

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-003161**Date Inspected:** 02-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:	Hu Wei Qing and Zhao Chen Sun			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 square edge machining of 4-60mm thick x 400mm wide x 1010mm long plates marked P329, P402, P420, and P405, which appear to be stiffener were seen complete. Four 65mm thick plates marked P329, P220, P328 and P235 having dimension as previously mentioned edge machining also seen complete. Per ZPMC machine operator, these machined plates will be beveled at other ZPMC shop. Cutting of 70mm thick plate marked SA365(1pc), P709(1pc) and P637(10pcs). Rolling machine and tower mock up 114M were both noted idle.

Bay 3: OBG side/bottom/edge panel

The QA Inspector randomly observed ZPMC welder operator Sun Ti Yu ID #054459 utilizing the Flux Cored Arc Welding (FCAW) Process in the 2F (Horizontal Fillet) Position and a 1.4mm diameter electrode, filler metal brand Supercored 71H to manually weld fillet repair between 6-WT(W21x57) rib stiffener to side panel SP176-001 weld joints 007~018 using ZPMC Weld Procedure Specification (WPS) WPS-B-T-2123-3. QA Inspector Lizardo randomly observed ZPMC CWI Wu Ming Cai monitoring weld parameters.

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Tack welding/fit-up of 7-open rib stiffener to side panel SP394-001-011~014, SP388-001-011~014 and 6-open rib stiffener to side panel SP392-001-001~012, SP389-001-001~006 using TL-508, 4.0mm electrode was noted. This QA observed, paint coating removed, tight fit for fillet weld and preheating implemented prior tack welding. Drilling 16-24mm diameter bolt holes on 22mm thick X 13581mm long open rib stiffener for side panel SP391, SP395 and SP396 and oxy-acetylene gas cutting of 35mm thick plate for open rib stiffener of bottom plate BP308 was also observed.

This QA randomly observed ZPMC/NDE perform UT on SAW welded plate splice butt joints SP184-001-008, SP187-001-008, SP189-001-007, SP185-001-007 and SP188-001-007.

Bay 4: Tower Diaphragm

This QA Inspector randomly observed three ZPMC welders Li Meng Qian ID #054460, Shi Yan Hao ID #053605 and Li Shi Qiang welder 053609 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 ESD1-SA234 weld joint 3A, WSD1-SA-234 A/B weld joint 8A and NSD1-SA335 weld joint 17B respectively. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring weld parameters.

This QA observed two fillet weld connections between tower diaphragm plate to diaphragm flange that were previously reported due to their cracked tack weld are now completely removed. Weld connections SSD1-SA27 A/B -8 has 2 tack welds removed and SSD1-SA335-7 has 9 tack welds removed. Though these cracked tack welds are removed, there was no trace of MT performed on these tack removal to confirm base metal integrity.

Bay 7: OBG - Floor Beam Sub Assembly

This QA Inspector randomly observed ZPMC welder Liu Kai Ge ID # 044830 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-Tc-U4b-F, to weld fill pass on skewed connection plate to floor beam bottom flange weld joint SSD13A-PP030-133. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters.

QA Inspector J. Lizardo randomly observed ZPMC qualified welder Chen Chuan Zong ID #044824 groove welding fill pass on (flange to web plate) tee joint. Mr. Chen was observed welding in the 2G (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic at floor beam FB040-001-148. Another ZPMC welder Liu Long Xian ID # 044786 groove welding in the 2G position on stiffener end (200mm long) to web plate of floor beam FB040-001-067/066. On one of the fillet weld between stiffener to web plate of this floor beam was seen gouged due to cluster of rounded porosity (see photo below). QA inspector Lizardo observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS).

SMAW tack welding was also noted on multiple stiffeners to web plate of floor beam FB039-001 and FB027-001 using 4.0mm diameter, THJ506Fe electrode and heat straightening of welded spacer beam W5.5x25.5" long for floor beam FB006-046 weld joints 017, 018, 019 and 020 using oxy-acetylene gas with the aid of welded jig and

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less than 650 degree C thermal heat input following procedure HSR1(B)-1352 this QA observed.

Bay 8: Tower Diaphragm

The QA Inspector randomly observed ZPMC welder Xu Pei Pei ID Number 050323, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-L2c-S-1, to weld the fill pass on plate splice butt joint of floor beam FB090-001-032 and FB080-001-032. The QA Inspector randomly observed ZPMC CWI Lvliqing, monitoring weld parameters.

The QA Inspector randomly observed ZPMC welder Liu Yu Jun ID Number 202654, 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 LD003-013-012. The QA Inspector randomly observed ZPMC CWI Hu We Qing. This QA also noted longitudinal shear plate LD004-010-012 flange having notch 7.0mm deep and 40mm long. Since this notch is quite significant, ZPMC CWI Hu We Qing said that ZPMC would make CWR request to Caltrans to fix this notch. See photo below.



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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Cochran, Jim

QA Reviewer
