

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-001163**Date Inspected:** 28-Dec-2007**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

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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 side plate 039, PL-89A 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 455 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. Welder Mr. Liz Hanqian stencil 48810 completed weld SP039-01-031 with a welding current of approximately 305 amps and 28.5 volts and weld SP039-01-032 with a welding current of approximately 320 amps and 29.2 volts. Welder Mr. Xin Meng stencil 53742 completed weld SP039-01-035 with a welding current of approximately 290 amps and 30.7 volts and weld SP039-01-036 with a welding current of approximately 305 amps and 29.0 volts. Welder Mr. Li Shuliang stencil 48801 completed weld SP039-01-039 with a welding current

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of approximately 305 amps and 28.0 volts and weld SP039-01-040 with a welding current of approximately 300 amps and 29.83 volts. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Zhang Feng stencil 49769 is using welding procedure WPS-B-P-2112 using the flux cored welding process for tack welds on side plate weld SP013-001-07 PL63A. The QA Inspector observed arc E7018 4.0 mm diameter electrodes, a welding current of approximately 180 amps and a minimum base material preheat temperature of 60° 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 to make flux cored fillet tack welds on OBG side plate SP013 stiffener welds SP013-01-042 and SP013-01-043. The QA Inspector observed a welding current of approximately 280 amps, 28.0 volts and the base material has a minimum preheat temperature of 100° C. Items observed by the QA Inspector appear to comply with project specifications.

QA Inspector observed ZPMC welder Mr. Li Menqian stencil 54460 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG side plate SP025 stiffener welds SP025-01-033 and SP025-01-034. The QA Inspector observed a welding current of approximately 285 amps, 28.2 volts and the base material has a minimum preheat temperature of 100° C. Items observed by the QA Inspector appear to comply with project specifications.

ZPMC QC/CWI Inspector Mr. Wu Ming Kai informed the QA Inspector that ZMPC has completed visual and magnetic particle inspections of the stiffener plate fillet welds between stiffener plates and bottom plate BP011/PL39B and these welds are QC acceptable. The QA Inspector performed random visual inspection of the stiffener plate fillet welds identified as BP011-01-013 through SP011-01-024 on plate BP011/PL39B. The QA Inspector observed the fillet weld on stiffener plate SP011-01-013 has approximately ten locations where the fillet weld is approximately 1 mm less than the required 6 mm size. The QA Inspector asked ZPMC QC/CWI Inspector Mr. Wu Ming Kai if ZPMC QC had observed the undersize weld conditions. Mr. Kai visually inspected and measured the fillet welds then informed the QA Inspector that the undersize areas had not been previously observed by QC and the undersize welds will be repaired. See the photograph below for additional information. Following completion of the weld repairs and QC acceptance of the weld repair areas, the QA Inspector observed one of the repair areas has 1 mm deep undercut at the top edge of the repair weld. The QA Inspector informed Mr. Kai of the undercut and Mr. Kai said this area will be weld repaired. As of the end of the shift the weld undercut repair has not been completed. See the photographs below for additional information. The QA Inspector completed random magnetic particle of portions of the stiffener plate welds on BP011/PL39B and items observed 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.

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