

**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-009040**Date Inspected:** 17-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 & Tower Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Guo Yanfei, Mr. Shen Fu You, Mr. Li Zi Jiang, Mr. Li Yang

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 5**

This QA Inspector observed ZPMC welder Ms. Gao Yulin, stencil 217805 is using flux cored welding process WPS-B-T-2133-B-U2-F to make flux cored groove weld 10TR2-002-001. The QA Inspector observed ZPMC QC Inspector Mr. Zhong Chong Biao has measured a welding current of 309 amps and 30.6 volts. This QA Inspector observed Ms. Gao Yulin 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. Si Gaofeng, stencil 204372 is using flux cored welding process WPS-B-T-2133-B-U2-F to make flux cored groove weld 11TR5-002-007. The QA Inspector measured a welding current of approximately 295 amps and 30.1 volts. This QA Inspector observed Mr. Si Gaofeng is certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

**OBG BAY 9**

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## WELDING INSPECTION REPORT

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This QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing deck plates DP3046A-001, DP3068A-001 and DP3009A-001 which were welded using one single base plate starting at around 0021 hours using gantry #2. This QA Inspector observed six 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 six 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 512 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. Xiang Huan Feng, stencil 59416 completed the root pass of weld #1 with a welding current of approximately 350 amps and 31.0 volts and the cover pass welding current of approximately 680 amps and 25.0 volts. Welder Mr. Song Yinshu, stencil 059421 completed the root pass of weld #2 with a welding current of approximately 330 amps and 30.5 volts and the cover pass welding current of approximately 685 amps and 24.3 volts. Welder Mr. Zhang Liping, stencil 201840 completed the root pass of weld #3 with a welding current of approximately 360 amps and 31.0 volts and the cover pass welding current of approximately 685 amps and 25.0 volts. Welder Ms. Jiang Shuangchen, stencil 201788 completed the root pass of weld #4 with a welding current of approximately 360 amps and 31.3 volts and the cover pass welding current of approximately 690 amps and 25.6 volts. Welder Mr. Yang Yongzeng, stencil 059418 completed the root pass of weld #5 with a welding current of approximately 390 amps and 31.2 volts and the cover pass welding current of approximately 685 amps and 24.5 volts. Welder Mr. Xhang Shao Hui stencil 59403, completed the root pass of weld #6 with a welding current of approximately 350 amps and 31.2 volts and the cover pass welding current of approximately 690 amps and 24.8 volts.

This QA Inspector performed random visual inspection of the weld joint fitups, 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 Inspector Mr. Ma Jilong performing ultrasonic inspections 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. Huang Wen Guang visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated August 18, 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".

### TOWER BAY 11

ZPMC issued "Inspection Notification Sheet" number 4233 informing QA that ZPMC has completed ultrasonic inspections of west tower lift 3 skin B to skin C corner weld WSTL3-4B/K-84. This QA Inspector observed ZPMC QC personnel had previously marked this weld as being ultrasonically accepted. This QA Inspector performed ultrasonic inspections of approximately 10 percent length of this weld and 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

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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>	Carreon,Albert	QA Reviewer

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