

**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-018758**Date Inspected:** 17-Nov-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 Inspectors: Mr. Yu Jiao, Mr. Li Ming Yang, Mr. Geng 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. This QA Inspector observed the following:

OBG Bay 13

This QA Inspector observed ZPMC welder Mr. Han Lin stencil 062782 used flux cored welding procedure WPS-345-FCAW-3G(3F)-FCM-Repair to make repairs to OBG segment 14AE grillage weld SA7038-036. ABF CWI Mr. Yu Jiao presented this QA Inspector with weld repair document B-WR-17070 that documents the repair of this weld. This QA Inspector measured a welding current of approximately 240 amps and 26.0 volts. This QA Inspector observed that the WPS lists a maximum welding current of 223.2 amps that Mr. Han Lin had a welding current that was approximately 17 amps above this maximum limit. This QA Inspector showed ZPMC QC CWI Mr. Yu Jiao the welding current meter and he after he made measurements with his welding amperage meter, he agreed the parameters were outside the WPS requirements. Mr. Han Lin then adjusted the welding machine to have a welding current of approximately 215 amps and 26 volts. This QA Inspector observed the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Following adjustment of the welding current, items observed on this date appeared to generally comply with applicable contract documents.

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This QA Inspector observed ZPMC welder Mr. Wang Hai Yang, stencil 068994 used flux cored welding procedure WPS-345-FCAW-3G(3F)-FCM-Repair to make repairs to OBG segment 14AE grillage weld SA7038-031. ZPMC CWI Mr. Lv Li Qing presented this QA Inspector with weld repair document B-WR-17078 that documents the repair of this weld. This QA Inspector measured a welding current of approximately 220 amps and 26.0 volts. This QA Inspector observed Mr. Wang Hai Yang appeared to be certified to make this weld and the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Chen Chuanzong, stencil 044824 used flux cored arc welding procedure specification WPS-345-FCAW-2G(2F)-Repair to make repairs of OBG segment 13CE vertical plate stiffener weld VP3008-001-032 in accordance with weld repair document B-WR-17159. This weld had been ultrasonically rejected. This QA Inspector observed a welding current of approximately 305 amps and 34.5 volts. This QA Inspector observed that the maximum welding voltage in the WPS is 32.5 volts and that Mr. Chen Chuanzong had a welding current that was approximately 2.0 volts above this maximum limit. This QA Inspector showed CWI Mr. Li Ming Yang the welding voltage meter and he agreed the welding voltage was above the maximum and the welding voltage was adjusted to approximately 32 volts. This QA Inspector observed the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Following adjustment of the welding voltage, 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. Wang Li, stencil 044772 used shielded metal arc welding procedure specification WPS-345-SMAW-2G(2F)-Repair to make repairs of OBG segment 13CE vertical plate stiffener weld VP3008-001-029 in accordance with weld repair document B-WR-17155. This weld had been ultrasonically rejected. This QA Inspector observed a welding current of approximately 190 amps. This QA Inspector observed that the maximum welding current in the WPS is 180 amps and that Mr. Wang Li had a welding current that was approximately 10 amps above this maximum limit. This QA Inspector showed ZPMC QC Inspector Mr. Li Ming Yang the welding current meter and he agreed the welding current was above the maximum and the welding current was adjusted to approximately 170 amps. This QA Inspector observed the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Following adjustment of the welding current, items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Bian Henggui stencil 051359 used shielded metal welding procedure WPS-345-SMAW-2G(2F)-FCM-Repair to make OBG segment 13CE vertical plate stiffener plate weld VP3008-001-002 in accordance with critical weld repair document B-WR-17153. This weld had been ultrasonically rejected. This QA Inspector observed Mr. Bian Henggui appeared to be certified to make this weld, the base materials had been preheated with electrical heating elements prior to welding. This QA Inspector measured a welding current of approximately 180 amps. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wu Hai Jun, stencil 201087 used shielded metal arc welding

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procedure specification WPS-B-P-2213-TC-U4B-FCM-1 to make OBG segment 13AE weld SEG3009C-010. This QA Inspector observed a welding current of approximately 170 amps and Mr. Wu Hai Jun 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. Hong Liang, stencil 200113 used shielded metal arc welding procedure specification WPS-B-P-2213-TC-U4B-FCM-1 to make OBG segment 13BE welds SEG3009F-098 through 103. This QA Inspector measured a welding current of approximately 165 amps, the welding electrodes were stored in a portable rod oven which was warm to the touch and 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. Wang Jinjiu stencil 043661 used shielded metal arc welding procedure specification WPS-B-P-2213-TC-U4B-FCM-1 to make OBG segment 13BE welds SEG3009H-117 through 122. This QA Inspector measured a welding current of approximately 165 amps, the welding electrodes were stored in a portable rod oven which was warm to the touch and Mr. Wang Jinjiu 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. Zhu Ming Song, stencil 204339 had recently used shielded metal arc welding procedure WPS-345-SMAW-1G(1F)-Repair to make base metal weld repairs on OBG segment 13AW bottom plate BP3081A. ZPMC CWI Mr. Li Ming Yang showed this QA Inspector weld repair report B-CWR2111 that addresses this weld repair. This QA Inspector observed the base material where Mr. Zhu Ming Song had recently welded appears to be below 160 degrees Celsius. This QA Inspector informed Mr. Li Ming Yang that the WPS requires a minimum base material temperature of 160 degrees Celsius and CWI Mr. Li Ming Yang informed this QA Inspector that the base material will be preheated as required by the WPS. Mr. Zhu Ming Song appeared to be certified to make the base material weld repairs. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wu Cunnang, stencil 070101 used flux cored welding procedure specification WPS-B-T-2232-TC-U4B-F to make OBG segment 13AE weld SEG3007U-162. This QA Inspector observed ZPMC QC recorded a welding current of 317 amps and 30.5 volts and Mr. Wu Cunnang 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. Wang Changfa, stencil 058102 used flux cored welding procedure specification WPS-B-T-2233-TC-U4B-F to make OBG segment 13AE weld SEG3007E-008. This QA Inspector observed ZPMC QC recorded a welding current of 215 amps and 25.0 volts and Mr. Wang Changfa 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 Mingwu, stencil 066283 used flux cored welding procedure specification WPS-B-T-2233-U4B-F to make OBG segment 13AE weld SEG3007J-033. This QA Inspector observed ZPMC QC has recorded a welding current of 217 amps, 24.5 volts and Mr. Zhang Mingwu 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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## 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 Devy +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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