|  |
| --- |
| **طرح نگهداشت و افزایش تولید 27 مخزن** |
| **Welding and NDT MAP****نگهداشت و افزایش تولید میدان نفتی بینک** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 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** |
| **Class:**  |  |
| **atus:** |

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

 |

# Revision Record Sheet

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PAGE** | **V00** | **V01** | **V02** | **V03** | **V04** | **V05** | **V06** | **V07** |
|  1 | X |  |  |  |  |  |  |  |
| 2 | X |  |  |  |  |  |  |  |
| 3 | X |  |  |  |  |  |  |  |
| 4 | X |  |  |  |  |  |  |  |
| 5 | X |  |  |  |  |  |  |  |
| 6 | X |  |  |  |  |  |  |  |
| 7 | X |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |
| 21 |  |  |  |  |  |  |  |  |
| 22 |  |  |  |  |  |  |  |  |
| 23 |  |  |  |  |  |  |  |  |
| 24 |  |  |  |  |  |  |  |  |
| 25 |  |  |  |  |  |  |  |  |
| 26 |  |  |  |  |  |  |  |  |
| 27 |  |  |  |  |  |  |  |  |
| 28 |  |  |  |  |  |  |  |  |
| 29 |  |  |  |  |  |  |  |  |
| 30 |  |  |  |  |  |  |  |  |
| 31 |  |  |  |  |  |  |  |  |
| 32 |  |  |  |  |  |  |  |  |
| 33 |  |  |  |  |  |  |  |  |
| 34 |  |  |  |  |  |  |  |  |
| 35 |  |  |  |  |  |  |  |  |
| 36 |  |  |  |  |  |  |  |  |
| 37 |  |  |  |  |  |  |  |  |
| 38 |  |  |  |  |  |  |  |  |
| 39 |  |  |  |  |  |  |  |  |
| 40 |  |  |  |  |  |  |  |  |
| 41 |  |  |  |  |  |  |  |  |
| 42 |  |  |  |  |  |  |  |  |
| 43 |  |  |  |  |  |  |  |  |
| 44 |  |  |  |  |  |  |  |  |
| 45 |  |  |  |  |  |  |  |  |
| 46 |  |  |  |  |  |  |  |  |
| 47 |  |  |  |  |  |  |  |  |
| 48 |  |  |  |  |  |  |  |  |
| 49 |  |  |  |  |  |  |  |  |
| 50 |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PAGE** | **V00** | **V01** | **V02** | **V03** | **V04** | **V05** | **V06** | **V07** |
| 51 |  |  |  |  |  |  |  |  |
| 52 |  |  |  |  |  |  |  |  |
| 53 |  |  |  |  |  |  |  |  |
| 54 |  |  |  |  |  |  |  |  |
| 55 |  |  |  |  |  |  |  |  |
| 56 |  |  |  |  |  |  |  |  |
| 57 |  |  |  |  |  |  |  |  |
| 58 |  |  |  |  |  |  |  |  |
| 59 |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |
| 61 |  |  |  |  |  |  |  |  |
| 62 |  |  |  |  |  |  |  |  |
| 63 |  |  |  |  |  |  |  |  |
| 64 |  |  |  |  |  |  |  |  |
| 65 |  |  |  |  |  |  |  |  |
| 66 |  |  |  |  |  |  |  |  |
| 67 |  |  |  |  |  |  |  |  |
| 68 |  |  |  |  |  |  |  |  |
| 69 |  |  |  |  |  |  |  |  |
| 70 |  |  |  |  |  |  |  |  |
| 71 |  |  |  |  |  |  |  |  |
| 72 |  |  |  |  |  |  |  |  |
| 73 |  |  |  |  |  |  |  |  |
| 74 |  |  |  |  |  |  |  |  |
| 75 |  |  |  |  |  |  |  |  |
| 76 |  |  |  |  |  |  |  |  |
| 77 |  |  |  |  |  |  |  |  |
| 78 |  |  |  |  |  |  |  |  |
| 79 |  |  |  |  |  |  |  |  |
| 80 |  |  |  |  |  |  |  |  |
| 81 |  |  |  |  |  |  |  |  |
| 82 |  |  |  |  |  |  |  |  |
| 83 |  |  |  |  |  |  |  |  |
| 84 |  |  |  |  |  |  |  |  |
| 85 |  |  |  |  |  |  |  |  |
| 86 |  |  |  |  |  |  |  |  |
| 87 |  |  |  |  |  |  |  |  |
| 88 |  |  |  |  |  |  |  |  |
| 89 |  |  |  |  |  |  |  |  |
| 90 |  |  |  |  |  |  |  |  |
| 91 |  |  |  |  |  |  |  |  |
| 92 |  |  |  |  |  |  |  |  |
| 93 |  |  |  |  |  |  |  |  |
| 94 |  |  |  |  |  |  |  |  |
| 95 |  |  |  |  |  |  |  |  |
| 96 |  |  |  |  |  |  |  |  |
| 97 |  |  |  |  |  |  |  |  |
| 98 |  |  |  |  |  |  |  |  |
| 99 |  |  |  |  |  |  |  |  |
| 100 |  |  |  |  |  |  |  |  |

Table of Contents

[Revision Record Sheet 2](#_Toc143903106)

[1 Introduction 4](#_Toc143903107)

[2 Reference Documents 4](#_Toc143903108)

[3 Welding Map for Launcher 4](#_Toc143903109)

[4 Welding Map for Receivers 4](#_Toc143903110)

[5 Welding Schedule for Launcher 5](#_Toc143903111)

[6 Welding Schedule for Receiver 6](#_Toc143903112)

[7 NOTES: 7](#_Toc143903113)

# Introduction

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

# Reference Documents

* ASME Sec VIII Div. 1
* ASME B 31.8
* IPS-M-PI-130

# 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 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| PT | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | Yes |
| MT | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| RT | Yes | Yes | Yes | Yes | 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-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 | 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 | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| PT | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | No | Yes |
| MT | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| RT | Yes | Yes | Yes | Yes | 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