

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-003377**Date Inspected:** 28-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:** Yu Dong Ping 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 4: Tower Diaphragm**

This QA Inspector randomly observed four ZPMC welders Dong You Jin ID #066416, Liao Yanfei ID #066398, Han Xiaofeng ID #054467 and Dai Lu ID #048659 utilizing the SMAW Process in the 3G (Vertical Groove) Position with a 4.8mm diameter electrode, filler metal brand Excalibur E9018M H4R with ZPMC WPS WPS-B-T-3313-Tc-P5, to weld PJP fill passes on groove 60mm stiffener to 40mm stiffener tee joint of double diaphragm SSD1-SA335 weld joints 11, 12, 13 and 14. The QA Inspector randomly observed ZPMC CWI Yu Dong Ping monitoring preheat and weld parameters. Tack weld/fit-up and pre-assembly of 40mm/60mm thick stiffener/connection plate to double tower diaphragm ESD1-SA238B/B also noted.

This QA Inspector randomly observed ZPMC welder ID #066239 and 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 ESD1-SA313 weld joints 4B and 11A respectively. The QA Inspector randomly observed ZPMC CWI Ye Yong Jun monitoring preheat and weld parameters.

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Heat straightening was observed on tower diaphragm flange WSD1-SA234 weld joint 3A/B, 4A/B, 5A/B, 6A/B, 7A/B, 8A/B, 9A/B and 17A/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)-2884. Another heat straightening was performed on 7-WT rib stiffener to side panel SP184(A)-001 weld joints 023~036 and 051~064 due to welding distortion. Oxy-acetylene gas was used with thermal heat input of less than 600 degree C following procedure HSR1(B)-1680 this QA observed.

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

The QA Inspector 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 3G (Horizontal Groove) Position with ZPMC WPS WPS-B-T-2233-Tc-U4-F, to weld fill pass on skewed connection plate (of 300mm x 300mm diagonal brace) to floor beam bottom flange Sub-Assembly SSD17-PP033-005/006. The QA Inspector randomly observed ZPMC CWI Huang Wen Pang monitoring preheat and weld parameters. Pre-assembly of another skewed connection plate to floor beam bottom flange SSD9-PP042-131/132 and SSD9B-PP042-131/132 was also noted.

This QA observed carbon arc gouging of CJP corner joint flange to web plate on floor beam FB039-001-136 due to UT reject per welding repair report B-WR603 and SMAW(1G) CJP welding repair on Tee joint of flange to web plate FB027-002-127 due to UT reject per welding repair report B-WR622 and following procedure WPS-345-SMAW-1G(1F)-FCM-REPAIR.

This QA Inspector randomly observed ZPMC welder Zheng Mingye ID #066695 utilizing the FCAW Process in the 1G (Flat Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2231-B-U2a-F, to weld PJP root pass on flange to web plate corner joint of longitudinal shear plate LD003-015-012. The QA Inspector randomly observed ZPMC CWI Huang Wen Pang monitoring preheat and weld parameters.

### Bay 8: Tower Diaphragm

This QA Inspector randomly observed ZPMC welder Jiang Yong Sheng ID number 045240 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-SA277 A/B weld joint 2B. The QA Inspector randomly observed ZPMC CWI Zhashi monitoring weld parameters. FCAW/tack welding and pre-assembly of tower diaphragm flange WSD1-SA290 also noted.

FCAW fillet welding (2F) was observed on stiffener to web plate of CSD3-PP001-100/101 and CDS3-PP022-100/101. ZPMC welders working on these were identified as Wang Cai Li ID Number 045203 and Wang Hong Lei ID #066687. Tack welding/fit-up of flange to web plate of floor beam FB060-002-005 using TL-508 electrode this QA also observed. ZPMC CWI Huang Wen Pang was noted monitoring the parameters.

Heat straightening was observed on tower diaphragm flange NSD1-SA196 A/B weld joint 2A/B, 4A/B, 5A/B, 11A/B and 17A/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)-2825.

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**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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