

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-002976**Date Inspected:** 06-Jun-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**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**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.

Production Monitoring Test

The Quality Assurance Inspector monitored the Production Monitoring Tests (PMT) and production welding for the OBG Deck Panels U-rib welding. The weld joint is a single bevel Partial Joint Penetration (PJP) weld that joins the U-rib to the deck plate. The Production Monitoring Test (PMT) is performed prior to the production of the Deck Panels (DP). PMT #1 consists of (3) ribs totaling (6) weld joints, numbered 1 thru 6. Welding was performed on

Gantry 1 and represents production for Deck Panel DP-556-001. Welding was performed in accordance with welding procedure specification WPS-B-T-2342 (Dual Process GMAW root pass SAW fill and cover pass). The parameters and welders were recorded in an on site log for future review.

ZPMC Quality Control performed visual inspection of the GMAW weld pass and the subsequent SAW weld pass. ZPMC QC noted a weld as visually non-compliant due to lack of fusion exceeding the 25 millimeter tolerance. ZPMC relayed they would perform a second PMT. Below is a digital photograph illustrating the lack of fusion observed.

PMT #2 was performed on Gantry 1 and represents production for Deck Panel DP-556-001. Welding was performed in accordance with welding procedure specification WPS-B-T-2342 (Dual Process GMAW root pass

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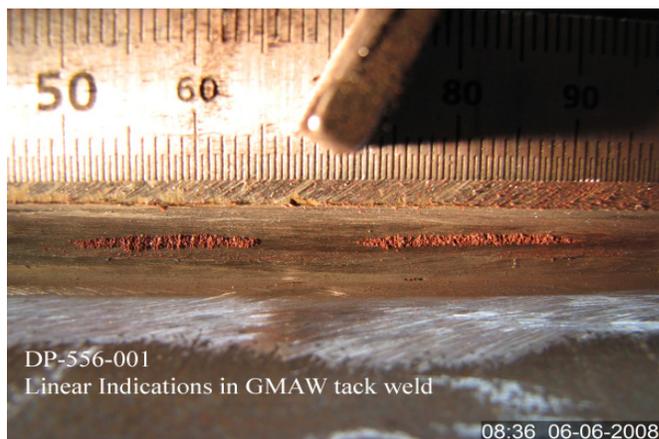
SAW fill and cover pass). The parameters and welders were recorded in an on site log for future review.

ZPMC Quality Control performed visual inspection of the GMAW weld pass and the subsequent SAW weld pass. ZPMC QC noted a weld as visually compliant. The Quality Assurance Inspector performed visual verification the GMAW weld pass and the SAW weld pass and noted them as compliant with contract documents. Upon completion of the visual review the Quality Assurance Inspector selected the areas of the PMT for macro etch samples.

ZPMC QC also performed Ultrasonic Testing of the 500 millimeters selected of each weld and noted them as compliant. QA opted to not to perform Ultrasonic verification. Upon completion of the visual review the Quality Assurance Inspector selected the areas of the PMT for macro etch samples.

Deck Panel DP-556-001

ZPMC relayed no magnetic particle testing was going to be performed to the GMAW tack welds prior to welding the root pass on Deck Panel DP-556-001. The Quality Assurance Inspector performed magnetic particle inspection to 100 percent of welds 1 and 10. Of the 49 tack welds inspected 24 appeared to contain linear crack like indications. Below is a digital photograph illustrating one of the cracked tack welds. ZPMC marked the welds for repair and later repaired the tack welds by grinding and re-testing by the magnetic particle testing method.



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 Pat Lowry (916) 227-5719, who represents the Office of Structural Materials for your project.

Inspected By: Bertlesman, Greg

Quality Assurance Inspector

Reviewed By: Cuellar, Robert

QA Reviewer