

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-014858**Date Inspected:** 25-May-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. Tian Lei, Mr. Huang Min, Mr. Zhu Zhong Hai, Mr. Gu Raong Jian, and 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 7

This QA Inspector observed ZPMC welder Mr. Si Gao Feng, stencil 204342 is using flux cored welding procedure WPS-345-FCAW-1G(1F)-Repair-1 to make a buttering welds on the end of traveler rail 22TR2-001 as directed on critical weld repair document BCWR1374. This document indicates the length of the traveler rail is to be increased by a distance of 50 mm. This QA Inspector observed QC has documented a welding current of 289 amps and 30.2 volts. ZPMC QC Inspector Mr. Wang Liang is monitoring this welding and Mr. Si Gao Feng appears to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 3

This QA Inspector observed ZPMC welder Mr. Cheng Xueying, stencil 050977 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG segment floor beam welds FB3158-001-037, -038 and -044. This QA

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Inspector observed a welding current of 285 amps and 30.3 volts. This QA Inspector observed that Mr. Cheng Yueying appears 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. Tu Zhi Wu, stencil 214945 is using flux cored welding procedure WPS-B-T-2132 to make OBG floor beam welds FB3159-001-120 and -121. This QA Inspector observed ZPMC QC has recorded a welding current of 305 amps and 29.3 volts. This QA Inspector observed Mr. Tu Zhi Wu appears 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 stencil 206386 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG floor beam welds FB3121-001-120, -121. This QA Inspector observed a welding current of approximately 270 amps and 31.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 2

This QA Inspector observed ZPMC welder Mr. Jiang Yong Sheng, stencil 045240 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG floor beam welds FB3178-001-16, -17, -18 and -19. This QA Inspector observed QC Inspector Mr. Zhu Jun has recorded a welding current of 306 amps and 30.1 volts. Mr. Jiang Yong Sheng appears 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 Ms. Cheng Haixia, stencil 045209 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG floor beam welds FB3220-001-23, and -24. This QA Inspector observed QC Inspector Mr. Zhu Jun has recorded a welding current of 304 amps and 30.4 volts. Ms. Cheng Haixia appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 14

This QA Inspector observed ZPMC welder Ms. Pi Lijuan, stencil 062438 is using flux cored welding procedure WPS-B-T-2132 to make OBG weld SEG3005J-009. This QA Inspector observed ZPMC QC Inspector Mr. Li Ming Yang has recorded a welding current of 314 amps and 30.9 volts. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Jiang Yafei, stencil 045276 is using flux cored welding procedure WPS-B-T-2132 to make OBG weld SEG3004M-001 through -005 at OBG segment 12CW. This QC Inspector Mr. Li Ming Yang has recorded a welding current of 214 amps and 25.2 volts. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. He Hanbi, stencil 202122 is using flux cored welding procedure WPS-B-T-2221-2 to make segment weld SEG3004R welds -001 through -005. This QA Inspector observed QC Inspector Mr. Li Ming Yang has recorded a welding current of 216 amps and 24.4 volts. This QA Inspector

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observed the base material appears to have been preheated with electric heating elements and Mr. He Hanbi appears 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. Ma Ying stencil 045270 is using submerged arc welding procedure specification WPS-B-T-2221-B-L2C-S-2 to make groove welds SEG3004*-009 and -027 attaching corner assembly deck plate DP3040A to deck plate DP3039A. This QA Inspector observed a welding current of approximately 670 amps and 31.0 volts. This QA Inspector observed that Ms. Ma Ying appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Segment Assembly

ABF issued "Inspection Notification Sheet" number 05242010-1 item #2 informing QA that on 05-25-2010 at 1930 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld OBW7C-004 which joins OBG segment 7CW to 7DE side plates. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that this weld repair area is accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and E (AWS D1.5 Fig 6.7) and the weld repairs appear to comply with project specifications. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

ABF issued "Inspection Notification Sheet" number 05242010-1 item #3 informing QA that on 05-25-2010 at 1930 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired welds OBE8C-004 and OBE8C-005 which joins OBG segment 8BE to 8CE side plates. These welds are located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that the weld repairs are accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and the weld repairs appear to comply with project specifications. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

ABF issued "Inspection Notification Sheet" number 05252010-1 item #2 informing QA that on 05-25-2010 at 1900 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired hold back weld CA041-006 which joins OBG segment 7DW deck plate to edge plate on the counterweight side. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that the weld repairs are accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and the weld repairs appear to comply with project specifications. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

This QA Inspector observed ZPMC QC Inspector Mr. Wang Li Yang has documented that ZPMC welder Mr. Peng Jian Cheng, stencil 222396 is using flux cored welding procedure WPS-345-FCAW-1G(1F)-Repair to make

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buttering welds on edge plate weld joints EP143-001-013 and EP143-001-014. This weld joins OBG segments 9AE and 9BE. This work is being performed in accordance with weld repair document B-WR13183 which identified the amount of buttering weld is between 16 mm and 22 mm. This QA Inspector observed ZPMC QC Inspector Mr. Wang Li Yang has recorded a welding current of 293 amps and 30.0 volts. This QA Inspector observed that Mr. Peng Jian Cheng appears to be certified to make this weld. Items observed on this date appear to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Ms. Wang Chaili, stencil 045203 is using flux cored welding procedure WPS-B-T-2132 to make temporary alignment plate welds on the top deck adjacent to the weld that joins segments 9AW and 9BW. ABF personnel, who were monitoring this welding did not know the weld identification number that joins these two segments. This QA Inspector observed the base material was preheated with a torch prior to welding and Ms. Wang Chaili appears to be certified to make this weld. This QA Inspector measured a welding current of approximately 300 amps and 32.0 volts. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

This QA Inspector observed ZPMC welder Mr. Zhang Yaobing, stencil 204730 is using flux cored welding procedure WPS-B-T-2132 to make temporary alignment plate welds on the top deck adjacent to the weld that joins segments 9AW and 9BW. ABF personnel who were monitoring this welding did not know the weld identification number that joins these two segments. This QA Inspector observed the base material was preheated with a torch prior to welding and Mr. Zhang Yaobing appears to be certified to make this weld. This QA Inspector measured a welding current of approximately 300 amps and 34.0 volts. This QA Inspector asked ZPMC CWI Mr. Li Yang what was the maximum voltage allowed by this WPS and he informed this QA Inspector that the maximum voltage is 32.5 and that Mr. Zhang Yaobing's welding machine has to high of voltage. After Mr. Zhang Yaobing adjusted the welding voltage this QA Inspector measured a welding voltage of 30.5 volts. Items observed by this QA Inspector do not appear to fully comply with project specifications.

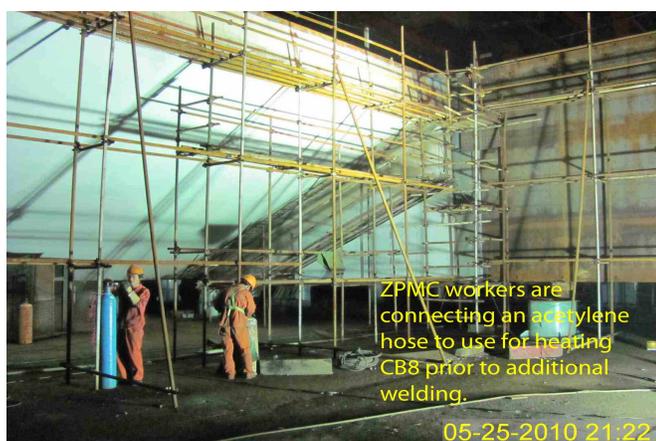
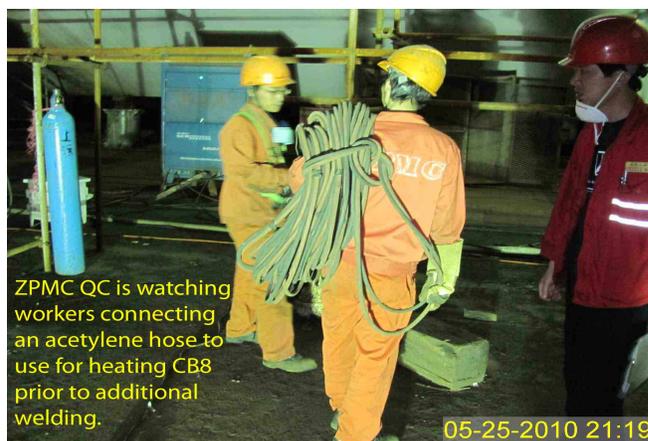
This QA Inspector observed ZPMC welder Mr. Zhang Sheng Long, stencil 215065 is using shielded metal arc process to perform tack welding of a temporary alignment plate to the side of cross beam 8 where it is to be joined to OBG segment 7DE on the side nearest to the weld joint between OBG segments 7DE and 7EE. This QA Inspector observed ZPMC workers do not appear to have preheated the base material prior to welding. This QA Inspector showed the workers that the base material appears to be at an ambient temperature and they left the area and returned a short time later with an acetylene torch and hoses. This QA Inspector informed ZPMC CWI Mr. Li Yang that this weld appears to have been made without any preheat and Mr. Li Yang said the base material needs to be preheated to a minimum of 60 degrees Celsius and that he will tell the workers to preheat the base material prior to any additional welding. Items observed on this date do not appear to fully comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zang Yanbo, stencil 045196 is using shielded metal arc welding procedure WPS-B-T-2232-TC-U4b-F to make hold back weld CA053-002 which joins OBG segment 8CW deck plate and side plate on the counterweight side. This QA Inspector observed a welding current of approximately 190 amps and Mr. Zang Yanbo appears to be certified to make this weld. This QA Inspector observed the welding electrodes are being stored in a heated portable electrode storage oven and the base material appears to have been preheated with an electric heater. Items observed on this date appeared to generally comply with applicable contract documents.

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This QA Inspector observed ZPMC welder Mr. Tian Zhaoquan, stencil 045246 is using shielded metal arc welding process to make 4G (overhead) position shielded metal arc welds of temporary alignment plates between OBG segment 9AW and 9BW on the cross beam side plates. This QA Inspector observed that the base metal on one side of the temporary alignment plate appears to have been preheated and that the base material within 75 mm of the weld on the back side of the alignment plated appears to have not been preheated to a minimum of 60 degrees Celsius. This QA Inspector also observed Mr. Tian Zhaoquan does not appear to be grinding off the paint from the surfaces where he is welding. This QA Inspector informed ZPMC CWI Mr. Li Yang that the areas within 75 mm do not appear to be properly preheated prior to welding and that Mr. Tian Zhaoquan appears to be welding over a painted surface. Mr. Li Yang said he will inform the welder to preheat both sides of the weld and to have the welder ensure all welded surfaces are ground prior to welding. Items observed on this date do not appear to fully comply with applicable contract documents. See the photographs below for additional information.



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