

**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-006966**Date Inspected:** 01-May-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**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:** OBG and Tower Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Li Le, Mr. Lin Yang, Mr. Zhicheng Wu

On this date CALTRANS OSM 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:

Prior to Caltrans QA Inspectors' concurring with issuance of OBG deck plate closed rib green tag releases a review of the ultrasonic inspection database is performed to verify all closed rib tack weld repair locations have been ultrasonically accepted. Today this QA Inspector, Mr. Paul Dawson, performed data entry of ultrasonic inspection information from the field generated Ultrasonic inspection data sheets onto the common drive computer database for the following OBG deck panels: DP395-001, DP178-001, DP368-001, DP179-001, DP152-001, DP206-001 and DP125-001.

**OBG Bay 5**

The QA Inspector observed ZPMC welder Mr. Xu Zichuang, stencil 205098 is using the shielded metal arc welding process to make base material repairs on the side of segment 1AAW. The QA Inspector observed a welding current of approximately 160 amps and the base material approximately 50 mm from where the welding is being made appears to be at an ambient temperature. The QA Inspector asked ABF representative Mr. Shen Ru Shan what is the minimum required base material temperature and he said the base material needs to be at a

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minimum of 60 degrees Celsius. The QA Inspector asked Mr. Shen Ru Shan who is the QC representative for this shop and he summoned ZPMC Quality Control (QC) Inspector Mr. Song Wui who said he had been at the other end of Bay 2 and he had not been able to monitor the preheating where this welding had been performed. The QA Inspector asked Mr. Song Wui who is the responsible Certified Welding Inspector (CWI) for this location and after he made multiple phone calls he indicated a CWI will be in Bay 2 in about 5 minutes to discuss this welding preheat problem. A short time later ZPMC CWI Mr. Zhicheng Wu arrived in Bay 2 and after discussion with Mr. Song Wui, Mr. Zhicheng Wu told this QA Inspector that the base material might have previously been preheated and that the metal has now cooled and that he will talk to the welder and he will instruct the welder to preheat the base material prior to making any additional welds. Mr. Zhicheng Wu said he will have the weld ground and he will perform a close inspection of the location where this base metal weld repair had been made. The QA Inspector later observed ZPMC welder Mr. Xu Zichuang using a torch to preheat the base material where he is preparing to weld. Items observed by the QA Inspector do not appear to fully comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Jiang Yong Sheng, stencil 045240 is using flux cored welding process to make a weld repair on OBG segment 1AAW weld 062. The QA Inspector observed a welding current of approximately 310 amps, 29.5 volts and the base material where the tack welding is being made had been preheated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

### Tower Bays 10 and 11

The QA Inspector observed ZPMC welder Ms. Xia Wenling, stencil 044558 is using welding procedure specification WPS-B-T-2221-B-U3C-S-2 to make submerged arc groove weld WSD1-FBSA3-2B/C-39B. The QA Inspector observed ZPMC Quality Control personnel monitoring this welding and the QA Inspector observed a welding current of approximately 670 amps and 32.3 volts. The QA Inspector observed ZPMC had preheated the base material using an electric heating element. Items observed on this date appeared to generally comply with applicable contract documents.

The QA Inspector observed ZPMC welder Mr. Zhang Kun, stencil 250253 is using welding procedure specification WPS-B-T-2211-B-UC-B to complete shielded metal arc tack weld NSD1-FASA3-1B/C-1A. The QA Inspector observed that the weld joint bevel angles, root gap and base material mismatch appear to comply with the project specifications and the base material where the tack weld was made had been preheated with a torch to a minimum temperature of 110 degrees Celsius. The QA Inspector measured a welding current of approximately 165 amps. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Song Yo, stencil 205524 is using welding procedure specification WPS-B-T-2211-B-UC-B to complete shielded metal arc tack weld NSD1-FASA3-1B/C-1A. The QA Inspector observed that the weld joint bevel angles, root gap and base material mismatch appear to comply with the project specifications and the base material where the tack weld was made had been preheated with a torch to a minimum of 110 degrees Celsius. The QA Inspector measured a welding current of approximately 165 amps. Items observed by the QA Inspector appear to comply with project specifications.

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## Summary of Conversations:

See above.

## 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 Eric Tsang phone: 150-0042-2372 , 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>	Clifford,William	QA Reviewer

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