

**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-005362**Date Inspected:** 22-Jan-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 645**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1845**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 Fabrication**Summary of Items Observed:**

CWI: Mr. Sun Wei

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:

**Outside Material Storage**

The QA Inspector performed random visual inspections of various outdoor locations where ZPMC has stored OBG components. The purpose of the inspection was to ascertain if OBG components are properly stored as required by the Special Provisions. The QA Inspector observed the following problems:

- South of the Caltrans office approximately twenty Deck Plates are stacked on dunnage and the Deck Plates do not appear to have been covered with a tarp and no sealing material has been installed to prevent rainwater from getting underneath the closed rib the diaphragm plates.
- North of OBG bay 9 are approximately 150 Deck Plates that are stacked on dunnage and all of the Deck Plates appear to have caulking around the diaphragm plates Deck Plates deck plates are partially covered and the remainder of these deck plates do not have any tarp coverings and they are exposed to the elements.
- South of Bay 19 are various plates stacked adjacent to the road that runs north and south. End Plates EP055A, EP054A and EP109A appear to have been stacked on top of each other and these three plates appear to have been

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# WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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toppled and they are leaning against an adjacent stack of staged materials.

- Along Bay 19 road are End Plates EP031A and EP035A and both of these plates have one wood block near the middle of the plates and the ends of each of these plates are in contact with the ground.
- Along Bay 19 road is Floor Beam FP027-001 which has wood dunnage near each of the ends of the Floor Beam and the center of this plate is sagging enough to allow rainwater to collect near the center of the Floor Beam.
- Along Bay 19 road is Side Plate SP159-001 which is sitting on the ground (lacks dunnage) and portions of this Side Plate have sand, rocks, wood and other debris covering portions of the Side Plate surfaces.

The QA Inspector showed ZPMC QC representative Mr. Testino several of the improperly staged materials along Bay 19 road and Mr. Testino said he will try to get these problems resolved. The QA Inspector also provided SMR Eric Tsang with copies of photographs of each of the items listed above. Photographs showing each of these improperly staged materials have been copied onto the common computer server and are available for all Caltrop personnel to review.

## OBG Bay 9

The QA Inspector monitored welding of closed rib of deck plate DP220-001 using gantry #1. The QA Inspector observed four ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-4 using the gas metal arc welding process for the root pass and submerged arc welding process for the cover pass of partial penetration groove welds on four closed rib welds at the same time. ZPMC has multiple 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 535 mm per minute for the root passes and 516 mm per minute for the cover passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Mr. Xhang Shao Hui, stencil 59403 completed the root pass of weld #1 with a welding current of approximately 350 amps and 31.1 volts and the cover pass welding current of approximately 680 amps and 24.5 volts. Welder Mr. Chen Jie, stencil 59468, completed the root pass of weld #2 with a welding current of approximately 365 amps and 30.8 volts and the cover pass welding current of approximately 690 amps and 25.0 volts. Welder Ms. Zhang Li Ping, stencil 201840 completed the root pass of weld #5 with a welding current of approximately 370 amps and 30.3 volts and the cover pass welding current of approximately 680 amps and 24.6 volts. Welder Mr. Zhao Cheng Shuang, stencil 59400 completed the root pass of weld #6 with a welding current of approximately 385 amps and 31.1 volts and the cover pass welding current of approximately 685 amps and 24.9 volts. Items observed by this QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Shi Yunli stencil 59409 is using welding procedure specification WPS-B-T-2342-U2 (U-rib) to make flux cored tack welds on OBG deck plate weld DP138-001-009 closed ribs. The QA Inspector observed ZPMC is using a torch to preheat the base material prior to commencing each of the tack welds. Items observed by the QA Inspector appear to comply with project specifications.

This QA Inspector observed ZPMC welder Mr. Zheng Mingye, stencil 062295 is using the flux cored welding procedure WPS B-T-2232-TC-U5F to make OBG deck plate DP595-001 partial penetration weld #13. Prior to welding the QA Inspector observed the base material had previously been preheated using electrical heater elements. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

## OBG Bay 7

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## WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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This QA Inspector performed random ultrasonic (UT) inspections of approximately 10% length of OBG welds BP130-001-055, BP157-001-055, FB049-001-055, BP103-001-055, BP076-001-055 and, BP184-001-055. These welds have previously been tested and accepted by ZPMC Quality Control Inspectors. These welds are listed on ZPMC Notification of Witness Inspection document 001875. The QA Inspector observed the welds that were ultrasonically inspected by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on this inspection see the TL6027 Ultrasonic Test Report.

### Radiographic Identification

ZPMC informed Caltrans QA that the following welds are ready for QA to designate where radiographic inspections are to be performed: BP130-001-055, BP157-001-055, FB049-001-055, BP103-001-055, BP076-001-055 and, BP184-001-055. The QA Inspector randomly marked 450 mm lengths (15 percent of the weld length) of these welds as needing to be inspected using the radiographic technique. Later in the shift the QA Inspector observed ZPMC has marked these areas as needing to be ground flush prior to radiographic inspections.

### OBG Bay 6

This QA Inspector performed random final visual and ultrasonic (UT) inspections of approximately 10% length of OBG weld SP215-001-060. This weld was previously been tested and accepted by ZPMC Quality Control Inspectors. This weld is listed on ZPMC Notification of Witness Inspection document 001875. The QA Inspector observed the weld that was ultrasonically inspected by this QA Inspector appears to comply with AWS D1.5 UT requirements. For additional information on this inspection see the TL6027 Ultrasonic Test Report.

### 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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