

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-003570**Date Inspected:** 11-Aug-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:** Lvliqing and Ye Yong Jun**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 and SAS Tower Fabrication**Summary of Items Observed:**

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on sub-assembly Bays mentioned below;

Bay 1: OBG Sub assembly

QA Inspector J. Lizardo randomly observed ZPMC welding utilizing the dual process WPS-B-T-2342-U1 (U-rib)-3 welding procedure specification for closed rib welding for Production Panel DP120-002(8BW), on U50 and U66 U-rib Partial Joint Penetration (PJP) welds in Bay #1. ZPMC welding personnel performed gantry mounted machine, Gas Metal Arc Welding (GMAW) for the root pass. ZPMC welders performing the task were ID #201840 and ID #059400 for U-rib U50 and ID #201788 and ID #059421 for U-rib U66. This QA observed ABF/QA and ZPMC/CWI monitoring welding parameters.

Bay 2: 114M Tower Mock-ups, Plate Cutting, Rolling

This QA Inspector observed machining/beveling of 2-40mm thick plates marked P834 and P643 (double bevel of 45 degree two sides of the plate) for tower double diaphragm web plate seen in progress and 8-30mm thick plates marked FB13A and FB4A transition machining on both sides of the plate also seen in progress. Cutting of 75mm thick plates marked P1525 and P1524 seen in progress and 4-38mm thick plates marked P1545, SA421 and SA361 with various sizes and shapes seen complete. Rolling machine so with tower mock-up 114M were both idle.

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Bay 3: OBG side/bottom/edge panel

Tack welding/fit-up of fillet weld connection of 6-open rib stiffener to various panels SP398-001-006/007, SP401-001, SP408-001, 2-open rib stiffener EP103-001-001~004, EP107-001-001~004 using TL-508 electrode and 3-open rib stiffener DP728-002-001~006 using THJ506Fe electrode this QA observed. Preheating with ceramic thermal blanket 2-open rib stiffener to edge plate EP108-001-003/004 prior welding at gantry #1 also noted.

The QA Inspector randomly observed ZPMC welder operator Lizhao Qian ID Number 048810, utilizing the FCAW Process in the 2F (Horizontal Fillet) Position with gantry(#1) mounted welding apparatus and ZPMC WPS WPS-B-T-2132-3 , to weld open-ribs on edge plate EP108-001-001/002. The QA Inspector randomly observed ZPMC CWI Wu Ming Cai monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 302 amps, 30.4 volts; 306 amps, 30.7 volts. Travel speed for all welds was randomly observed at 440 mm per minute. The weld parameters appeared to comply with contract requirements.

Bay 4: Tower Diaphragm

This QA Inspector randomly observed ZPMC welders ID #067079 and ID #067275 utilizing the FCAW Process in the 3G (Vertical Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld fill passes on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly SSD1-SA291 -weld joints 4B and 12B respectively. The QA Inspector randomly observed ZPMC CWI Ye Yong Jun monitoring preheat and weld parameters.

This QA observed ZPMC welder ID #068918, ID #053753, ID #066416, and ID #048659 SMAW(2G) PJP welding fill pass on 40mm web plate to tower double diaphragm(bottom) ESD1-SA234 B/B weld joints 5 and 6. ZPMC welders were noted utilizing Excalibur E9018M H4R, 4.8mm diameter electrode. The QA Inspector randomly observed ZPMC CWI Zhashi monitoring weld parameters.

This QA observed two ZPMC welders, ID #054460, and ID #202821 utilizing the FCAW Process in the 2F (Horizontal) Position with a 1.4mm diameter electrode, filler metal brand K-71TSR, semi automatic with ZPMC WPS WPS-B-T-4132 to weld fillet fill pass on fillet weld connection between tower diaphragm plate to diaphragm flange WSD1-SA317-2. The QA Inspector randomly observed ZPMC CWI Ye Yong Jun monitoring weld parameters.

Heat straightening was observed on tower diaphragm flange ESD1-SA318 weld joints 1, 2,3A/B, and 4A/B due to welding distortion. Natural gas was used with thermal heat input of less than 600 degree C following procedure HSR1(T)-3126.

Bay 7: OBG - Floor Beam Sub Assembly

This QA randomly observed ZPMC welder ID Number 066912, utilizing the FCAW Process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H in the 1G (Horizontal Groove) Position with ZPMC WPS WPS-B-T-2231-Tc-U4b-F to weld fill pass on flange to web plate corner joint of corner assembly CA012-057/058. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring preheat and weld parameters.

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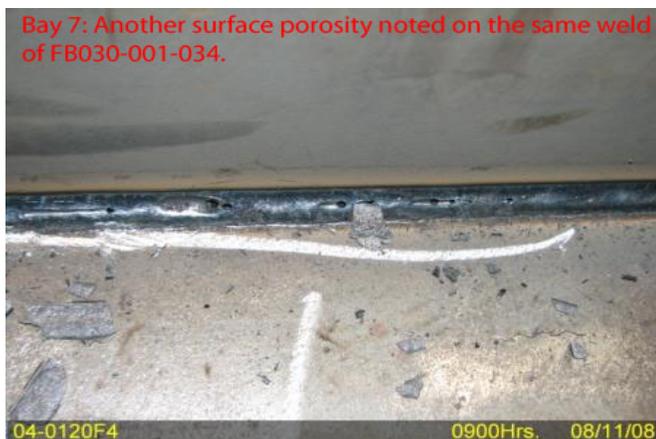
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The QA Inspector randomly observed ZPMC welder Hong Shuili ID Number 044815, utilizing the FCAW Process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H in the 3G (Vertical Groove) Position with ZPMC WPS WPS-B-T-2233-Tc-U4b-F, to weld fill pass on skewed connection plate (of 300mm x 300mm diagonal brace) to floor beam bottom flange Sub-Assembly SSD17-PP039-131/132. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters.

Bay 8: Tower Diaphragm

This QA randomly observed ZPMC welder Yang Gin Long ID Number 068919, utilizing the FCAW Process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H in the 1G (Horizontal Groove) Position with ZPMC WPS WPS-B-T-2231-B-U2-F-1 to weld root pass on plate splice butt joint of floor beam FB003-112-001 and FB003-107-006. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring preheat and weld parameters.

The QA Inspector randomly observed ZPMC Welders Niu Yue ID #066443, Li Bo ID #067993 and Liu Shouhai ID #066456 utilizing the Shielded Metal Arc Welding (SMAW) Process in the 3G (Vertical Groove) Position with ZPMC WPS WPS-B-T-3313-Tc-P5 to weld tower double diaphragm PJP fill pass on 40mm thick web plate to 60mm thick stiffener plate tee joint ESD1-SA348 B/B weld joints 11, 12, 15 and 16. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters. Preheating with ceramic thermal blanket 40mm thick web plate to (bottom) tower double diaphragm plate ESD1-SA316 B/B weld joints 3 and 4 prior PJP welding and SMAW tack welding of 40mm thick web plate to (top) tower double diaphragm plate SSD1-SA277B/B-9 was also observed.



Summary of Conversations:

No significant conversation occurred today.

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 Joshua Ishibashi, (858) 232-7081, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

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Reviewed By: Cuellar,Robert

QA Reviewer