

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-006471**Date Inspected:** 26-Apr-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1845**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 645**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**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 Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Sun Bo, Lin Yang

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Prior to Caltrans QA Inspectors' concurring with issuance of OBG deck plate closed rib green tag releases a review of the ultrasonic inspection database is performed to verify all closed rib tack weld repair locations have been ultrasonically accepted. Today this QA Inspector, Mr. Paul Dawson, performed data entry of ultrasonic inspection information from the field generated Ultrasonic inspection data sheets onto the common drive computer database for the following OBG deck panels: DP125-002, DP539-001, DP340-001, DP340-002, DP120-001, DP364-001, DP389-001, DP282-001, DP121-002, DP445-001 and DP255-001.

Tower Bay 10

The QA Inspector observed ZPMC welder Mr. Yang Zhaoyin, stencil 047470 is using welding procedure WPS-345-SMAW-2G(2F)-Repair to make a shielded metal arc weld repair to tower stiffener to skin plate weld ESD1-FESA-2B/D-29A. The QA Inspector measured a welding current of approximately 220 amps and the QA Inspector observed the base material had been preheated with an electric heater prior to commencement of welding and the electrode oven is connected to electric power to heat to the electrodes. The QA Inspector observed the

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weld repairs are where ultrasonic rejections had previously been identified by ZPMC personnel. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Zhu Zeyuan, stencil 053916 is using welding procedure WPS-345-SMAW-2G(2F)-Repair to make a shielded metal arc weld repair to tower stiffener to skin plate weld ESD1-FESA-2B/D-29A. The QA Inspector measured a welding current of approximately 245 amps and the QA Inspector observed the base material had been preheated with an electric heater prior to commencement of welding and the electrode oven is connected to electric power to heat to the electrodes. The QA Inspector informed ZPMC CWI Mr. Xu Le Feng that Mr. Zeyuan has a welding current of 245 amps and Mr. Xu Le Feng informed the QA Inspector the maximum welding current allowed by the WPS is 240 amps and Mr. Xu Le Feng had Mr. Zeyuan decrease the welding current to approximately 235 amps. The QA Inspector observed the weld repairs are where ultrasonic rejections had previously been identified by ZPMC personnel. Items observed by the QA Inspector do not appear to fully comply with project specifications due to the high welding current.

OBG Bay 9

The QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing deck plates DP510-001 and DP295-001 which were welded using one single base plate at around 0019 hours using gantry #1. The QA Inspector observed four ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-4 using the gas metal arc welding process for the root pass and submerged arc welding process for the cover pass of partial penetration groove welds on four PMT closed rib welds at the same time. ZPMC has multiple welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. The QA Inspector observed a welding travel speed of approximately 534 mm per minute for the root passes and 515 mm per minute for the cover passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Mr. Xiang Huan Feng, stencil 59416 completed the root pass of weld #1 with a welding current of approximately 370 amps and 31.2 volts and the cover pass welding current of approximately 685 amps and 25.0 volts. Welder Mr. Xhang Shao Hui stencil 59403 completed the root pass of weld #2 with a welding current of approximately 370 amps and 31.4 volts and the cover pass welding current of approximately 680 amps and 25.3 volts. Welder Mr. Xing Jie, stencil 59378 completed the root pass of weld #3 with a welding current of approximately 360 amps and 31.2 volts and the cover pass welding current of approximately 690 amps and 25.0 volts. Welder Mr. Jiang Ting Quang, stencil 062265 completed the root pass of weld #4 with a welding current of approximately 370 amps and 31.3 volts and the cover pass welding current of approximately 685 amps and 25.3 volts.

The QA Inspector performed random visual inspection of the root passes and cover passes and items observed appear to comply with project specifications. Following completion of the welding ZPMC QC CWI Inspector Mr. Sun Bo marked a 500 mm length on each of the welds as being the areas that are to be representative of this PMT test. The QA Inspector observed ZPMC NDE Inspector Mr. Jihong performing ultrasonic of each of the six welds in the areas where Mr. Bo had marked for PMT testing. Following ZPMC's UT acceptance the QA Inspector marked a total of 15 locations where macroetch samples are to be obtained. ZPMC then cut and prepared macroetch samples. ZPMC QC CWI Inspector Mr. Sun Bo and ABF representative Mr. Cao Haizhou visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated April 27, 2009. The QA Inspector visually inspected each of these macroetch samples and items observed by the QA Inspector appear to comply with project specifications and the QA

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Inspector documented this inspection on the bottom of the “Production Monitoring Test Plate Inspection Report”. See the photograph below for additional information.



Summary of Conversations:

See 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 Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Clifford,William	QA Reviewer
