

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

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-018759**Date Inspected:** 20-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. Ji Cai Feng

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. Wang Hai Yang, stencil 068994 used flux cored welding procedure WPS-345-FCAW-3G(3F)-FCM-Repair to make repairs to OBG segment 14E grillage weld SA7038-026. ZPMC QC Inspector Mr. Wang Xu presented this QA Inspector with weld repair document B-WR-17083 that documents the depth of this repair is 44 mm. This QA Inspector measured a welding current of approximately 248 amps and 26.0 volts, 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. This QA Inspector observed that the WPS lists a maximum welding current of 223.2 amps that Mr. Zhang Mingwu had a welding current that was approximately 20 amps above this maximum limit. This QA Inspector showed ZPMC QC Mr. Wang Xu the welding current and he after he observed the welding amperage meter, he agreed the parameters were outside the WPS requirements. Mr. Zhang Mingwu then adjusted the welding machine to have a welding current of approximately 220 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.

WELDING INSPECTION REPORT

(Continued Page 2 of 5)

Following adjustment of the welding current, items observed on this date appeared to generally comply with applicable contract documents. See the photographs below for additional information.

This QA Inspector observed ZPMC welder Mr. Shi Yan, stencil 068920 used flux cored welding procedure WPS-345-FCAW-3G(3F)-FCM-Repair to make critical weld repairs to OBG segment 14E grillage weld SA7038-059. ZPMC QC Inspector Mr. Wang Xu presented this QA Inspector with critical weld repair document B-CWR-2233 that documents the repair of this weld. This QA Inspector measured a welding current of approximately 215 amps and 25.5 volts. This QA Inspector observed Mr. Shi Yan 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. Liu Min, stencil 044790 used flux cored welding procedure WPS-B-T-2233-TC-U4b-F to make welds DP3073-001-7, 14 and 17. These welds join OBG longitudinal diaphragm plates to deck plate DP3073-001. This QA Inspector observed a welding current of approximately 210 amps and 26 volts, the base materials were preheated with a torch and Mr. Liu Min 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 Ms. Gao Yuling stencil 217805 used flux cored welding procedure WPS-B-T-2233-TC-U4b-F to make weld DP3073-001-056 and 059. This weld joins OBG longitudinal diaphragm plates to deck plate rib DP3073-001. This QA Inspector observed a welding current of approximately 210 amps and 26 volts, the base materials were preheated with a torch and Ms. Gao Yuling 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-2132 to make OBG segment 13AE stiffener plate welds SA3012-001-019 and 020. This QA Inspector observed a welding current of approximately 250 amps and 30.5 volts and Mr. Zhang Mingwu appeared to be certified to make this weld. This QA Inspector observed that the WPS lists a minimum welding current of 280 amps that Mr. Zhang Mingwu had a welding current that was approximately 30 amps below this minimum limit. This QA Inspector showed ZPMC QC Mr. Wang Xu the welding current and he after he made measurements with his welding amperage meter, he agreed the parameters were outside the WPS requirements. Mr. Zhang Mingwu then adjusted the welding machine to have a welding current of approximately 270 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. Liu Xiaolin, stencil 067079 used flux cored welding procedure specification WPS-B-T-2132 to make OBG segment 13AE stiffener plate welds SEG3012A-001-038 and 039. This QA Inspector observed a welding current of approximately 300 amps, 29.0 volts and Mr. Liu Xiaolin appeared to be certified to make these welds. This QA Inspector observed the base materials were heated with electric heaters to preheat the weld joints. Items observed on this date appeared to generally comply with applicable contract documents.

WELDING INSPECTION REPORT

(Continued Page 3 of 5)

This QA Inspector observed ZPMC welder Mr. Dan Deyin, stencil 044795 used flux cored welding procedure WPS-B-T-2133 to make OBG segment 13BE welds SA3012A-001-225 and 226. This QA Inspector observed ZPMC QC Inspector Mr. Wang Xu had recorded a welding current of 315 amps, 30.4 volts. This QA Inspector observed that Mr. Dan Deyin 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. Zhang Quin Quan, stencil 044774 used flux cored welding procedure WPS-B-T-2133 to make OBG segment 13BE welds SA3012-001-0975 and 098. This QA Inspector observed ZPMC QC Inspector Mr. Wang Xu had recorded a welding current of 319 amps, 32.4 volts. 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. Chen Chuanzong, stencil 044824 used flux cored welding procedure WPS-345-FCAW-2G(2F)-FCM-Repair to make repairs to vertical plate VP3007-001-071. This weld had been ultrasonically rejected and was being repaired per weld repair document B-WR-17305. ZPMC has documented that the size of the weld repair is approximately 400 mm long and 8 mm deep. This QA Inspector observed a welding current of approximately 315 amps and 30.7 volts. This QA Inspector observed Mr. Chen Chuanzong 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.

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 VP3007-001-071 in accordance with weld repair document B-WR-17305. This weld had been ultrasonically rejected. This QA Inspector observed Mr. Bian Henggui appeared to be certified to make this weld. ZPMC has documented that the size of the weld repair is approximately 270 mm long and 13 mm deep. This QA Inspector measured a welding current of approximately 190 amps. This QA Inspector observed that the WPS lists a maximum welding current of 180 amps that Mr. Bian Henggui had a welding current that was approximately 120 amps above this maximum limit. This QA Inspector showed ZPMC QC Inspector Mr. Wang Xu the welding current and he after he observed the welding amperage meter, he agreed the parameters were outside the WPS requirements. Mr. Zhang Mingwu then adjusted the welding machine to have a welding current of 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.

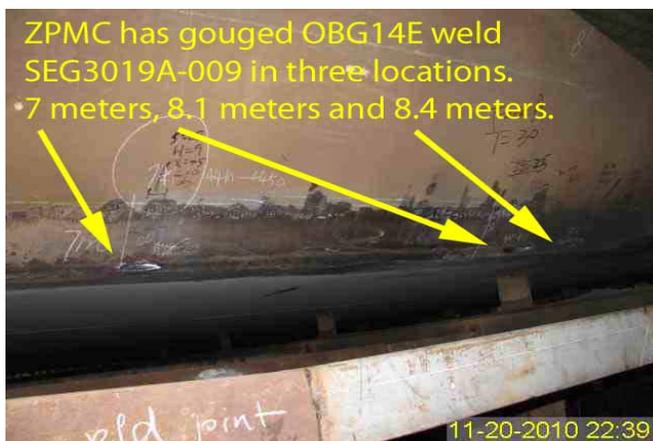
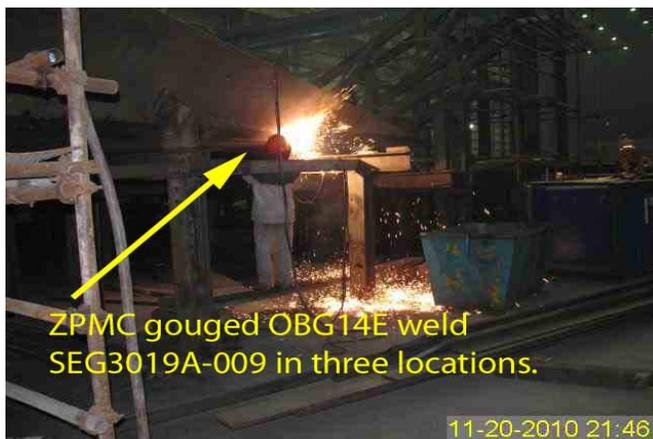
This QA Inspector observed ZPMC welder Ms. Li Jiao, stencil 049861 used shielded metal arc process to make OBG segment 13BE tack weld SEG3009L-048. This QA Inspector observed Ms. Li Jiao has a welding current of approximately 170 amps. This QA Inspector observed Ms. Li Jiao appeared to be certified to make this weld, the base material appeared to have been preheated with a torch and the shielded metal arc welding electrodes were stored in an electrically heated electrode storage container that was connected to the welding power supply cable. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed a ZPMC worker performing carbon arc gouging of segment 14E weld

WELDING INSPECTION REPORT

(Continued Page 4 of 5)

SEG3019A-009. This weld joins side plate SP3120A to bottom plate BP3086-001 and the weld appears to have been ultrasonically rejected. This QA Inspector asked ZPMC QC Inspector Mr. Wang Xu and ABF CWI Mr. Yu Jiao for information concerning what weld repair document is controlling this work. Both Inspectors stated they were not aware of the gouging and they could not locate any repair document for this weld repair. Mr. Wang Xu informed this QA Inspector that ZPMC will stop any additional weld removals until a weld repair document is located. This QA Inspector and ABFCWI Mr. Yu Jiao measured the thickness of side plate to be 30 mm and the depth of the weld repairs are as follows: Three areas had been gouged and the gouge at approximately 7 meters is approximately 20 mm deep, the gouge at 8.1 meters is approximately 15 mm deep and the gouge at 8.4 meters is approximately 20 mm deep. ABF CWI Mr. Yu Jiao and ABF CWI Mr. Mr. Ji Cai Feng indicated that ZPMC will need to issue a locate the weld repair document prior to performing weld repairs of the gouges.



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.

WELDING INSPECTION REPORT

(Continued Page 5 of 5)

Inspected By:	Dawson,Paul	Quality Assurance Inspector
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Reviewed By:	Carreon,Albert	QA Reviewer
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