

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:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-014877**Date Inspected:** 18-Jun-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. Li Jia, Mr. Xu Tao, Mr. Yang Bai Giang

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 Segment Trial Assembly

This QA Inspector observed ZPMC welder Mr. Chen Zheng Hua, stencil 220067 is using shielded metal arc welding procedure WPS-345-SMAW-4G(4F)-FCM-Repair-1 to make 4G (overhead) position shielded metal arc repair weld SEG050A-014 as authorized on critical weld repair document B-CWR1607. This weld had been ultrasonically rejected and is located on OBG segment 9AE in the trial assembly area. This QA Inspector observed Mr. Chen Zheng Hua does not appear to have any flashlight or other light that he can use to illuminate this weld to determine if all of the welding slag has been removed prior making the next welding pass. This QA Inspector informed Mr. Chen Zheng Hua that he should have a light to allow him to see if all the slag has been removed from the previous weld pass. Mr. Chen Zheng Hua then obtained and used a small flashlight to illuminate this weld. This QA Inspector measured a welding current of approximately 140 amps and Mr. Chen Zheng Hua 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. This QA Inspector observed that the majority of the weld and adjacent base material appears to have been preheated to a minimum of 160 degrees Celsius as required by the

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

critical weld repair document and that one side of the weld has base material that is approximately 110 degrees Celsius instead of 160 degrees Celsius. This QA Inspector observed an electrical heating element is located on the interior of the OBG on one side of the weld and the area where the base material temperature is below 160 degrees Celsius does not have an electric heater. This QA Inspector informed ZPMC CWI Mr. Li Jia that the base material on one side of the weld is below 160 degrees Celsius and Mr. Li Jia had a worker install an additional electric heater on the inside surface where the base material needs additional preheating. Items observed on this date do not fully appear to comply with applicable contract documents. See the photographs below for additional information.

Approximately one hour later this QA Inspector observed ZPMC welder Mr. Chen Zheng Hua is using shielded metal arc welding procedure WPS-345-SMAW-1G(1F)-FCM-Repair-1 to make 1G (flat position) shielded metal arc repair weld SEG048B-046 as authorized on critical weld repair document B-CWR1618. This weld had been ultrasonically rejected and is located at OBG segment 8CE near panel point 71 in the trial assembly area. This QA Inspector measured a welding current of approximately 180 amps and Mr. Chen Zheng Hua 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 welding is being monitored by ZPMC CWI Mr. Li Jia. This QA Inspector observed that the weld and adjacent base material appears to have been preheated to a minimum of 160 degrees Celsius as required by the critical weld repair document and an energized electrical heating element is located on the exterior of the OBG on the opposite side of the weld of where the weld repair is being performed. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Fu Peng, stencil 205718 had recently used shielded metal arc procedure WPS-345-SMAW-2G(2F)-FCM-Repair-1 to perform minor welding repairs of traveler rail brackets TR2A-PP66-3G, TR1D-PP63-3G and TR1A-PP65-3G. This QA Inspector observed ZPMC QC has recorded a welding current of 140 amps and Mr. Wang Fu Peng appears to be certified to make these welds. Items observed on this date appear to comply with applicable contract documents.

OBG Bay 19

This QA Inspector observed ZPMC welder Mr. Xu Dalai, stencil 500909 is using welding procedure WPS-B-T-2134 to make flux cored overhead OBG bikepath fillet weld BK006A6-001-024. The QA Inspector observed ZPMC Quality Control Certified Welding Inspector Mr. Xu Tao has recorded Mr. Xu Dalai to have a welding current of 212 amps and 26.1 volts and Mr. Xu Dalai appears to be certified to make this weld. Items observed on this date appear to comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhou Dequan, stencil 062905 is using welding procedure WPS-B-T-2134 to make flux cored overhead OBG bikepath fillet weld BK006A8-001-035. The QA Inspector observed ZPMC Quality Control Certified Welding Inspector Mr. Xu Tao has recorded Mr. Xu Dalai to have a welding current of 212 amps and 26.1 volts and Mr. Zhou Dequan appears to be certified to make this weld. Items observed on this date appear to comply with applicable contract documents.

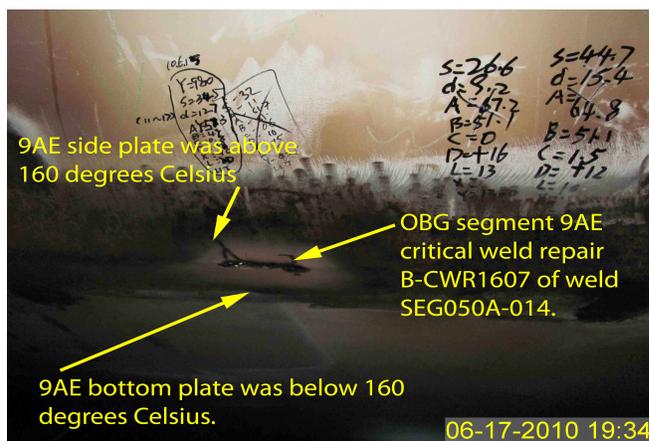
OBG BAY 9

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

WELDING INSPECTION REPORT

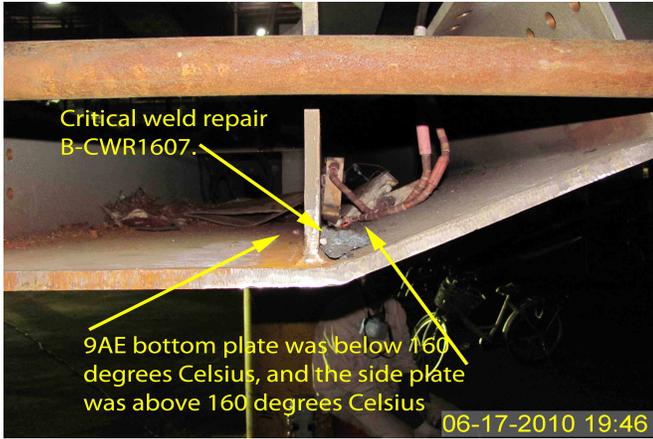
(Continued Page 3 of 4)

Up” OBG segment 13AE deck plates DP3148(PL3344A)-001, DP3148(PL3344B)-001 and DP3148(PL3344C)-001 which were welded using one single base plate starting at around 0015 hours using gantry #2. This QA Inspector observed four 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 has 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 527 mm per minute for the root passes and 517 mm per minute for the cover passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Mr. Xiang Huan Feng, stencil 59416 completed the root pass of weld #1 with a welding current of approximately 375 amps and 30.3 volts and the cover pass welding current of approximately 690 amps and 24.3 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #2 with a welding current of approximately 380 amps and 30.5 volts and the cover pass welding current of approximately 680 amps and 24.5 volts. Welder Mr. Hu Yongchang, stencil 203805 completed the root pass of weld #3 with a welding current of approximately 370 amps and 30.8 volts and the cover pass welding current of approximately 690 amps and 24.1 volts. Welder Mr. Xiang Jie, stencil 059378, completed the root pass of weld #4 with a welding current of approximately 380 amps and 30.5 volts and the cover pass welding current of approximately 690 amps and 25.0 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. Yang Bai Giang 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 NDE personnel performing 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 10 locations where macroetch samples are to be obtained. ZPMC then cut and prepared macroetch samples. ZPMC QC CWI Inspector Mr. Yang Bai Giang 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 June 18, 2010. This QA Inspector visually inspected each of these macroetch samples and items observed by the QA Inspector appear to comply with project specifications and the QA Inspector documented this inspection on the “Production Monitoring Test Plate Inspection Report”.



WELDING INSPECTION REPORT

(Continued Page 4 of 4)



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
