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| **طرح نگهداشت و افزایش تولید 27 مخزن** |
| **Welding and NDT MAP****نگهداشت و افزایش تولید میدان نفتی بینک** |
| V01 | Oct.2023 | AFC | Beh Koosh Vista | M.Fakharian | S.Faramarz pour |  |
| V00 | Aug.2023 | IFR | Beh Koosh Vista | M.Fakharian | A.M.Mohseni |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **CLIENT Approval** |
|  |  |
| **Status:** |

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| **IFA: Issued for Approval****IFR: Issued for Review****IFI: Issued for Information****AFC: Approved for Construction** |

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# Revision Record Sheet

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| **SHEET** | **V00** | **V01** | **V02** | **V03** | **V04** | **V05** | **V06** | **V07** |
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| **SHEET** | **V00** | **V01** | **V02** | **V03** | **V04** | **V05** | **V06** | **V07** |
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# Introduction

This welding and NDT map Cover Welding requirement for Fabrication of Construction Pig Launcher (PL-3201) and Pig Receivers (PR-3201).

**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/PURCHASER: | 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 |

# Reference Documents

|  |  |
| --- | --- |
| * ASME Sec VIII Div. 1 -2019
 | Boiler & Pressure Vessels code |
| * ASME B 31.8 -2016
 | Gas transmission and distribution piping system |
| * IPS-M-PI-130- 2009
 | Material and equipment standard for pig launching and receiving traps |

# Welding Map for Launcher



# Welding Map for Receivers





# Welding Schedule for Launcher

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Welding Schedule for LAUNCHER** | JOINT MATERIAL | API 5L X52 / PSL2 to A 694 F52 | API 5L X52 / PSL2 to A 860 WPHY 52 | A 860 WPHY 52 to API 5L X52 / PSL2 | A 694 F52 to API 5LX52 / PSL2 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | C.S. to C.S. |
| WELDINGPROCESS | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | SMAW |
| WELD CATEGORY | B | B | B | B | C | B | C | B | C | B | C | B | C | B | C | B | C | B | C | B | -- |
| VT(Before/ After PWHT) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| MT(After PWHT) | No | No | No | No | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 20% |
| RT(Before PWHT) | 100%  | 100%  | 100%  | 100%  | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| PRE HEAT (ºC) | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| PQR NO. | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 |
| WPS NO. | 11TA-1 | 11TA-1 | 11TA-1 | 11TA-1 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11A-3 |
| DESCRIPTION | Flange to Pipe  | Reducer to Pipe | Reducer to Pipe | Pipe to Closure | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | All |
| JOINT NO. | C.W.1 | C.W.2 | C.W.3 | C.W.4 | C.W.5 | C.W.6 | C.W.7 | C.W.8 | C.W.9 | C.W.10 | C.W.11 | C.W.12 | C.W.13 | C.W.14 | C.W.15 | C.W.16 | C.W.17 | C.W.18 | C.W.19 | C.W.20 | Fillet weld |
| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

# Welding Schedule for Receiver

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Welding Schedule for RECEIVER** | JOINT MATERIAL | API 5L X52 / PSL2 to A 694 F52 | API 5L X52 / PSL2 to A 860 WPHY 52 | A 860 WPHY 52 to API 5L X52 / PSL2 | A 694 F52 to API 5LX52 / PSL2 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | A 105 to API 5L X52 / PSL2 | A105 to A105 | C.S. to C.S. |
| WELDINGPROCESS | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | GTAW+SMAW | SMAW |
| WELD CATEGORY | B | B | B | B | C | B | C | B | C | B | C | B | C | B | C | B | C | B | C | B | C | B | -- |
| VT(Before/ After PWHT) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| MT(After PWHT) | No | No | No | No | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 20% | 100% | 20% |
| RT(Before PWHT) | 100%  | 100%  | 100%  | 100%  | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No |
| PRE HEAT (ºC) | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| PQR NO. | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 | PQ-VISTA 102 |
| WPS NO. | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11TA-2 | 11A-1 |
| DESCRIPTION | Flange to Pipe  | Reducer to Pipe | Reducer to Pipe | Pipe to Closure | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | Weldolet to Pipe | Flange to Weldolet | All |
| JOINT NO. | C.W.1 | C.W.2 | C.W.3 | C.W.4 | C.W.5 | C.W.6 | C.W.7 | C.W.8 | C.W.9 | C.W.10 | C.W.11 | C.W.12 | C.W.13 | C.W.14 | C.W.15 | C.W.16 | C.W.17 | C.W.18 | C.W.19 | C.W.20 | C.W.21 | C.W.22 | Fillet weld |
| No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |

NOTES:

1. All of material shall pass requirements of NACE MR0175/ISO 15156.
2. WPS & PQR Doc. No.: Latest revision of BK-PPL-BV-320-QC-PR-0002.
3. Post Weld Heat Treatment (PWHT) Procedure Doc. No.: Latest revision of BK-PPL-BV-320-QC-PR-0008.
4. Hardness test procedure Doc. No.: Latest revision of BK-PPL-BV-320-QC-PR-0008.