

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-014847**Date Inspected:** 13-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. Xu Tao and Mr. Shen Shi Gang

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 14

This QA Inspector observed ZPMC welder Mr. Zang Chang Ming, stencil 047864 is using shielded metal arc welding procedure WPS-345-SMAW-2G(2F)-Repair to make segment 12AW weld repair SEG3004X-050. This weld repair is documented on critical weld repair document B-CWR-1500 which has been approved by Caltrans Engineering. Step 10 states: preheat to 160 degrees Celsius and step 11 states: QC and a Lead CWI shall enforce interpass cleaning by performing visual inspection prior to the deposition of each pass. This QA Inspector observed the base material where this weld repair is being made is below 140 degrees Celsius and that there is no ZPMC Certified Welding Inspector in OBG Bay 14 where this welding is taking place. This QA Inspector asked ZPMC QC Inspector Mr. Li Jie if he is aware that the CWR requires the base material to be a minimum of 160 degrees Celsius and that a Lead CWI needs to be monitoring the interpass cleaning of this weld. Mr. Li Jie said welder 47864 stopped "for a rest" and that he will phone the CWI to come to this area. When ZPMC CWI Mr. Xu Tao arrived this QA Inspector informed him that this QA Inspector is going to issue an incident report due to failure to maintain the base material temperature and not having a CWI present to monitor interpass cleaning of

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the weld. ZPMC then heated the base material to a minimum of 160 degrees Celsius and proceeded to complete this weld. This QA Inspector observed a welding current of approximately 170 amps and Mr. Zang Chang Ming appears to be certified to make this weld. Items observed on this date do not appear to fully comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Pan Wei, stencil 218662 is using shielded metal arc welding procedure WPS-B-P-2112-FCM-1 to make tack welds between deck plate diaphragms and floor beams at OBG segment 12AW panel points PP111 and PP112. This QA Inspector observed a torch was used to preheat the base material prior to welding and that Mr. Sun Gusong 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. He Hanbi, stencil 202122 is using flux cored welding procedure WPS-B-T-2233-TC-U2-F to make segment weld SEG3005B-003. This QA Inspector observed ZPMC QC Inspector Mr. Li Jie has recorded a welding current of 206 amps and 25.2 volts. This QA Inspector observed 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 Mr. Xi Xianyou, stencil 047866 is using flux cored welding procedure WPS-B-T-2233-TC-U2-F to make segment weld SEG3005D-004. This QA Inspector observed ZPMC QC Inspector Mr. Li Jie has recorded a welding current of 206 amps and 25.2 volts. This QA Inspector observed Mr. Xi Xianyou 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. Hue Junrong, stencil 201215 is using flux cored welding procedure WPS-B-T-2233-TC-U2-F to make segment weld SEG3005E-001. This QA Inspector observed ZPMC QC Inspector Mr. Li Jie has recorded a welding current of 203 amps and 25.6 volts. This QA Inspector observed Ms. Hue Junrong appears 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 and Caltrans QA Inspector Mr. Daniel Barrentine monitored welding of closed rib Production Monitoring Test (PMT) representing deck plates DP3119-001 and DP3120-001 which were welded using one single base plate starting at around 0015 hours using gantry #1. ZPMC has not performed a PMT for several months. Yesterday ZPMC attempted to perform the first PMT for deck panels that will be used in the construction of OBG segment 13AW, and welding machine #6 had a mechanical problem that prevented successful completion of that PMT. Today ZPMC utilized the same three "U" rib plates that they attempted to weld yesterday, and all welding equipment appeared to function properly. ZPMC is using a different welding procedure which requires a minimum base material preheat of 60 degrees Celsius. ZPMC used a torch to preheat the three "U" ribs prior to commencement of both welding processes. 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 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 528

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mm per minute for the root passes and 518 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. Yang Yongzheng, stencil 059418 completed the root pass of weld #1 with a welding current of approximately 350 amps and 30.4 volts and the cover pass welding current of approximately 680 amps and 25.0 volts. Welder Mr. Song Yinshu, stencil 059421 completed the root pass of weld #2 with a welding current of approximately 350 amps and 30.2 volts and the cover pass welding current of approximately 700 amps and 25.6 volts. Welder Mr. Xiang Huanfeng, stencil 059416 completed the root pass of weld #3 with a welding current of approximately 350 amps and 30.5 volts and the cover pass welding current of approximately 690 amps and 24.8 volts. Welder Mr. Jiang Shuangchen, stencil 201788 completed the root pass of weld #4 with a welding current of approximately 345 amps and 30.8 volts and the cover pass welding current of approximately 695 amps and 25.5 volts. Welder Mr. Hu Yongchang, stencil 203805 completed the root pass of weld #5 with a welding current of approximately 380 amps and 30.0 volts and the cover pass welding current of approximately 690 amps and 24.8 volts. Welder Mr. Xiang Jie, stencil 059378, completed the root pass of weld #6 with a welding current of approximately 360 amps and 30.4 volts and the cover pass welding current of approximately 680 amps and 25.0 volts.

This QA Inspector performed random visual inspection of the weld joint fitups and root passes and items observed appear to comply with project specifications. See Caltrans QA Inspector Mr. Daniel Barrentine's inspection report for additional monitoring of this production Monitoring Testing.



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