

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-001767**Date Inspected:** 21-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 600**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**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 DP488-002 and DP110-001 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 #1. Upon completion of the SAW pass on U-rib PJP welds on PMT #1 Visual Testing (VT) was performed on welds #1 through #6 by ZPMC personal all welds were VT accepted even though weld #6 of PMT #1 had 3 incomplete fusion indications totaling 34mm in length. The allowable length of incomplete fusion is 25mm on each 500mm weld, as per 602 agreement letter. It appeared to the Caltrans QA inspector, PMT #1 was unacceptable, and an incident report will be written on this issue. ZPMC agreed to weld PMT #2, in order to move forward with production. However ZPMC did not agreed with the Caltrans inspector that PMT #1 was unacceptable. ZPMC welding personnel performed Gantry Machine, GMAW for the root pass and immediately performed Gantry Machine, SAW for the cover/final pass on PMT #2. Upon the completion of the SAW pass on PMT #2, Visual Testing (VT) was performed by ZPMC and Caltrans inspectors and PMT #2 appears to meet the requirements of the VT acceptance criteria. Ultrasonic Testing (UT) was then performed by ZPMC and Caltrans inspectors 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 #2,

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

weld joint (wj) #1 was welded by Mr. Chen Jie, wj #2 was welded by Mr. Xang Jie, wj #3 was welded by Mr. Gao Xin Dong, wj #4 was welded Mr. Zhong Sheuo Hun, wj #5 was welded by Mr. Dong Yi Qun and wj #6 was welded by Mr. Zhao Cheng Shuang. Welding operator was Mr. Bi Ya Hui. The welding parameters were observed and recorded for each welder and the minimum and maximum welding variables of the PMT during GMAW are listed as follows, amperage 346 to 370 voltages 29.6 to 30.1 with a travel speed of 530 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 673 to 685 voltages 24.7 to 25.8 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 DP110-002, on U-rib #U56 for wj #1 and wj #2, #U30 for wj #3 and wj #4, #U54 for wj #5 and wj #6 and #U32 for wj #7 and wj #8. However as per Agreement letter 602 "If a PMT specimen does not meet the acceptance criteria mentioned (within the letter), the welding parameters shall be adjusted and two consecutive successful additional PMT panels shall be welded before fabrication of production panels for this shift". The Caltrans QA inspector observed only one PMT that was welded prior to starting welding on production panel DP110-001, an incident report will be written on this issue. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Chen Jie welded wj #8, Mr. Xang Jie welded wj #7, Mr. Gao Xin Dong welded wj #6 and #4, Mr. Zong Sheuo Hun welded wj #5 and #3, Mr. Dong Yi Qun welded wj #2 and Mr. Zhao Cheng Shuang welded wj #1. 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 352 to 368, voltage 29.6 to 30.7 with a travel speed of 530mm/min.

After completion of the GMAW welding on Production Panel DP110-001, ZPMC personnel performed welding utilizing GMAW process on DP488-001, on U-rib #U37 for wj #1 and wj #2, #U47 for wj #3 and wj #4 and #U448 for wj #5 and wj #6. The following welders were observed welding production deck plate closed U-ribs PJP welds. The following welders were observed welding production deck plate U-rib welds, Mr. Chen Jie welded wj #1, Mr. Xang Jie welded wj #2, Mr. Gao Xin Dong welded wj #3 and wj #5 and Mr. Zhong Sheuo Hun welded wj #4 and wj #6. 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 354 to 381, voltage 30.0 to 30.6 with a travel speed of 529mm/min.

After completion of the GMAW on Production Panel DP488-001, ZPMC personnel performed welding utilizing SAW process on Production Panel DP488-001. The following welders were observed welding production deck plate u-ribs welds, Mr. Chen Jie welded wj #1, Mr. Xang Jie welded wj #2, Mr. Gao Xin Dong welded wj #3 and wj #5 and Mr. Zhong Sheuo Hun welded wj #4 and wj #6. 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 673 to 684, voltage 24.8 to 25.2 with a travel speed of 515mm/min.

The ambient temperature in bay # 1 was recorded at 13 degrees Celsius with the production panel temperature recorded at 16 degrees Celsius prior to welding.

Summary of Conversations:

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

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.

Inspected By:	McClendon, Timothy	Quality Assurance Inspector
Reviewed By:	Cuellar, Robert	QA Reviewer
