DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-001072
Date Inspected: 10-Dec-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 700
OSM Departure Time: 1530
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 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:

CWI Names: Wi Yi Ru, Li Zhijiang, Lee Chan Wu
Orthotropic Box Girder (OBG) and Tower Mock Up:

CWI Wu Ming Kai, Xu Le Feng

Bay 3:

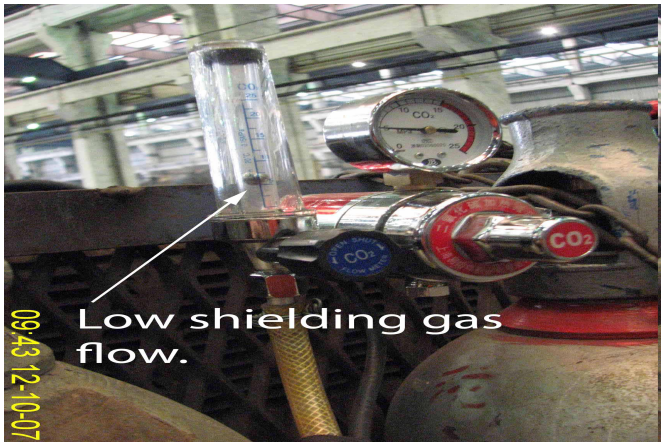
The QA Inspector observed three ZPMC welders using welding procedure specification WPS-B-T-2132-3 to make flux cored fillet welds on six OBG side plate 051 stiffener welds at the same time. ZPMC has multiple flux cored welding manipulators attached to a movable gantry that runs on a track that straddles 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 electrodes that have been marked as being installed earlier today. Welder Mr. Li Zhaogian stencil 48810 completed weld SP051-01-032 with a welding current of approximately 300 amps and 29.5 volts and weld SP051-01-033 with a welding current of approximately 290 amps and 30.0 volts. Welder Mr. Lishu Liang stencil 48801 completed weld SP051-01-036 with a welding current of approximately 280 amps and 30.6 volts and

weld SP051-01-037 with a welding current of approximately 300 amps and 28.0 volts. Welder Mr. Xin Meng stencil 53742 completed weld SP051-01-040 with a welding current of approximately 300 amps and 29.0 volts and weld SP051-01-041 with a welding current of approximately 308 amps and 28.0 volts. Following completion of the welding the QA Inspector observed QPMC QC CWI Inspector Mr. Wu Ming Kai performing visual inspection of the completed welds. Mr. Kai said he has marked several locations as needing to have minor weld repairs performed. 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-2132-1 to make flux cored fillet tack welds on OBG bottom plate 001 stiffener weld BP001-1-033. The QA Inspector observed a welding current of approximately 280 amps and 28 volts and the base material had been preheated to a minimum of 65 degrees C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Han Xiao Feng stencil 54467 is using welding procedure WPS-B-P-2112-FCM with shielded metal arc E7018 4.0 mm diameter electrodes to make tack welds on OBG side plate 002 stiffener weld SP002-001-005. The QA Inspector observed a welding current of approximately 180 amps. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Liu Zihong stencil 62447 is using welding procedure specification WPS-B-T-2132-1 to make flux cored fillet tack welds on OBG base plate 003 stiffener weld BP003-01-011. The QA Inspector observed a welding current of approximately 260 amps and 28.4 volts and a CO2 shielding gas flow of approximately 4 liters per hour. The welding procedure requires a minimum shielding gas flow of 18 cubic liters per hour and the welding shielding gas flow is below this minimum requirement. The QA Inspector informed ZPMC Quality Control / CWI Inspector Mr. Xu Xianping that the shielding gas flow is below the minimum requirement as listed in the WPS and Mr. Xianping had Mr. Zihong stop additional welding until proper shielding gas flow was reestablished. The QA Inspector observed ZPMC personnel replacing the shielding as flow meter that is attached to the compressed gas cylinder that supplies carbon dioxide (CO2) gas to the welding machine being used by Mr. Zihong. Following replacement of the shielding gas flow meter the QA Inspector observed a shielding gas flow of approximately 18 cubic liters per minute. See the photograph below for additional information.



WELDING INSPECTION REPORT

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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