

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-003285**Date Inspected:** 15-Jul-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:** Zhao Chen Sun and Lvliqing**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 4: Tower Diaphragm

This QA Inspector randomly observed four ZPMC welders Li Meng Qian ID #054460, Shi Yan Hao ID #053605 and Li Xue Hua welder 058174 and Wei Da Shua ID #051246 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 and cover passes on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly WSD1-SA268 weld joint 8A, SSD1-SA261 weld joint 4A, SSD1-SA333 A/B weld joints 3A and 10A respectively. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring preheat and weld parameters.

This QA observed ZPMC MT personnel Butin Rui perform 10% Magnetic Particle Testing on fillet welds of 6-WT(W21x57) rib stiffener to side panel SP177-001-007-018. It was noted that rust and scale have been removed by ZPMC workers on weld areas prior MT testing. Electromagnetic Yoke was used with alternating current (AC) as power source. The detection media used was dry red ferromagnetic particles and applied with powder blower while the magnetizing force is on and in addition, magnetizing force is applied in perpendicular direction (180 degree apart). This QA also observed ZPMC's conduct of MT on these welds deemed acceptable.

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This QA observed tack welded fillet weld connection between tower diaphragm plate to diaphragm flange ESD1-SA317 has a measured gap of 5.0mm maximum all around. Tack welding/fit-up and pre-assembly of tower diaphragm flange WSD1-SA317 in progress using FCAW also noted.

Bay 7: OBG - Floor Beam Sub Assembly

The QA Inspector randomly observed ZPMC welder Liu Kai Ge ID Number 044830, utilizing the FCAW Process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H in the 3G (Horizontal Groove) Position with ZPMC WPS WPS-B-T-2233-Tc-U4-F, to weld fill pass after back gouging on skewed connection plate (of 300mm x 300mm diagonal brace) to floor beam bottom flange Sub-Assembly SSD10A-PP032-005/006. The QA Inspector randomly observed ZPMC QC Yang Ding monitoring weld parameters with the supervision of ZPMC CWI Hu Wei Qing.

The QA Inspector randomly observed ZPMC welder ID Number 068918, utilizing the Flux Cored Arc Welding (FCAW) Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2231-B-U2-F, to weld the fill pass on PJP corner joint between flange and web plate on longitudinal shear plate LD004-019-012. The QA Inspector randomly observed ZPMC CWI Hu We Qing, monitoring weld parameters.

FCAW fillet welding (2F) was observed on stiffener to web plate on floor beam sub-assembly FB028-001 weld joints 028/029 and flange to web plate FB020-001-114. ZPMC welders working on these were identified as Cheng Chuanzong ID# 044804 and Hong Shuili ID #044815 and Zhang Qing Quan ID #044774. ZPMC CWI Hu Wei Qing was noted monitoring the parameters.

Bay 8: Tower Diaphragm

This QA observed ZPMC MT personnel Butin Rui perform 100% Magnetic Particle Testing on three Tower Diaphragm plate splice butt joints NSD1-SA196A/B-1A1B, ESD1-SA348-10A10B and ESD1-SA301A/B-11A11B/12A12B. It was noted that rust and scale have been removed by ZPMC workers on weld areas prior MT testing. Electromagnetic Yoke was used with alternating current (AC) as power source. The detection media used was dry red ferromagnetic particles and applied with powder blower while the magnetizing force is on and in addition, magnetizing force is applied in perpendicular direction (180 degree apart). This QA also observed ZPMC's conduct of MT on these welds deemed acceptable.

This QA Inspector randomly observed ZPMC welder Chen Chao Nian ID #048688 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 pass on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly WSD1-SA370 weld joint 17B. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters.

Heat straightening was observed on tower diaphragm flange NSD1-SA270 weld joint 7A/B due to welding distortion. Natural gas was used with thermal heat input of less than 650 degree C and with the aid of 50-Ton hydraulic Ram following procedure HSR1(T)-2729.

This QA observed preheating to >180 degree C on tack welded fillet weld connection between tower diaphragm plate to diaphragm flange ESD1-SA309-1 prior welding. Gap measured at the connection was 3.0mm maximum

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all around the flange. After attaining required preheat, two ZPMC welder, Yan Shitian ID #062708 and Yuan Wei ID #066146 observed welding root pass on this connection 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. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters.

FCAW fillet welding (2F) was observed on flange to web plate on floor beam sub-assembly FB045-004 weld joints 011 and 012. ZPMC welders working on these were identified as Yan Shi Tian ID# 062708 and Wang Cai Li ID #045203. ZPMC CWI Hu Wei Qing was noted monitoring the parameters.

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,Josecito	Quality Assurance Inspector
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Reviewed By:	Cochran,Jim	QA Reviewer
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