

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003165**Date Inspected:** 28-Jun-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Sun Wei**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG and Tower**Summary of Items Observed:**

The Quality Assurance (QA) Inspector Gregory Bertlesman arrived on site at the Zhenhua Port Machinery Company facility on Changxing island, China to periodically monitor welding and Quality Control functions. While on site the Quality Assurance Inspector observed and/or discovered the following.

OBG Sub-Assembly Bay 1**Deck Panel Production Welding**

The Quality Assurance Inspector witnessed the welding of the production panels DP-222-001 (5 rib) and DP-617-001 (5 rib). The welding of the deck panels was performed on gantry 1 to produce the partial joint penetration groove weld. ZPMC Quality Control Inspector Sun Wei relayed that the gas metal arc welding machine malfunctioned during the in process gas metal arc welding of the root pass on weld 10 of Deck Panel DP-617-001. What appeared to be a wire jam occurred approximately 2558 millimeters from the end of weld number 10 and welding continued on weld number 9. The special provisions states the welding shall be performed simultaneously. An Incident Report was generated pertaining to the issue. Below is digital photograph of weld number 10 where the wire jam occurred. The malfunction caused some damage to the bevel as illustrated in the photograph. ZPMC ground the bevel prior to commencing welding. Upon completion of the gas metal arc welding (GMAW) root pass ZPMC performed the subsequent submerged arc welding (SAW) pass. The parameters appeared to be within welding procedure specification for dual process WPS-B-T-2342-U1 (U-rib)-3.

ABF Representative Kit Man Li informed QA that ZPMC performed magnetic particle testing to the tack welds on Deck Panel DP-222-001 and marked 20 out of 180 tack welds for repair and on DP-617-001 54 out of 200 for repair.

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The Quality Assurance Inspector observed ZPMC performing fit-up and tack weld operations to Deck Panel DP-248-001.

Bay 2

QA observed no ZPMC personnel working on the 114M Tower Mock-up assemblies.

The Quality Assurance Inspector observed ZPMC in the process of cutting longitudinal stiffeners for the 70M elevation tower assembly identified as SA102, SA378, and SA235.

OBG Sub Assembly Bay 3

The Quality Assurance Inspector observed ZPMC performing in process welding of Deck Panel DP-011A, plate stiffener to deck plate connection. Quality Control Inspector Wu Zhi Feng was monitoring the welder. The welders were using the flux cored arc welding process to produce the fillet welds in the horizontal position. The part was stationary on gantry 1 while the welding machine was on tracks to facilitate welding along the length of the part. The Quality Assurance Inspector recorded the welding parameters at the welder's station and found the parameters to meet the minimum requirements of welding procedure specification WPS-B-T-2233-B-U2-F. The Quality Assurance Inspector witnessed Quality Control measuring the interpass temperature using a calibrated infra-red temperature measuring device.

The Quality Assurance Inspector observed ZPMC performing fit-up and tack welding operations to Edge Plate EP-056-001-001 plate stiffener to plate connection. ZPMC was utilizing the SMAW process to produce the fillet tack welds in the horizontal position.

Bay 4

ZPMC utilized 4 mechanical jacking devices to aid in the fit-up of Diaphragm Flange at Diaphragm Plate SSD1-335. ZPMC was using three 50 ton jacks and a 32 ton jack in an effort to close up to a 7mm gap between the flange and the diaphragm plate. Below are digital photographs illustrating the jacks and the gap.

QA observed ZPMC performing heat straightening operations to EP-33B and Side Panel SP-175A.

The Quality Assurance Inspector observed 13 diaphragm flanges in various stages of fabrication from fit-up to welding the complete joint penetration weld splices to the flange to diaphragm fillet weld connection.

Bay 7

The Quality Assurance Inspector observed a ZPMC welding operator performing in process welding of Floor Beam FB-031-001. The welder was using the submerged arc welding process to produce the complete joint penetration welds in the flat position. The Quality Assurance Inspector recorded the welding parameters at the welder's station and found the parameters to meet the minimum requirements of welding procedure specification WPS-B-T-2221-B-L2c-S-1. The Quality Assurance Inspector witnessed Quality Control measuring the interpass temperature using a calibrated infra-red temperature measuring device.

The Quality Assurance Inspector observed ZPMC performing fit-up and tack welding operations to FB-011-001 and FB-010-001. The welders were using the shielded metal arc welding process to produce the fillet tack welds in the horizontal position.

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Bay 8

The Quality Assurance Inspector observed ZPMC performing fit-up and tack welding operations to various floor beam sub assemblies.

The Quality Assurance Inspector observed 10 diaphragm flanges in various stages of fabrication from fit-up to welding the complete joint penetration weld splices to the flange to diaphragm fillet weld connection.



Summary of Conversations:

As stated in the contents of the above report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco(707) 552 7715, who represents the Office of Structural Materials for your project.

Inspected By: Bertlesman,Greg Quality Assurance Inspector

Reviewed By: Cochran,Jim QA Reviewer