

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-001848**Date Inspected:** 22-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 600**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2230**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 DP108-002 and DP189-001 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 weld #1 through #6 by ZPMC personnel and was rejected due to overlap on weld #6 exceeding the allowable limits. ZPMC welding personnel then 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 was rejected due to overlap on weld #4 exceeding the allowable limits. ZPMC welding personnel then performed Gantry Machine, GMAW for the root pass and immediately performed Gantry Machine, SAW for the cover/final pass on PMT #3. Upon the completion of the SAW pass on PMT #3, Visual Testing (VT) was performed by ZPMC and was accepted then VT was performed by the Caltrans QA and was accepted. Ultrasonic Testing (UT) was then performed by ZPMC and Caltrans inspectors and PMT #3 was determined to be acceptable. Macro etch samples were selected by the Caltrans QA inspector on PMT #3. The following welders were observed welding the corresponding weld joints for PMT #3, weld joint (wj) #1 was welded by Mr. Song Yin Shu, wj #2 was welded by Mr. Xang Jie, wj #3 was

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

welded by Mr. Gao Xin Dong, wj #4 was welded Mr. Zhong Sheuo Hui, wj #5 was welded by Mr. Chen Jie and wj #6 was welded by Mr. Xu Guo Yin. 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 352 to 373 voltages 29.8 to 30.2 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 671 to 680 voltages 24.6 to 25.2 with a travel speed of 520 mm/min.

After welding was completed on PMT #3, ZPMC personnel performed welding utilizing the GMAW process on Production Panel DP108-002, on U-rib #U81 for wj #1 and wj #2, #U82 for wj #3 and wj #4, #U85 for wj #5 and wj #6 and #U91 for wj #7 and wj #8.. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Song Yin Shu welded wj #1, Mr. Xang Jie welded wj #2, Mr. Gao Xin Dong welded wj #3 and #5, Mr. Zhang Shuo Hui welded wj #4 and #6, Mr. Chen Jie welded wj #7 and Mr. Xu Guo Yin welded wj #8. 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 344 to 366, and voltage 29.4 to 30.8 with a travel speed of 530mm/min.

After completion of the GMAW welding on Production Panel DP108-002, ZPMC personnel performed welding utilizing GMAW process on DP189-001, on U-rib #U75 for wj #1 and wj #2, #U77 for wj #3 and wj #4, #U120 for wj #5 and #6, #U29 for #U29 for wj #7 and #8 and #U89 for wj #9 and wj #10. The following welders were observed welding production deck plate U-rib welds, Mr. Song Yin Shu welded wj #1, Mr. Xang Jie welded wj #2, Mr. Gao Xin Dong welded wj #3 and #5, Mr. Zhang Shuo Hui welded wj #4 and #6, Mr. Chen Jie welded wj #7 and #9, and Mr. Xu Guo Yin welded wj #8 and #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 348 to 382, and voltage 29.7 to 30.7 with a travel speed of 530mm/min.

After completion of the GMAW on Production Panel DP189-001, ZPMC personnel performed welding utilizing SAW process on Production Panel DP189-001. The following welders were observed welding production deck plate U-rib welds, Mr. Song Yin Shu welded wj #1, Mr. Xang Jie welded wj #2, Mr. Gao Xin Dong welded wj #3 and #5, Mr. Zhang Shuo Hui welded wj #4 and #6, Mr. Chen Jie welded wj #7 and #9, and Mr. Xu Guo Yin welded wj #8 and #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 670 to 682, and voltage 24.8 to 25.2 with a travel speed of 515mm/min.

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 DP137-001 weld #3 and DP102-001 weld #8 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 one weld of 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 by ZPMC personnel and was accepted. Only one weld was welded due to only one weld on each deck panel needed to be completed they were not completed previously due to an unknown problem with the gantry machine. VT was then performed by the Caltrans QA and was accepted. Ultrasonic Testing (UT) was then performed by ZPMC and Caltrans inspectors and PMT #1 was determined to be acceptable.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

Three Macro etch samples were selected on this weld by the Caltrans QA inspector on this one weld PMT #1. The following welder was observed welding weld joint #1 for PMT #1, Mr. Han Chang Hou. An incident will be written on this issue because the Caltrans special provisions state, in part, U-ribs welds shall be welded simultaneously.

After welding was completed on PMT #1, ZPMC personnel performed welding utilizing the SAW process on Production Panel DP137-001, on U-rib #U45 for wj #3. The following welder was observed welding production deck plate on closed U-ribs PJP weld, Mr. Han Chang Hou welded wj #3. The welding variables of the SAW pass on production panel closed U-ribs PJP weld was observed and recorded for the welder. The weld parameters are as follows, amperage 680, and voltage 25.3 with a travel speed of 510mm/min. Only the SAW weld pass was not completed previously to this deck panel.

After welding was completed on PMT #1, ZPMC personnel performed welding utilizing the SAW process on Production Panel DP102-001, on U-rib #U75/U31 for wj #8. The following welder was observed welding production deck plate on closed U-ribs PJP welds, Mr. Han Chang Hou welded wj #8. The welding variables of the SAW pass on production panel closed U-ribs PJP weld was observed and recorded for the welder. The weld parameters are as follows, amperage 676, and voltage 25.3 with a travel speed of 512mm/min. Only the SAW weld pass was not completed previously to this deck panel.

The ambient temperature in bay # 1 was recorded at 13 degrees Celsius with the production panel temperature recorded at 15 degrees 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.

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