

**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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018791**Date Inspected:** 04-Dec-2010**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**Summary of Items Observed:**

CWI Inspector: Mr. Bao Qian

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 14

This QA Inspector observed ZPMC welder Mr. Wang Li, stencil 044772 used shielded metal arc welding procedure specification WPS-345-SMAW-2G(2F)-FCM-Repair-1 to make repairs of OBG segment 14E longitudinal diaphragm plate LD3042A-001 to the bottom plate weld SEG3019AB-093. This weld had been ultrasonically rejected and is being repaired in accordance with critical weld repair document CWR-2088. ZPMC QC has documented that the depth of the repair was 10mm. This QA Inspector observed a welding current of approximately 210 amps and a travel speed of approximately 100mm per minute. This QA Inspector observed the base materials had been heated with electric heaters to preheat the base material temperature of this weld joint. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Sun Lingling, stencil 048047 used shielded metal arc welding procedure specification WPS-345-SMAW-2G(2F)-FCM-Repair-1 to make repairs of OBG segment 14E longitudinal diaphragm plate LD3042A-001 to the bottom plate weld SEG3019AB-095. This weld had been

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ultrasonically rejected and is being repaired in accordance with critical weld repair document CWR-2090. ZPMC QC has documented that the depth of the repair was 5mm. This QA Inspector observed a welding current of approximately 200 amps and a travel speed of approximately 100mm per minute. The CWR document requires a minimum base material temperature of 160 degrees Celsius and this QA Inspector observed the temperature of the bottom plate adjacent to the weld appears to be approximately 120 degrees Celsius and a 140 degree Celsius temperature indicating crayon did not melt when it was applied to the bottom plate adjacent to the weld repair. This QA Inspector showed ABF CWI Mr. Bao Qian the temperature of the base material was less than 140 degrees Celsius. Mr. Bao Qian said he had recently confirmed the base material temperature was above 160 degrees Celsius and he will have a heating element installed to heat the base materials prior to additional welding. Following additional preheating of the base materials items observed on this date appeared to generally comply with applicable contract documents. See the photograph below for additional information.

This QA Inspector observed ZPMC welder Mr. Hong Liang stencil 050242 used flux cored welding procedure WPS-B-T-2132-ESAB to make OBG segment 13AE welds SA3012A-001-101 through 108. ABF CWI Mr. Bao Qian had recorded a welding current of 290 amps 25.6 volts and a welding travel speed of 276mm per minute. This QA Inspector observed Mr. Hong Liang appeared to be 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. Jian Zhou, stencil 067571 used shielded metal arc welding procedure WPS-B-P-2214-B-U2-FCM-1. This QA Inspector observed ZPMC QC Inspector Mr. Zhong Guo Hui has recorded a welding current of 152 amps 25.4 volts and a welding travel speed of 110 mm per minute. This QA Inspector observed Mr. Jian Zhou appeared to be 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. Yuan Wensong, stencil 055491 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE welds SEG3007AD-018,030 and 032. This QA Inspector observed ZPMC QC has recorded a welding current of 250 amps, 25.3 volts, a travel speed of 142mm per minute and Mr. Yuan Wensong appeared to be 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. Zhang Quin Quan, stencil 044774 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE welds SEG3007F-032 and 034. This QA Inspector observed ZPMC QC has recorded a welding current of 260 amps, 25.7 volts and a travel speed of 129mm per minute. This QA Inspector observed that Mr. Zhang Quin Quan appeared to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Yang Yunfeng, stencil 215553 used shielded metal arc welding procedure WPS-345-SMAW-2G(2F)-FCM-Repair-1 to make a weld repair of ultrasonic rejections to OBG segment 13AE weld SEG3007T-105. ZPMC QC Inspector Mr. Zhong Guo Hui presented this QA Inspector with weld repair document B-WR-17528 that documents the repair of this weld. This QA Inspector observed ZPMC QC has recorded a welding current of 158 amps, 25.6 volts and a travel speed of 115mm per minute. This QA Inspector observed Mr. Yang Yunfeng appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

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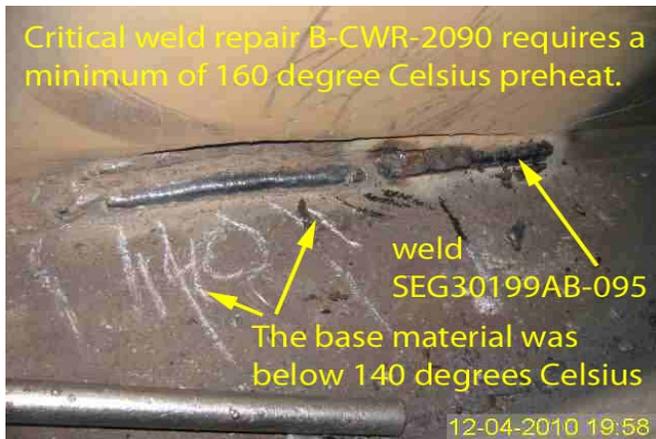
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ZPMC presented QA personnel with “Notification of Witness Inspection” document number 7625 that stated ZPMC was requesting Caltrans to perform visual and magnetic particle (MT) inspections of OBG segment 14W top anchorage plate sub assembly welds AP3013, AP3014, AP3015 and AP3016 welds in bay 14. This QA Inspector performed random visual and magnetic particle (MT) inspections of welds AP3013-001- 002, 003, 004, 005, 010, 011,013, 014, 015; AP3014-001-002, 003, 006, 007, 010, 011, 013, 014, 015, 018, 019, 024 and 25. Caltrans QA Inspector Mr. Kelly Leavitt performed MT inspections of anchorage plate sub assembly welds on AP3015 and AP3016. Items observed by this QA Inspector appeared to comply with AWS D1.5 MT requirements. For additional information on these inspections see this QA Inspector’s TL6028 Magnetic Particle 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 James Devey +8615000026784, 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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