

**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-001985**Date Inspected:** 21-Apr-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Sun Wei**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:**

Caltrans Quality Assurance (QA) Inspector Tim McClendon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

The Caltrans QA Inspector observed welding utilizing the dual process WPS-B-T-2342-U1 (U-rib)-3 welding procedure specification for closed rib welding of the Production Monitoring Test (PMT) #1 for Production Panel DP486-001 and DP433-001 on closed U-rib Partial Joint Penetration (PJP) welds in Bay #1. ZPMC welding personnel performed Gantry Machine, Gas Metal Arc Welding (GMAW) for the root pass and immediately performed Gantry Machine, Submerged Arc Welding (SAW) for the cover/final pass on PMT #1, using gantry machine #2. Upon completion of the SAW pass on U-rib PJP welds on PMT #1 Visual Testing (VT) was performed on weld #1 through #6 by ZPMC personnel and was rejected. Then ZPMC welding personnel performed Gantry Machine, Gas Metal Arc Welding (GMAW) for the root pass and immediately performed Gantry Machine, Submerged Arc Welding (SAW) for the cover/final pass on PMT #2, using gantry machine #2. Upon completion of the SAW pass on U-rib PJP welds on PMT #2 Visual Testing (VT) was performed on weld #1 through #6 by ZPMC personnel and was accepted, VT was also verified by the Caltrans QA. Ultrasonic Testing (UT) was then performed by ZPMC inspector and PMT #2 was determined to be acceptable. Macro etch samples were selected by the Caltrans QA inspector on PMT #2. The following welders were observed welding the corresponding weld joints for PMT #1, weld joint (wj) #1 was welded by Mr. Xu Guo Yin, wj #2 was welded by Mr. Jiang Ting Guong, wj #3 was welded by Mr. Xu Guo Xin, wj #4 was welded Mr. Xiang Jie, wj #5 was welded by Mr. Xiang Huan Feng and wj #6 was welded by Mr. Chen Jie. Welding operator was Mr. Bi Ya Hui. The welding parameters were observed and recorded for each welder and the minimum and maximum welding

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## WELDING INSPECTION REPORT

( Continued Page 2 of 2 )

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variables of the PMT during GMAW are listed as follows, amperage 354 to 382 voltages 30.0 to 30.7 with a travel speed of 532 mm/min. The welding parameters were observed and recorded for each welder and the minimum and maximum welding variables of the PMT during SAW are listed as follows, amperage 674 to 681 voltages 24.6 to 25.4 with a travel speed of 520 mm/min.

After welding was completed on PMT #2, ZPMC personnel performed welding utilizing the GMAW process on Production Panel DP433-001, on U-rib #U225 for wj #1 and wj #2, #224 for wj #3 and wj #4, #233 for wj #5 and wj #6, #234 for wj #7 and wj #8 and #226 for wj #9 and wj #10. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Chen Jie welded wj #1, Mr. Xiong Huan Feng welded wj #2, Mr. Xiang Jie welded wj #3 and #5, Mr. Xu Guo Xin welded wj #4 and #6, Mr. Jiang Ting Guang welded wj #7 and wj #9 and Mr. Gao Xin Dong welded wj #8 and wj #10. The welding variables of the GMAW pass on production panel closed U-ribs PJP welds were observed and recorded for each welder. The minimum and maximum weld parameters are as follows, amperage 356 to 379, and voltage 29.8 to 30.9 with a travel speed of 532mm/min.

After completion of the GMAW welding on Production Panel DP433-001, ZPMC personnel performed welding utilizing GMAW process on DP486-001, on U-rib #U218 for wj #1 and wj #2, #U215 for wj #3, wj #4, and #U231 for wj #5 and #6. Only the following welders were observed welding production deck plate on closed U-ribs PJP welds before the end of this QA inspectors shift, Mr. Xiang Jie welded wj #3, and Mr. Xu Guo Xin welded wj #4. The welding variables of the GMAW pass on production panel closed U-ribs PJP welds were observed and recorded for each welder. The minimum and maximum weld parameters are as follows, amperage 367 to 372, and voltage 30.6 with a travel speed of 532mm/min.

The ambient temperature in bay # 1 was recorded at 18° Celsius with the production panel temperature recorded at 18° Celsius prior to welding.

### **Summary of Conversations:**

No relevant conversations spoken on this date.

### **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 Pat Lowry, (858) 344-2712, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	McClendon, Timothy	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar, Robert	QA Reviewer

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