

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-001286**Date Inspected:** 21-Jan-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**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 Inspectors: Wu Ming Kai, Chen Xi

The QA Inspector observed ZPMC welder Mr. Wang Zang Hua stencil 53753 is using welding procedure specification WPS-B-P-2112-FCM using the shielded metal welding process for fillet tack welds on OBG side plate SP043 stiffener weld SP044-01-015 and weld SP044-01-016. The QA Inspector observed THJ506-Fe-1 4.0 mm diameter electrodes, a welding current of approximately 170 amps and the base material had been preheated to a minimum 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 base plate BP019 stiffener weld BP019-01-013 and BP019-01-014. The QA Inspector observed 1.4 mm diameter E71T-1 welding electrode with a welding current of approximately 280 amps, 28.0 volts and the base material has a minimum preheat of 60°C. Items observed by the QA Inspector appear to comply with project specifications.

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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 PL50A base plate BP021 stiffener welds BP021-01-019 and BP021-01-020. The QA Inspector observed a welding current of approximately 280 amps, 28.0 volts, the base material has a minimum preheat temperature of 60°C., and the carbon dioxide shielding gas indicator shows a gas flow of approximately 15 cubic liters per hour. The WPS states the minimum shielding gas flow is 18 cubic liters per minute and Ms. He Yu Mei has a shielding gas flow that is below this limit.

The QA Inspector informed Mr. Wu Ming Kai of this low shielding gas flow and the gas flow meter was adjusted to approximately 19 cubic liters per hour. Items observed by the QA Inspector do not fully 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 PL69A fillet welds on six OBG side plate SP008 stiffener welds at the same time. ZPMC has multiple flux cored welding process 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 450 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 21 liters per minute as required by the WPS. Welder Mr. Li Xuehua stencil 58174 completed weld SP008-01-010 with a welding current of approximately 275 amps and 27.8 volts and weld SP008-01-00910 with a welding current of approximately 270 amps and 29.9 volts. Welder Mr. Xin Meng stencil 53742 completed weld SP008-01-006 with a welding current of approximately 295 amps and 30.0 volts and weld SP001-01-005 with a welding current of approximately 280 amps and 30.2 volts. Welder Mr. Shi Yan Hao stencil 53604 completed weld SP008-01-002 with a welding current of approximately 270 amps and 30.5 volts and weld SP008-01-001 with a welding current of approximately 285 amps and 29.5 volts. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC personnel perform heat straightening of OBG base plate BP005 as directed by HSR1(B)-176. This HSR has been approved by Mr. Hu Gang on 01-15-2008. 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. A large metal weight has been 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. See the photographs below for additional information.

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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Inspected By: Dawson,Paul

Quality Assurance Inspector

Reviewed By: Cochran,Jim

QA Reviewer