

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-001940**Date Inspected:** 08-Apr-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**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 DP085-001 and DP274-001 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 #4 by ZPMC personnel and was accepted then VT was performed by the Caltrans QA and was accepted. Ultrasonic Testing (UT) was then performed by ZPMC inspector and PMT #1 was determined to be acceptable. Macro etch samples were selected by the Caltrans QA inspector on PMT #1. The following welders were observed welding the corresponding weld joints for PMT #1, weld joint (wj) #1 was welded by Mr. Chen Jie, wj #2 was welded by Mr. Han Chang Hou, wj #3 was welded by Mr. Zhang Shoa Hui and wj #4 was welded Mr. Song Yin Shu. 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 349 to 365 voltages 30.3 to 30.8 with a travel speed of 525 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 683 voltages 24.6 to 25.1 with a travel speed of 515 mm/min.

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After welding was completed on PMT #1, ZPMC personnel performed welding utilizing the GMAW process on Production Panel DP085-001, on U-rib #U84 for wj #1 and wj #2, #U76 for wj #3 and wj #4 and #U87 for wj #5 and wj #6. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Chen Jie welded wj #1, Mr. Han Chang Hou welded wj #2, Mr. Zhang Shoa Hui welded wj #3 and #5, and Mr. Song Yin Shu welded wj #4 and #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 350 to 370, and voltage 30.6 to 31.1 with a travel speed of 527mm/min.

After completion of the GMAW welding on Production Panel DP085-001, ZPMC personnel performed welding utilizing GMAW process on DP274-001, on U-rib #U19 for wj #1 and wj #2, #U9 for wj #3 and wj #4, and #U13 for wj #5 and #6. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Chen Jie welded wj #1, Mr. Han Chang Hou welded wj #2, Mr. Zhang Shoa Hui welded wj #3 and #5, and Mr. Song Yin Shu welded wj #4 and #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 355 to 373, and voltage 31.1 to 31.4 with a travel speed of 530mm/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 DP382-001 and DP436-001 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 accepted then VT was performed by the Caltrans QA and was accepted. Ultrasonic Testing (UT) was then performed by ZPMC inspector and PMT #1 was determined to be acceptable. Macro etch samples were selected by the Caltrans QA inspector on PMT #1. 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. Xiang Jie, wj #3 was welded by Mr. Gao Xin Dong, wj #4 was welded Mr. Jiang Ting Guang, wj #5 was welded by Mr. Xiang Huan Feng and wj #6 was welded by Mr. Feng Chuan Hang. 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 360 to 371 voltages 29.6 to 30.1 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 672 to 681 voltages 24.8 to 25.2 with a travel speed of 512 mm/min.

After welding was completed on PMT #1, ZPMC personnel performed welding utilizing the GMAW process on Production Panel DP436-001, on U-rib #U40 for wj #1 and wj #2, #U24 for wj #3 and wj #4, #U28 for wj #5 and wj #6, #U18 for wj #7 and wj #8 and #U31 for wj #9 and wj #10. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Xu Guo Yin welded wj #1 and wj #3, Mr. Xiang Jie welded wj #2 and wj #4, Mr. Guo Xin Dong welded wj #5 and #7, Mr. Jiang Ting Guang welded wj #6 and #8, Mr. Xiang Huan Feng welded wj #9 and Mr. Feng Chuan Hong welded 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 358 to 382, and voltage 29.8 to 30.5 with a travel speed of 530mm/min.

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After completion of the GMAW welding on Production Panel DP436-001, ZPMC personnel performed welding utilizing GMAW process on DP382-001, on U-rib #U40 for wj #1 and wj #2, #U24 for wj #3 and wj #4, #U28 for wj #5 and wj #6, #U18 for wj #7 and wj #8 and #U31 for wj #9 and wj #10. The following welders were observed welding production deck plate on closed U-ribs PJP welds, Mr. Mr. Xu Guo Yin welded wj #1 and wj #3, Mr. Xiang Jie welded wj #2 and wj #4, Mr. Guo Xin Dong welded wj #5 and #7, Mr. Jiang Ting Guang welded wj #6 and #8, Mr. Xiang Huan Feng welded wj #9 and Mr. Feng Chuan Hong welded 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 361 to 375, and voltage 29.7 to 31.1 with a travel speed of 535mm/min.

The ambient temperature in bay # 1 was recorded at 15 degrees Celsius with the production panel temperature recorded at 16 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
