

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-015426**Date Inspected:** 01-Jul-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. Guo Yan Fei, Mr. Gao Zhi Chun

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:

Tower Bay 10

This QA Inspector observed ZPMC welder Mr. Qi Shi Jie, stencil 040518 was using shielded metal arc process to tack weld North tower lift 5 weld NSD1-TL5-3B-F-10A. This QA Inspector observed a welding current of approximately 170 amps and that the welding electrodes were being stored in a heated electrode storage container that was connected to an electric power supply. This QA Inspector observed ZPMC used a torch to preheat the base material temperature and ZPMC QC Inspector Mr. Li Peng Fei was monitoring the base material preheat and welding parameters. ZPMC welder Mr. Qi Shi Jie appeared to be certified to make these tack welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Shi Xingyu, stencil 052930 was using shielded metal arc process procedure WPS-345-SMAW-3G(3F)-Repair to make North Tower lift 5 weld NSD1-TL5-3B/F-41B. QC Inspector Mr. Li Peng Fei showed this QA Inspector a ZPMC weld repair document that does not have a tracking number. This document was mostly written in the Chinese Language and there was an ultrasonic rejection

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report attached to the repair document. This QA Inspector observed a welding current of approximately 175 amps and that the welding electrodes were being stored in a heated electrode storage container that was connected to an electric power supply. This QA Inspector observed ZPMC had an energized electrical heater heating the back side of the skin plates and ZPMC QC Inspector Mr. Li Peng Fei was monitoring the welding parameters and base material interpass temperatures. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhang Songtin, stencil 057186 was using shielded metal arc process to tack weld South tower lift 5 run off plates/weld tabs on the ends of various groove welds on the top surfaces of the lift. This QA Inspector observed a welding current of approximately 160 amps and that the welding electrodes were being stored in a heated electrode storage container that was connected to an electric power supply. This QA Inspector observed ZPMC used a torch to preheat the base material temperature and ZPMC QC Inspector Mr. Li Peng Fei was monitoring the base material preheat and welding parameters. ZPMC welder Mr. Zhang Songtin appeared to be certified to make these tack welds. 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. An Minghe, stencil 040400 was using shielded metal arc process to tack weld South tower lift 5 run off plates/weld tabs on the ends of various groove welds on the top surfaces of the lift. This QA Inspector observed a welding current of approximately 160 amps and that the welding electrodes were being stored in a heated electrode storage container that was connected to an electric power supply. This QA Inspector observed ZPMC used a torch to preheat the base material temperature and ZPMC QC Inspector Mr. Li Peng Fei was monitoring the base material preheat and welding parameters. ZPMC welder Mr. An Minghe appeared to be certified to make these tack welds. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Segment Trial Assembly and Heavy Dock

QA Inspector observed no ZPMC personnel were performing welding in the OBG Segment Trial Assembly area or the heavy dock.

Two ZPMC workers were using track mounted acetylene cutting torches to trim the edges of OBG segment 9E, near panel point PP75, adjacent to where cross beam CB11 will be attached.

OBG Bay 14

This QA Inspector observed ZPMC welder Ms. Hue Junrong, stencil 201215 was using flux cored welding procedure WPS-B-T-2233-TC-U4b-F to make OBG segment 12AW weld SEG3004H-225 near panel point PP111.

This QA Inspector measured a welding current of approximately 220 amps and 27.0 volts and Ms. Hue Junrong appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

OBG BAY 9

This QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing three "Mock

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Up” OBG segment 13CE deck plates DP3104(PL3200A/B/C)-001 and DP3102(PL3198A/B/C)-001 which were welded using one single base plate starting at around 0026 hours using gantry #2. This QA Inspector observed six ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-5 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 had 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 533 mm per minute for the root passes and 517 mm per minute for the cover passes. As the welding commences, each of the welders was responsible for one of the welding heads. Welder Mr. Yang Yongzeng, stencil 059418 completed the root pass of weld #1 with a welding current of approximately 370 amps and 31.1 volts and the cover pass welding current of approximately 690 amps and 25.1 volts. Welder Mr. Song Yinshu, stencil 059421 completed the root pass of weld #2 with a welding current of approximately 380 amps and 31.2 volts and the cover pass welding current of approximately 685 amps and 25.5 volts. Welder Mr. Xiang Huanfeng, stencil 059416 completed the root pass of weld #3 with a welding current of approximately 380 amps and 31.4 volts and the cover pass welding current of approximately 685 amps and 25.9 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #4 with a welding current of approximately 370 amps and 31.8 volts and the cover pass welding current of approximately 695 amps and 25.1 volts. Welder Mr. Hu Yongchang, stencil 203805 completed the root pass of weld #5 with a welding current of approximately 390 amps and 31.6 volts and the cover pass welding current of approximately 680 amps and 25.1 volts. Welder Mr. Xiang Jie, stencil 059378, completed the root pass of weld #6 with a welding current of approximately 385 amps and 31.7 volts and the cover pass welding current of approximately 685 amps and 26.0 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 Yan Fei 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 Ultrasonic (UT) Inspector Mr. Xue Hai Rong performed ultrasonic inspections of each of the six welds in the areas where Mr. Guo Yan Fei had marked for PMT testing. Following ZPMC’s UT acceptance the QA Inspector marked a total of 15 locations where macroetch samples were to be obtained. ZPMC then cut and prepared macroetch samples. ZPMC QC CWI Inspector Mr. Guo Yan Fei and ABF representative Mr. Huang Weng Guang visually inspected these macroetch samples and documented their acceptance on the ZPMC Production Monitoring Test Plate Inspection Report sheet dated July 02, 2010. This QA Inspector visually inspected each of these macroetch samples and items observed by the QA Inspector appeared to comply with project specifications and the QA Inspector documented this inspection on the “Production Monitoring Test Plate Inspection Report”. See the photograph below for additional information.



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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.

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