

**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-001454**Date Inspected:** 14-Feb-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 600**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1600**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Fu Yu Hong**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:**

CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

The QA inspector had a conversation with ABF representative Warren Buelher. The QA inspector asked Mr. Warren Buelher if the U-ribs Gantry welding machine had been calibrated. Mr. Warren Buehler informed that the Gantry machine was a brand new machine and its calibration from Lincoln Electric was valid for at least one year. The QA inspector asked Mr. Warren Buehler how section 4.26 Calibration of equipment on the AWS D1.5 (2002) was being followed. Mr. Warren Buehler said that he was not sure but he was going to ask to his supervisors.

Production Monitoring test (PMT) and Fabrication

The QA inspector performed random fit-up verifications on the PMT coupon and Deck Panel DP-58 at the junction of the U-ribs to deck plate. The QA inspector observed two areas that exceed the maximum required gap of 0.5 mm. The QA inspector had a conversation with Assistance of Structural Materials Representative Ady Velasco. The QA inspector brought to the attention of Mr. Ady Velasco that after the deck panel was cambered the QA inspector found two areas on weld joint # 10 with 0.75 mm and 0.6 mm of root opening. Mr. Ady Velasco informed to the QA inspector that 0.5 mm maximum was applicable when the deck panel was in the flat position after tack welding.

The QA inspector witnessed the welding operations at the PMT at the junction of the 800 mm U-ribs and the deck plate.

The QA inspector observed welding operators Han Chang Hou welder ID # 059464, Chen Jie ID # 059468, Gao Xin Dong ID # 059361, Jian Ting Guang ID # 062265, Zhao Cheng Shuang ID # 059400 and Yuan Fen Chuan ID # 059355 weld joints # 1 thru 6 respectively performing welding operations on the root pass with the automatic

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Gantry Lincoln machine with the gas metal arc welding (GMAW) process on the metal transferring with spray transfer mode following the (WPS)WPS-B-T-2342-U1 (Urib). ZPMC had approximately one (1) control panel Operator, six (6) Welders, two (2) QC inspectors, two (2) QC Lead representatives, two (2) Production Supervisor and six (6) helpers. ZPMC had approximately one (1) control panel Operator, six (6) Welders, five (2) QC inspectors, two (2) QC representative, two (2) Supervisor and six (6) Grinders. ABF representative Mr. Warren Buelher and Mr. Gang Jiao, ZPMC representatives Mr. Lay Tao and Mr. Lu Jiang Hua and Caltrans representatives Mr. Robert Cuellar, Mr. Keith Devonport, Mr. Ady Velasco, Mr. Greg Bertlesman, Jimmy Cochran, Mr. Larry Viars and Bruce Berger were present at the OBG fabrication shop. The test started at approximately 1040 hours. The root pass was welded with the automatic Gantry Lincoln machine with the gas metal arc welding (GMAW) process following the (WPS)WPS-B-T-2342-U1 (Urib) for the GMAW process on the metal transferring with spray transfer mode. ZPMC QC inspector certified welding inspector Sun Wei performed visual weld inspection to the root pass. ZPMC found that welds were in accordance with the contract documents.

Note: ZPMC proceed welding the root pass from deck panel DP-58 without finishing with the PMT coupons (test and welding).

Deck Panel DP-58 U-rib bevel surface had sign of rust, fins and tearing.

Caltrans Task Leader Robert Cuellar informed ZPMC QC representative Lu Jiang Hua that ZPMC had not made proper corrections on the preparation of the bevel surfaces. Mr. Robert Cuellar showed Mr. Lu Jiang Hua areas with sign of rust at the end of the panel. Mr. Lu Jiang Hua said that it was caused as result of the preheating operations.

The QA inspector observed that on the weld # 1 ZPMC had 600 mm with weld porosity that ZPMC decided to repair by grinding. The QA inspector had a conversation with Caltrans Task Leader Robert Cuellar. The brought to the attention to Mr. Robert Cuellar that ZPMC was removing the portion of the root pass with weld porosity and the QA inspector was concern with ZPMC proceeding welding without verifying that the joint configuration was altered after grinding on the heat affected zone or the base metal by the root face.

The QA inspector observed ZPMC welding the cover pass with the submerged arc welding (SAW) process following the WPS-B-T-2322-U1 (Urib). The QA inspector performed random verifications for the amperages, voltages and travel speed with the assistances of Caltrans representative Mr. Larry Viars. The welding parameters found by the QA inspectors appeared to be in general compliance with the contract documents.

Note: ZPMC proceed welding the cover passes from deck panel DP-58 without completing the PMT coupons (test and welding).

The welding operators welding on the production deck panel DP-58 were as follows:

Weld joint (WJ) # 1 and 3, Han Chang Hou, WJ # 2 and 4; WJ # 5 and 7 Gao Xin Dong; WJ # 6 and 8, Jiang Tin Guang, WJ # 9 Zhao Cheng Shuang and WJ# 10 Yuan Fen Chuan and the control panel operator was Li Xi De.

## Summary of Conversations:

As noted above.

## 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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Acuna, Alfredo	Quality Assurance Inspector
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<b>Reviewed By:</b>	Cuellar, Robert	QA Reviewer
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