be carried out by a shielded metal arc welding, submerged arc welding, gas tungsten arc welding, gas metal arc welding or flux cored are welding process or combination of these processes using a manual, semi-automatic or automatic welding technique or combination of these techniques. The welds may be produced by position or roll welding or by a combination of position and roll welding. Roll welding is only acceptable when using a fully automatic welding process.

Oxyacetylene welding (otherwise known as gas welding) and flash butt welding processes shall not be used.

The use of gas metal arc, gas tungsten arc and flux cored arc welding (except the self-shielding type) processes shall be restricted to construction areas protected against wind and draught.

The standard also covers the acceptance standards to be applied to production welds tested to destruction or inspected by radiographic, ultrasonic or magnetic particle techniques. It includes the procedures for inspection using these techniques.)

2.0 NORMATIVE REFERENCES (MOD.)

2.1 LOCAL CODES AND STANDARDS

- IPS-C-PI-270 (2) — Construction Standard For Welding Of Transportation Pipeline
- IPS-C-PI-140 (1) — Construction Standard For Transportation Pipelines (Onshore)

2.2 INTERNATIONAL CODES AND STANDARDS

- NACE MR 0175 / ISO 15156 — Petroleum and Natural Gas Industries. Materials for use in H2S Containing Environments in Oil and Gas Production
- ASME Sec. V — Non-Destructive Examination
- ASME Sec. IX — Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators
- API 1104 — Welding of Pipelines and Related Facilities
- SNT-TC-1A — Personnel Qualification and Certification In Nondestructive Testing

2.3 THE PROJECT DOCUMENTS

- BK-GNRAL-PEDCO-000-PI-SP-0008 — Specification For Material Requirements in Sour service
- BK-PPL-PEDCO-320-PL-SP-0001 — Pipeline Material Specification
- BK-GNRAL-PEDCO-000-PL-DC-0001 — Pipeline Design Criteria
- BK-SSGRL-PEDCO-110-PL-SP-0001 — Pipeline Material Specification

2.4 ENVIRONMENTAL DATA

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

2.5 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.

3.0 DEFINITION OF TERMS

No amendments or supplements are to state.

4.0 SPECIFICATIONS

4.2.2 Filler Metal (Mod.)

Welding consumables or combination of them used for the work shall produce welds with strength and ductility properties (especially notch toughness) in the final heat treated condition (if applicable) at least equal to the minimum specified equivalent properties of the base material.

a) For carbon steel materials, EN 10204 type 2.2 test reports shall be submitted to the Inspection Agency for all consumables and shall be available at site at the time of welding. For all other materials, EN 10204 type 3.1.B inspection certificates shall be submitted to the Inspection Agency for all consumables and shall be available at site at the time of welding.

   Welds joining carbon steel materials of different grades shall give the same strength as that specified for the higher grade of material and shall have ductility and notch toughness properties equal to the higher values specified for the grades of steel being joined.

b) In welding processes other than SMAW or FCAW, the bare filler wire shall contain all the alloying elements; no elements shall be added via the flux.

c) All welding products shall be used within the limits recommended by their Manufacturer and the welding variables used for fabrication shall be within the range used for the procedure qualification.

5.0 QUALIFICATION OF WELDING PROCEDURES FOR WELDS CONTAINING FILLER METAL ADDITIVES. (MOD.)

Welding consumable manufacturer and AWS designation shall be classified as an essential variable for the purposes of welding procedure qualification. (Add.)

WPS shall be prepared according to API 1104. (Add.)

6.0 QUALIFICATION OF WELDERS

No amendments or supplements are to state.

7.0 PRODUCTION WELDING

7.2 ALIGNMENT (MOD.)

All welding preparation details must be in accordance with CLIENT approved Drawings, and WPS. (Add.)

All welds bevels surfaces shall be free from cracks, porosity, and slag inclusions. (Add.)

7.13 CONTROL OF WELDING CONSUMABLES DURING PRODUCTION WELDING

All welding electrodes/consumables shall be subject to CLIENT approval as part of the WPS.

(Add.)

All welding consumables shall be supplied with vendor's Batch Certification – Type certificates for sour service applications are not acceptable. (Add.)

For Sour Service, the maximum level of nickel in deposited weld metal shall be 1.0% mass fraction for all carbon steel and low alloy materials in accordance with NACE MR0175 /ISO 15156. (Add.)

The electrode/consumable chemistry shall meet the requirements of the base material, and shall be selected such that the deposited weld metal exhibits mechanical properties equal to or in excess of the base material. (Add.)

All welding electrodes/consumables shall be stored and used in accordance with the vendors' recommendations. Executor shall demonstrate that there is sufficient control and storage of all welding electrodes/consumables. (Add.)

Carbon steel and alloy electrodes/consumables shall be stored separately.

Low hydrogen electrodes shall be used for carbon steel in sour service, and shall be capable of achieving a maximum hydrogen level of less than 5ml/100g in weld

metal. (Add.)

Shielding and purging gases shall be welding grade, with a dew point of less than or equal to minus 40ºC, with the essential variables of composition, purity and flow rate stated on the WPS. (Add.)

For submerged arc welding, alloying is not permitted via the flux. (Add.)

Active shield gases shall only be used with specific CLIENT approval. (Add.)

8.0 INSPECTION AND TESTING OF PRODUCTION WELDS

No amendments or supplements are to state.

9.0 ACCEPTANCE STANDARDS FOR NON-DESTRUCTIVE TESTING

No amendments or supplements are to state.

10.0 REPAIR AND REMOVAL OF DEFECTS

No amendments or supplements are to state.

11.0 PROCEDURES FOR NON-DESTRUCTIVE TESTING

No amendments or supplements are to state.

12.0 AUTOMATIC WELDING

No amendments or supplements are to state.

13.0 AUTOMATIC WELDING WITHOUT FILLER METAL ADDITIONS

No amendments or supplements are to state.