

**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-009034**Date Inspected:** 10-Sep-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 Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Lv Li Qing, Mr. Guo Yanfei

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. This QA Inspector observed the following:

OBG Bay 9

ZPMC issued "Inspection Notification Sheet" number 4186 informing QA that ZPMC has completed ultrasonic inspections of OBG deck plate closed rib welds: This QA Inspector performed ultrasonic inspections of approximately 10 percent length of the following welds: DP3068-001-071, DP3068-001-091, DP3010-001-036, DP3010-001-037, DP3002-001-036, DP3002-001-037, DP3028-001-175, DP3028-001-176, DP3028-001-185, DP3028-001-186, DP3028-001-195, DP3028-001-196, DP3028-001-205, DP3028-001-206, DP3028-001-215 and DP3028-001-216. This QA Inspector observed ZPMC QC personnel had previously marked these welds as being ultrasonically accepted. Items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on these inspections see the TL6027 Ultrasonic Test Report.

This QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing deck plates DP3026-001, DP3042A-001 and DP3005A-001 which were welded using one single base plate at around 0025 hours using gantry #2. This QA Inspector observed six ZPMC welders using welding procedure specification

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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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 PMT 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. This QA Inspector observed a welding travel speed of approximately 537 mm per minute for the root passes and 513 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. Yang Yongzeng completed the root pass of weld #1 with a welding current of approximately 340 amps and 31.1 volts and the cover pass welding current of approximately 690 amps and 26.3 volts. Welder Mr. Xiang Shao Hui stencil 59403 completed the root pass of weld #2 with a welding current of approximately 350 amps and 30.6 volts and the cover pass welding current of approximately 700 amps and 25.5 volts. Welder Mr. Xiang Huan Feng, stencil 59416 completed the root pass of weld #3 with a welding current of approximately 350 amps and 31.2 volts and the cover pass welding current of approximately 685 amps and 24.8 volts. Welder Mr. Song Yinshu, stencil 059421 completed the root pass of weld #4 with a welding current of approximately 350 amps and 31.5 volts and the cover pass welding current of approximately 700 amps and 24.5 volts. Welder Ms. Zhang Liping, stencil 201840 completed the root pass of weld #5 with a welding current of approximately 345 amps and 31.2 volts and the cover pass welding current of approximately 685 amps and 24.8 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #6 with a welding current of approximately 355 amps and 31.2 volts and the cover pass welding current of approximately 685 amps and 24.5 volts.

This QA Inspector performed random visual inspection of the root passes and cover passes and items observed appear to comply with project specifications. Following completion of the welding ZPMC QC CWI Inspector Mr. Guo Yanfei marked a 500 mm length on each of the welds as being the areas that are to be representative of this PMT test. This QA Inspector observed ZPMC NDE Inspection personnel performing ultrasonic of each of the six welds in the areas where Mr. Guo Yanfei had marked for PMT testing. Following ZPMC's UT acceptance the QA Inspector marked a total of 15 locations where macroetch samples are to be obtained. ZPMC then cut and prepared macroetch samples. ZPMC QC CWI Inspector Mr. Guo Yanfei and ABF representative Mr. Cao Haizhou visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated August 11, 2009. This QA Inspector visually inspected each of these macroetch samples and items observed by the QA Inspector appear to comply with project specifications and the QA Inspector documented this inspection on the "Production Monitoring Test Plate Inspection Report".

OBG Bay 14

ZPMC issued "Inspection Notification Sheet" number 4187 informing QA that ZPMC has completed ultrasonic inspections of the following OBG welds: SEG064A-005, SEG064A-011, SEG064A-020. This QA Inspector performed ultrasonic inspections of approximately 10 percent length of welds SEG064A-005, SEG064A-011, SEG064A-020. This QA Inspector observed ZPMC QC personnel had previously marked these two welds as being ultrasonically accepted. Weld SEG064A-005 has been marked by the ultrasonic inspector as being ultrasonically accepted. This weld is also marked as having a one meter long portion of the weld as not having been ultrasonically inspected due to lack of access to backgouge and weld the back side of the weld. The back side of this weld is sitting on a large steel post that is supporting the weight of the OBG segment, and once the OBG is repositioned, this section of the weld will be welded from the back side, and ultrasonically inspected. Items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on these inspections see the TL6027 Ultrasonic Test Report.

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## WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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This QA Inspector observed ZPMC welder Mr. Tu Zhi Wu, stencil 214945 is using flux cored welding procedure WPS-B-T-2233-TC-U4b-F to make OBG weld SEG062B-012. This QA Inspector observed a welding current of 250 amps and 26.3 volts. This QA Inspector observed ZPMC Quality Control Inspector Mr. Zhong Gao Hui monitoring this welding and Mr. Tu Zhi Wu is certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Chen Chuanzong, stencil 044824 has been using flux cored welding procedure WPS-B-T-2231-TC-U4b-F to make weld SEG062B-004. This QA Inspector observed a welding current of 300 amps and 31.2 volts. This QA Inspector observed ZPMC Quality Control Inspector Mr. Zhong Gao Hui monitoring this welding and Mr. Chen Chuanzong is certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

### **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>	Carreon,Albert	QA Reviewer

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