

**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-001170**Date Inspected:** 03-Jan-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 830**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**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:** Tower and OBG Fabrication**Summary of Items Observed:**

Caltrans 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:

Orthotropic Box Girder (OBG) and Tower Mock Up:

CWI Inspector: Wu Ming Kai, Hu Wie Qing

Bay 3:

The QA Inspector observed ZPMC personnel perform heat straightening of OBG PL33A base plate BP001 as directed by HSR1(B)-107. This HSR has been approved by Mr. Hu Gang on 01-02-2008. The QA inspector observed Quality Control Inspector Mr. Duan Yabing monitoring the heat temperature using a laser indicating device and the maximum temperature that Mr. Yabing had recorded is 545°C. No weights were placed on this plate during this flame straightening. This work is taking place on an elevated platform approximately six feet above the adjacent floor. Items observed appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Guo Dengyun stencil 37997 is using welding procedure WPS-B-P-2112-FCM using the flux cored welding process for fillet tack welds on OBG PL68A, side plate weld SP007-01-017. The QA Inspector observed E7018 4.0 mm diameter electrodes, a welding current of

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approximately 185 amps and a minimum base material preheat temperature of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Wei Dashuai stencil 51246 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG PL77A side plate SP19 stiffener weld SP019-01-024. The QA Inspector observed 1.4 mm diameter E71T-1 welding electrode with a welding current of approximately 280 amps, 29.2 volts and the base material has a minimum preheat of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Sun Tiyu stencil 54459 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG side plate SP017 stiffener welds SP017-01-020 and SP017-01-021. The QA Inspector observed a welding current of approximately 290 amps 28.5 volts and the base material has a minimum preheat of 100° C. Items observed by the QA Inspector appear to comply with project specifications.

QA Inspector observed ZPMC welder Ms. He Yu Mei stencil 48625 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG PL103C side plate SP068 stiffener welds SP068-01-003 and SP068-01-004. The QA Inspector observed a welding current of approximately 285 amps, 28.5 volts and the base material has a minimum preheat temperature of 100° C. The QA Inspector informed ZPMC QC/CWI Inspector Mr. Hu Wei Qing there are no weld numbers written on the stiffener plate welds that had been made. Mr. Qing said the QC Inspector that has been monitoring this welding will need to go to the QC office to obtain the drawing that shows the weld numbers. The QA Inspector later observed the weld numbers have been written on the stiffener plates. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed three ZPMC welders using welding procedure specification WPS-B-T-2132-3 using the flux cored welding process for fillet welds on six OBG PL34A base plate BP002 stiffener welds at the same time. ZPMC has multiple flux cored 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 445 mm per minute. As the welding commences, each of the welders is responsible for two of the flux cored welding heads. All welders are using 1.4 mm diameter E71T-1 rolls of electrodes that have been marked as being installed earlier today. The QA Inspector observed all six welding machines have a shielding gas flow between 18 and 20 liters per minute as required by the WPS. Welder Mr. Li Menqian stencil 54460 completed weld BP002-01-010 with a welding current of approximately 300 amps and 29.3 volts and weld BP002-01-011 with a welding current of approximately 305 amps and 28.7 volts. Welder Mr. Xin Meng stencil 53742 completed weld BP002-01-014 with a welding current of approximately 295 amps and 30.1 volts and weld BP002-01-015 with a welding current of approximately 300 amps and 29.5 volts. Welder Mr. Li Shuliang stencil 48801 completed weld BP002-01-016 with a welding current of approximately 302 amps and 29.6 volts and weld BP002-01-017 with a welding current of approximately 305 amps and 30.0 volts. See the photograph below showing where ZPMC personnel placed electric heaters to preheat the base material. Items observed by the QA Inspector appear to comply with project specifications.

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## Summary of Conversations:

See above for summary of conversations.

## 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>	Dawson,Paul	Quality Assurance Inspector
<b>Reviewed By:</b>	Cochran,Jim	QA Reviewer

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