

**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-003472**Date Inspected:** 07-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

<b>CWI Name:</b>	Ye Yong Jun and Wu Ming Cai			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006			<b>Component:</b>	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 P630 and P641 (double bevel of 45 degree two sides of the plate) seen in progress. Cutting of 6-38mm thick plates marked P1504, P1213, SA363, SA360, P765 and BA421 with various sizes and shapes also in progress. Rolling machine and tower mock up 114M both noted idle.

Bay 3: OBG side/bottom/edge panel

The QA Inspector randomly observed ZPMC welder Jiang Jingteng ID Number 046830, utilizing the SAW Process in the 1G (Flat Groove) Position, to weld the fill pass on plate butt splice of open rib stiffener for deck panel DP623-001-022. The QA Inspector randomly observed ZPMC CWI Wu Zhi Feng monitoring weld parameters.

The QA Inspector randomly observed ZPMC welder operators Wei Dashuai ID Number 051246 and Xin Meng ID Number 053742, 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 3-open-Ribs on deck plate DP620-001 weld joints

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001/002 and 005/006 respectively. 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, 29.8 volts; 296 amps, 30.2 volts. Travel speed for all welds was randomly observed at 350 mm per minute. The weld parameters appeared to comply with contract requirements.

Tack welding/fit-up of open rib stiffener to various deck panels (DP517A and DP514A), DP517-001-001/002 and DP514-0018 and side panel SP404-001-004~015 using THJ506Fe electrode noted.

### Bay 4: Tower Diaphragm

This QA Inspector randomly observed ZPMC welder Li Shuofu ID #066674, and Han Kun ID #066751 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 NSD1-SA19-11B and SSD1-SA276-weld joints 5A and 3A respectively. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring preheat and weld parameters.

This QA observed ZPMC welder ID #066416 and 053753 SMAW(2G) PJP welding fill pass on 40mm web plate to tower double diaphragm(bottom) ESD1-SA234 B/B weld joints 1 and 2. Both welders were noted utilizing Excalibur E9018M H4R, 4.8mm diameter electrode. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring weld parameters.

Preheating to >180 degree C using ceramic thermal blanket tower diaphragm plate to diaphragm flange fillet weld connection WSD1-SA268-2 prior welding was also observed.

### Bay 7: OBG - Floor Beam Sub Assembly

This QA observed pre-assembly of CJP skewed connection plate to floor beam bottom flange at SSD9-PP043-131/132 and SSD9B-PP043-131/132 & SD15A-PP042-131/132 and SD15B-PP042-131/132.

FCAW(2G) CJP welding repair on CJP of flange to web plate tee joint FB015-009-045 due to UT reject per welding repair report B-WR715 and following procedure WPS-345-FCAW-2G(2F)-REPAIR 1. ZPMC welder Chen Chuanzong ID #044824 was seen performing the repair.

This QA Inspector randomly observed ZPMC welder Hong Shuili ID #044815 the FCAW Process in the 2G (Horizontal Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic to weld fill passes on groove of web plate to flange tee joint on floor beam FB031-001-148 following WPS-B-T-2232-Tc-U4b-F. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring preheat and weld parameters.

This QA randomly observed ZPMC welder Liu Kaige ID Number 044830, 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 to weld fill pass on flange to web plate corner joint of floor beam FB034-001-127. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring preheat and weld parameters.

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FCAW(2F) fillet welding on stiffener to web plate of longitudinal shear plate LD010-005-007 and floor beam FB031-001-040/041 utilizing 1.4mm diameter, filler metal brand E71T-1, class Supercored 71H by ZPMC welder Zhang Lliang ID #067036 and Wang Hong Lei ID #066687 this QA also observed.

## Bay 8: Tower Diaphragm

This QA observed SMAW(2G) welding root pass on 40mm web plate to tower diaphragm plate (bottom) ESD1-SA316 B/B weld joints 3 and 4 without tacking/installing the top diaphragm plate violating steps 2 and 3 of the Fabrication Procedure reference drawing number FP-MUA-20. With this infraction, incident report was issued against ZPMC.

This QA Inspector randomly observed ZPMC welder Jiang Yong Sheng ID number 045240 and 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 SSD1-SA270 weld joint 7B and ESD1-SA301 A/B weld joint 5A respectively. The QA Inspector randomly observed ZPMC CWI Zhashi monitoring weld parameters.

The QA Inspector randomly observed four ZPMC Welders ID #066361, ID #066179, ID #066268 and ID #067656 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-SA309 B/B weld joints 13, 14, 15 and 17. The QA Inspector randomly observed ZPMC CWI Zhashi 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.

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<b>Inspected By:</b>	Lizardo, Joselito	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar, Robert	QA Reviewer

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