

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-003474**Date Inspected:** 05-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:** Wu Zhi Feng and Zhashi**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 2: 114M Tower Mock-ups, Plate Cutting, Rolling

This QA Inspector observed machining/beveling of 2-40mm thick plates marked P9741 and P832 (double bevel of 45 degree two sides of the plate) seen complete. Machining transition on 5-22mm thick plates marked FB63A and FB64A being set up at the machining table. Cutting of 4-40mm thick plates marked P832, P541, P658 and P520 seen complete. Rolling machine and tower mock up 114M both noted idle.

Bay 3: OBG side/bottom/edge panel

The QA Inspector randomly observed ZPMC welder operators Wei Dashuai ID Number 051246 and Li Zhao 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 bottom plate BP310-001 weld joints 011/012 and 021/022 respectively. The QA Inspector randomly observed ZPMC CWI Wu Ming Cai monitoring weld parameters.

The QA Inspector randomly observed ZPMC welder Jiang Jingteng ID Number 046830, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-L2c-S-2, to weld the cover pass on

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plate butt splice of open rib stiffener for deck panel DP625-001-019. The QA Inspector randomly observed ZPMC CWI Wu Zhi Feng monitoring weld parameters.

Tack welding/fit-up of open rib stiffener to various panels using THJ506Fe electrode and preheat of 3-open rib stiffener to deck panel DP621-001-001~001 using ceramic thermal blanket at gantry #2 this QA observed.

Bay 4: Tower Diaphragm

This QA Inspector randomly observed four ZPMC welders ID #054460, ID #066751, ID #058174 and ID #037705 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/root passes on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly WSD1-SA318 A/B weld joint 12B, 9B and 7B and SSD1-SA291 weld joint 6A. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring preheat and weld parameters.

This QA observed two ZPMC welders Jao Heng Qing, ID #066420, Li Shufu ID and #066674 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 plates to diaphragm flange SSD1-SA333 A/B-9. The QA Inspector randomly observed ZPMC CWI Zhashi monitoring weld parameters.

Tack weld/fit-up of 40mm thick web plate to double tower diaphragm ESD1-SA318B/B-3 using Excalibur E9018M H4R, 4.8mm diameter noted. Grinding/cleaning of root pass on PJP weld connection of 40mm/60mm web plate to tower double diaphragm ESD1-SA234 B/B was also observed.

This QA perform 10% MT on fillet welds of rib stiffener to OBG side plate SP651-001-001~010 and SP647-001-001~010 and fillet weld connection of tower diaphragm plate to diaphragm flange SSD1-SA261-6.

Bay 7: OBG - Floor Beam Sub Assembly

This QA perform 10% MT on fillet welds of stiffener and flange to web plate of floor beam FB011-008. ZPMC/NDE also performed MT on fillet welds of stiffener and flange to web plate of floor beam FB016-008. In their MT, ZPMC has found 8 transverse indications on the fillet welds at various locations.

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 SSD11-PP045-131/132. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters.

This QA randomly observed ZPMC welder Zheng Mingye ID Number 066695, 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-U2a-F to weld root pass on flange to web plate corner joint of longitudinal shear plate LD003-019-012.

ZPMC/QC has noted one tack weld that has crack on continuity plate to floor beam bottom flange FB003-043-032.

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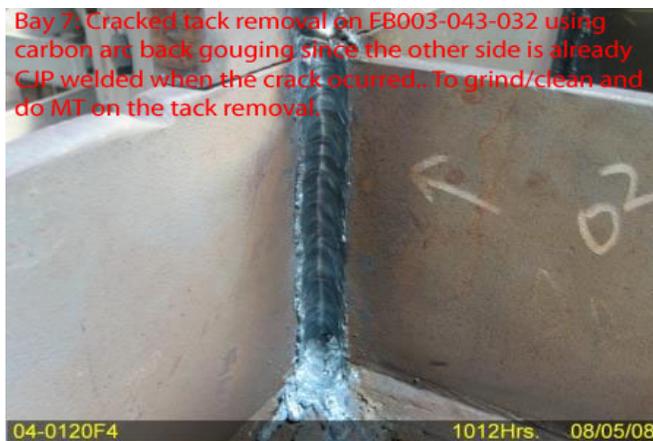
This QA has verified the existence of the crack and ZPMC used carbon arc gouging to remove the cracked tack weld since it is at the other side of CJP weld. This QA also witness the tack removal thru carbon arc gouging but not the MT of the removal since it was done during the other work shift. See photo below.

Bay 8: Tower Diaphragm

This QA was informed about 5 cracked tack welds found by ZPMC/QC on 5 different floor beam's stiffener plates and web to flange being tacked. One tack weld was obvious to have crack but the rest were uncertain due to no MT was done to determine their existence. ZPMC intends to remove the suspected cracked tack welds and do MT on their removal.

The QA Inspector randomly observed ZPMC Welder 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 PJP fill pass on 40mm thick web plate to 60mm thick stiffener plate tee joint ESD1-SA32 B/B weld joint 15 and 16. Tack/fit-up of 40/60mm web/stiffener plate to tower double diaphragm ESD1-SA316 B/B using 4.8mm diameter, Excalibur E9018M H4R electrode. The QA Inspector randomly observed ZPMC CWI Zhashi monitoring weld parameters.

The QA Inspector randomly observed ZPMC welder Xie Lian Fong ID Number 045247, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-L2c-S-2, to weld the fill pass on plate splice butt joint of floor beam sub-assembly FB007-008-021. QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld 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, Joselito

Quality Assurance Inspector

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Reviewed By: Cuellar,Robert

QA Reviewer