|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **طرح نگهداشت و افزایش تولید 27 مخزن** | | | | | | |
| **Inspection & Test Plan (ITP)**  **نگهداشت و افزایش تولید میدان نفتی بینک** | | | | | | |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| V02 | Apr 2024 | AFC | VISTA Co. | M.Fakharian | S.Faramarz Pour |  |
| V01 | Oct 2023 | AFC | VISTA Co. | M.Fakharian | S.Faramarz Pour |  |
| V00 | July 2022 | IFA | VISTA Co. | M.Fakharian | A.M.Mohseni |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
|  | |  | | | | |
| **Status:** | **IFA: Issued for Approval**  **IFI: Issued for Information**  **AFC: Approved for Construction** | | | | | |

**REVISION RECORD SHEET**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PAGE** | **V00** | **V01** | **V02** | **V03** | **V04** |  | **PAGE** | **V00** | **V01** | **V02** | **V03** | **V04** |
| **1** | X | X | X |  |  | **51** |  |  |  |  |  |
| **2** | X | X | X |  |  | **52** |  |  |  |  |  |
| **3** | X | X | X |  |  | **53** |  |  |  |  |  |
| **4** | X | X | X |  |  | **54** |  |  |  |  |  |
| **5** | X | X | X |  |  | **55** |  |  |  |  |  |
| **6** | X | X | X |  |  | **56** |  |  |  |  |  |
| **7** | X | X | X |  |  | **57** |  |  |  |  |  |
| **8** | X | X | X |  |  | **58** |  |  |  |  |  |
| **9** | X | X | X |  |  | **59** |  |  |  |  |  |
| **10** | X | X | X |  |  | **60** |  |  |  |  |  |
| **11** |  | X | X |  |  | **61** |  |  |  |  |  |
| **12** |  |  |  |  |  | **62** |  |  |  |  |  |
| **13** |  |  |  |  |  | **63** |  |  |  |  |  |
| **14** |  |  |  |  |  | **64** |  |  |  |  |  |
| **15** |  |  |  |  |  | **65** |  |  |  |  |  |
| **16** |  |  |  |  |  | **66** |  |  |  |  |  |
| **17** |  |  |  |  |  | **67** |  |  |  |  |  |
| **18** |  |  |  |  |  | **68** |  |  |  |  |  |
| **19** |  |  |  |  |  | **69** |  |  |  |  |  |
| **20** |  |  |  |  |  | **70** |  |  |  |  |  |
| **21** |  |  |  |  |  | **71** |  |  |  |  |  |
| **22** |  |  |  |  |  | **72** |  |  |  |  |  |
| **23** |  |  |  |  |  | **73** |  |  |  |  |  |
| **24** |  |  |  |  |  | **74** |  |  |  |  |  |
| **25** |  |  |  |  |  | **75** |  |  |  |  |  |
| **26** |  |  |  |  |  | **76** |  |  |  |  |  |
| **27** |  |  |  |  |  | **77** |  |  |  |  |  |
| **28** |  |  |  |  |  | **78** |  |  |  |  |  |
| **29** |  |  |  |  |  | **79** |  |  |  |  |  |
| **30** |  |  |  |  |  | **80** |  |  |  |  |  |
| **31** |  |  |  |  |  | **81** |  |  |  |  |  |
| **32** |  |  |  |  |  | **82** |  |  |  |  |  |
| **33** |  |  |  |  |  | **83** |  |  |  |  |  |
| **34** |  |  |  |  |  | **84** |  |  |  |  |  |
| **35** |  |  |  |  |  | **85** |  |  |  |  |  |
| **36** |  |  |  |  |  | **86** |  |  |  |  |  |
| **37** |  |  |  |  |  | **87** |  |  |  |  |  |
| **38** |  |  |  |  |  | **88** |  |  |  |  |  |
| **39** |  |  |  |  |  | **89** |  |  |  |  |  |
| **40** |  |  |  |  |  | **90** |  |  |  |  |  |
| **41** |  |  |  |  |  | **91** |  |  |  |  |  |
| **42** |  |  |  |  |  | **92** |  |  |  |  |  |
| **43** |  |  |  |  |  | **93** |  |  |  |  |  |
| **44** |  |  |  |  |  | **94** |  |  |  |  |  |
| **45** |  |  |  |  |  | **95** |  |  |  |  |  |
| **46** |  |  |  |  |  | **96** |  |  |  |  |  |
| **47** |  |  |  |  |  | **97** |  |  |  |  |  |
| **48** |  |  |  |  |  | **98** |  |  |  |  |  |
| **49** |  |  |  |  |  | **99** |  |  |  |  |  |
| **50** |  |  |  |  |  | **100** |  |  |  |  |  |

**CONTENTS**

[1. INTRODUCTION ….. 4](#_Toc100941692)

[2. SCOPE ……… 6](#_Toc100941693)

[3. NORMATIVE REFERENCES …… 6](#_Toc100941696)

[3.1 Local Codes and Standards ……… 6](#_Toc100941697)

[3.2 International Codes and Standards……… 6](#_Toc100941698)

[3.3 The Project Documents ……… 7](#_Toc100941699)

[3.4 Order of Precedence ……… 7](#_Toc100941719)

[4. ITP For Pig Launcher & Pig Receiver Trap …..](#_Toc100941720) 8

# 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.

V02

**GENERAL DEFINITION**

The following terms shall be used in this document.

|  |  |
| --- | --- |
| CLIENT: | National Iranian South Oilfields Company (NISOC) |
| PROJECT: | Binak Oilfield Development – Manufacturing (w/Engineering & Material Supply) of Pig traps |
| EPD/EPC CONTRACTOR (GC): | Petro Iran Development Company (PEDCO) |
| EPC CONTRACTOR/PURCAHSER: | Joint Venture of: Hirgan Energy – Design & Inspection(D&I) Companies |
| VENDOR: | Nam Avaran Beh Koosh Vista |
| EXECUTOR: | Executor is the party which carries out all or part of construction and/or commissioning for the project. |
| TPI: | Third Party Inspector |
| 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. |
| HOLD POINT:  (abbreviated: H) | Next operation is allowed only when test or inspection is accepted.  Vendor must notify contractor of the dedicated inspection activity at least 7 Working days in advance. And the test must be performed in attendance of the inspectors; the vendor shall not depart from this role unless specifically approved by contractor in writing. |

|  |  |
| --- | --- |
| Review of Doucuments  (abbreviated R) | Check of certificate and/or documents with approved procedures, specification and acceptance criteria. |
| Review & Approved of Doucuments  (abbreviated: R/A) | Check and approve of certificate and/or documents with approved procedures, specification and acceptance criteria. |
| Witness point  (abbreviated: W) | Inspector’s presence required; the inspection activity proceed if the involved parties does not attend. The vendor must notify contractor of the dedicated inspection activity at least 5 working days in advance if the inspection parties don't elect to be present, the vendor may proceed with his own inspection provide and test records are made available to contractor for review. |
| Spot Witness point  (abbreviated: S.W) | Means Inspector's presence required, the inspection activity proceed if the involved parties does not attend, the ratio of witness point is minimum 20%.  The vendor must notify contractor of the dedicated inspection schedule at least 14 days. if the inspection parties don't elect to be present, the vendor may proceed with his own inspection provide and test records are made available to contractor for review. |
| Monitoring  (abbreviated: M) | Means that the Client requires monitoring during the Manufacturing of goods. However, if the work is performed as scheduled and if the Client is not present, Vendor will proceed with the work. |
| MOM | Minutes of meeting |
| PIM | Pre-Inspection Meeting |

# 

# SCOPE

This document covers minimum necessary requirements for the inspect and control the quality of the 2 sets of Pig Launcher and Receiver Trap & final inspection to satisfy the quality of theexecution process in accordance with the standard and Project Specification, And the use of the above document in the development project of Binak oil field.

# NORMATIVE REFERENCES

## Local Codes and Standards

V02

|  |  |
| --- | --- |
| * IPS-M-PI-130 (1) | Material and Equipment Standard for Pig Launching and Receiving Traps |
| * IPS-G-ME-150 (1) | Iranian Petroleum Standard – General Standard For Towers, Reactors, Pressure vessels & Internals |
| * S4L-6516 (REV. B) | National Iranian Oil Company – Standard Drawing for Pipeline Pig Traps (for Intelligent Pig) |
| * IPS-E-IN-100 (2) | Iranian Petroleum Standard – Engineering Standard for General Instrumentation |
| * IPS-E-TP-740 (1) | Iranian Petroleum Standard – Engineering Standard for Corrosion Considerations in Material Selection |
| * IPS-G-GN-210 | General standard for packing and packaging |
| * IPS-E-TP-100 (1) | Engineering Standards for Paints |
| * IPS-C-TP-102 (1) | Construction Standard for Painting |

## International Codes and Standards

* ASME Sec. VIII, div. 1 (2019)
* ASME B 31.4 (2022)
* Deleted
* ASME Sec. V (2021)
* ASTM International (2022)
* ASME Sec. II (2019)
* NACE MR 0175/ISO 15156 (2021)
* ISO 8501 (2020)

## The Project Documents

V02

|  |  |
| --- | --- |
| * BK-PPL-PEDCO-320-ME-MR-0001-D03 | PMR FOR PIG TRAPS |
| * BK-GNRAL-PEDCO-000-ME-DC-0001-D03 | Mechanical Design Criteria |
| * BK-PPL-PEDCO-320-ME-SP-0001-D02 | Spec. for Pig Launching / Receiving Traps |
| * BK-PPL-PEDCO-320-ME-DT-0001-D04 | Data Sheets For Pig Traps |
| * BK-GNRAL-PEDCO-000-QC-PR-0015-D00 | Specification for Welding Procedure |
| * BK-GNRAL-PEDCO-000-QC-PR-0045-D00 | Packing, Marking, Transportation Procedure |
| * ICE-EID-MI-SP01-Rev.01 | دستورالعمل بازرسی، خرید و ساخت کالا |
| * E&C -QC-SP-1-D01 | دستورالعمل تامین قطعات یدکی راه اندازی وراهبری دو سالانه |
| * BK-GNRAL-PEDCO-000-PI-SP-0011-D01 | Specification of welding of plant piping system & NDT |
| * BK-GNRAL-PEDCO-000-PI-SP-0008-D01 | Specification for Material Requirements in Sour service |
| * BK- PPL -PEDCO-120-PI-SP-0001-D02 | Piping Material Specification (PMS) |
| * BK-GNRAL-PEDCO-000-PI-SP-0005-D02 | Specification for Fittings, Flanges, Gaskets and Bolts |
| * BK-GNRAL-PEDCO-000-PI-SP-0006-D04 | Specification for Painting |
| * BK-GNRAL-PEDCO-000-PI-SP-0001-D02 | Specification for color coding and marking |
| * BK-GNRAL-PEDCO-000-PI-SP-0017-D03 | Specification for Cleaning and Flushing |
| * BK-GNRAL-PEDCO-000-PL-SP-0015-D01 | Specification for Pig |
| * BK-GNRAL-PEDCO-000-ME-DW-0001-D02 | Standard Detail Drawing for Pressure Vessel & Heat Exchanger |

## Order of Precedence

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

1. ITP FOR PIG TRAP

V02

| **No.** | **Description of Inspection and Test** | **Refrence Code/Standard / Specification** | **Acceptance Criteria** | **Confirmation documents** | **Inspection Authority** | | | | | **Report** | **Remark** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **VISTA** | **TPI** | **HIRGAN** | **PEDCO** | **NISOC** |
| **Before Fabrication** | | | | | | | | | | | |
| A1 | PIM | Project Document | --- | MOM | H | H | H | H | H | 🗶 | --- |
| A2 | Technical document  Design and General drawing | Project Document | Project Spec / Procedure | Approved document | H | --- | RA | RA | R | --- | Note 1 |
| A3 | VPIS | Project Document | Project Spec / VPIS | Approved document | H | --- | RA | RA | R | --- | --- |
| **Raw Material Inspection** | | | | | | | | | | | |
| B1 | Mill test certificate & origin | Project Spec / Data sheet | Project Spec & Standard  NACE MR 0175/ISO 15156 & IPS-M-PI-130 | Mill Certificate EN 10204 3.1 | H | W | W | W | W | ✓ | Note 3 |
| B2 | Material sampling & Lab test (if required) | Project Spec / Data sheet | Project Spec & Standard  NACE MR 0175/ISO 15156 & IPS-M-PI-130 | Lab Report | H | H | R | R | R | ✓ | Note 3 |
| B3 | Dimension check and visual inspection | Data sheet & DWGs | DWGs & Data Sheet | Inspection Report | H | H | R | R | R | ✓ | --- |
| B4 | Consumable material inspection | Project Spec / Data sheet | ASME BPVC Sec.II Part C / Project Spec & Standard | Certifications | H | RA | R | R | R | ✓ | --- |
| **Welding Document** | | | | | | | | | | | |
| C1 | WPS | Project Spec / ASME Sec. IX | ASME Sec. IX & NACE MR 0175/ISO 15156 & IPS-M-PI-130 | WPS | H | RA | R | R | R | ✓ | --- |
| C2 | PQR | Project Spec / ASME Sec. IX | ASME Sec. IX & NACE MR 0175/ISO 15156 & IPS-M-PI-130 | PQR | H | RA | R | R | R | ✓ | --- |
| C3 | Welder qualification test | Project Spec / ASME Sec. IX | ASME Sec. IX | Welder Certificate | H | RA | R | R | R | ✓ | --- |
| C4 | NDT operator certificate (Level II) | Project Spec / NDE Procedure | ASME BPVC Sec.V & ASNT SNT-TC--1A | NDT Certificate | H | RA | R | R | R | ✓ | --- |
| C5 | Measurement tools calibration | Related Standards | Related Standards | Calibration Certificate | H | RA | R | R | R | ✓ | --- |
| **During Fabrication** | | | | | | | | | | | |
| D1 | Cutting & beveling | DWG | DWG | QC Report | H | SW | R | R | R | ✓ | --- |
| D2 | Fit up C.W. L | DWG | DWG | QC Report | H | SW | R | R | R | ✓ | --- |
| D3 | Marking & opening of nozzle location | DWG | DWG | QC Report | H | SW | R | R | R | ✓ | --- |
| D4 | Dimensional & visual check (fit up) | DWG | DWG | QC Report | H | SW | R | R | R | ✓ | --- |
| D5 | Welding | WPS & PQR | WPS & PQR | QC Report | H | SW | R | R | R | ✓ | --- |
| D6 | Dimensional & visual check | DWG | DWG | QC Report | H | W | R | R | R | ✓ | --- |
| D7 | NDT beofor PWHT  (100% VT & RT) | NDT Procedure / NDT Map | NDT Procedure | NDT Report | H | W | R | R | R | ✓ | --- |
| D8 | Weld Repair (if required) | WPS & PQR | WPS & PQR | QC Report | H | SW | R | R | R | ✓ | --- |
| D9 | NDT after repairing  (VT & RT) | NDT Procedure / NDT Map | NDT Procedure | NDT Report | H | W | R | R | R | ✓ | --- |
| D10 | PWHT | Project Spec / PWHT Procedure according to NACE MR 0175/ISO 15156 | PWHT Procedure | PWHT Report & Graph | H | W | W | W | W | ✓ | --- |
| D11 | Hardness test | Project Spec / Hardness Procedure according NACE MR 0175/ ISO 15156 | According NACE MR 0175 / ISO 15156 & IPS-M-PI-130 | Hardness Report | H | SW | R | R | R | ✓ | --- |
| D12 | NDT after PWHT  (100% VT & RT & PT or MT) | NDT Procedure / NDT Map | NDT Procedure | NDT Report | H | W | R | R | R | ✓ | --- |
| D13 | Final visual dimensional check | Approved DWG | Approved DWG | DT, VT report | H | H | R | R | R | ✓ | --- |
| D14 | Hydrostatic test | Hydrostatic Procedure | Hydrostatic Procedure | QC report & Calibration Certificate | H | H | H | H | H | ✓ | --- |
| D15 | Closure functional test | Closure Function Test Procedure | Closure functional test Procedure | QC Report | H | H | H | H | H | ✓ | --- |
| D16 | Check of surface preparation | Surface Preparation and Painting Procedure | Surface Preparation and Painting Procedure | QC Report | H | W | R | R | R | ✓ | --- |
| D17 | Surface Preparation and Painting Procedure | Project Document | Project Spec / Surface Preparation and Painting Procedure | Approved document | H | R | RA | RA | RA | --- | --- |
| D18 | Raw material (abrasive & paint) inspection  Data sheet, Laboratory test results | Project Spec / Data sheet | Project Spec & Standard | Certificate | H | H | W | W | W | ✓ | --- |
| D19 | Surface Preparation (Cleanliness & Roughness) | Surface Preparation and Painting Procedure | Surface Preparation and Painting Procedure | QC Report | H | H | R | R | R | --- | --- |
| D20 | Painting | Surface Preparation and Painting Procedure | Surface Preparation and Painting Procedure | QC Report | H | H | R | R | R | ✓ | Report (Note2) |
| **After Fabrication** | | | | | | | | | | | |
| E1 | Name Plate Check | Name Plate Drawing | Name Plate Drawing | QC Paint Report | H | H | R | R | R | ✓ | --- |
| E2 | Packing visual inspection | Packing Procedure | Packing Procedure | Packing List | H | H | R | R | R | ✓ | --- |
| E3 | Final Inspection and Inspection Release note (IRN) | --- | --- | IRN | H | H | RA | RA | RA | ✓ | --- |
| E4 | Final book | FDB Index | FDB Index | FDB | H | RA | RA | RA | RA | ✓ | --- |
| E5 | Issue Inspection Certificate (IC) | --- | --- | IC | --- | H | RA | RA | RA | ✓ | --- |

Note:

1. According to approved VPIS.
2. First layer inspection is a Hold point for TPI.
3. If Material Certificate is not original, then laboratory test is required. Required test shall be done in qualified laboratories in presence of TPI.