

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-001641**Date Inspected:** 25-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**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: Mr. Fu Guo Gang, Chen Xi

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The QA Inspector observed three ZPMC welders using welding procedure specification WPS-B-T-2132-3 to make flux cored fillet welds on six OBG side plate 563 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 440 mm per hour. 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. Welder Mr. Lei Lichao stencil 53619 completed weld SP563-01-023 with a welding current of approximately 270 amps and 29.0 volts and weld SP563-01-024 with a welding current of approximately 270 amps and 29.0 volts. Welder Mr. Sun Tiyu stencil 54459 completed weld SP563-01-019 with a welding current of approximately 310 amps and 29.9 volts and weld SP563-01-020 with a welding current of approximately 295 amps and 30.21 volts. Welder Mr. Liu

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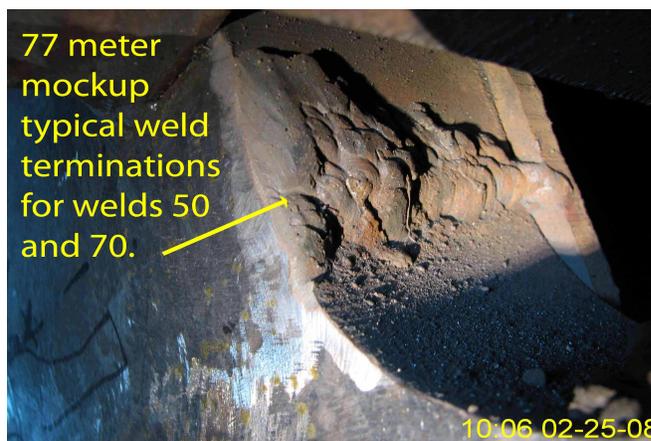
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Zihang stencil 62447 completed weld SP563-01-015 with a welding current of approximately 280 amps and 31.2 volts and weld SP563-01-016 with a welding current of approximately 315 amps and 32.3 volts. The maximum voltage allowed by the WPS is 31.4 volts and Mr. Zihang appears to be welding at an excessive voltage. This welding is being monitored by ZPMC QC representative Mr. Xiang. The QA Inspector informed Mr. Xiang of the high voltage and the voltage was then decreased to an acceptable level. The QA Inspector informed ZPMC QC CWI Inspector Mr. Chen Chih-Ming that the QA Inspector observed Mr. Zihang appeared to have an excessive welding voltage when approximately half of the 8 meter long weld had been completed and that Mr. Xiang had not observed or corrected the excessive voltage until the weld length was approximately 70% completed. Mr. Chen Chih-Ming said he will discuss this issue with Mr. Xiang. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector performed random visual and magnetic particle inspections of portions of side plate stiffener plate welds SP062-01-001 through SP062-01-012. ZPMC QC inspector Mr. Zhou Diong Yun had previously performed a magnetic particle inspection of approximately a 10% length of these welds and the areas that were inspected by the QA Inspector appear to comply with project specifications.

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The QA Inspector was informed by Caltrans QA Inspector Mr. Robert Cuellar that ZPMC has completed ultrasonic (UT) inspections of the 77 meter tower mockup MUSA SA104 A/B weld 50 and 70 and MUSA SA95 weld 50 and 70. The QA Inspector performed visual inspections of these four welds and observed all four welds have terminations that are in the as welded condition. These terminations had not been ground or otherwise cleaned to for the full thickness of the 75 mm thick material. The QA Inspector informed ZPMC CWI Mr. Fu Guo Gang that these welds are not visually acceptable. The QA Inspector asked Mr. Fu Guo Gang what ZPMC QC CWI Inspector had determined these welds are visually acceptable and Mr. Fu Guo Gang informed the QA Inspector he did not know who had visually accepted these welds, but he will have the weld terminations cleaned. Later in the shift the QA Inspector observed a worker has been assigned to grind the weld terminations. See the photograph below for additional information.



Summary of Conversations:

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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.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer
