

**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-002805**Date Inspected:** 04-Jun-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Hu Wei Qing and Shazhi**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 these Bays mentioned below;

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

The QA Inspector randomly observed ZPMC welder Huang Xin Lai ID Number 044780, utilizing the Submerged Arc Welding (SAW) Process in the 1G Position (Flat Groove) with ZPMC WPS WPS-B-T-2221-B-L2c-S-1, to weld the cover pass in plate splice butt joint FB028-001-079 floor beam. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 525 amps, 30.0 volts with a travel speed of 437 mm per minute. The weld parameters appeared to comply with contract requirements. This QA again observed this same welder using the same process and procedure on floor beam plate splice butt joint welding fill pass on FG039-001-101. FCAW fillet welding (2F) was also observed on stiffeners to web plate of floor beam sub-assemblies FB015-007-013 and FB015-007-014. Two ZPMC welders working on these were identified as Hong Shuili ID# 044815 and Lu Long Xian ID# 044786. ZPMC CWI Hu Wei Qing was noted monitoring the parameters. FCAW fillet welding was also observed on welded spacer beam W5.5 X 25.5 inches long for various floor beams FB006-025-009, FB006-032-009, FB006-025-005/006 by two ZPMC welder Chen Chun Zong ID# 044824 and Zhang Liang ID# 067036 using WPS-B-T-2132-3. Tack welding/fit-up was continuing on stiffener to web plate of floor beam FB011-005-009 and FB009-003-009 using 4.0mm electrode TL-508. Cutting of access hole on 300mm

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X 300mm hollow steel diagonal brace using oxy-acetylene for various floor beam sub-assemblies was also observed.

The QA Inspector randomly observed ZPMC welder Zhang Qing Quan ID Number 044774, utilizing the Flux Cored Arc Welding (FCAW) Process in the 2G Position (Horizontal Groove) with ZPMC WPS WPS-B-T-2232-Tc-U4b-F, to weld the fill pass in flange to web corner joint FB016-007-045 floor beam. The QA Inspector randomly observed ZPMC CWI Huang Wen Pang monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 310 amps, 30.6 volts with a travel speed of 304 mm per minute. The weld parameters appeared to comply with contract requirements.

This QA observed one skewed connector plate to be welded (CJP) to the bottom flange of floor beam was short and had butter weld on one end (that has to be welded). The gap between the flange and connector plate was measured 8.0mm maximum and the butter weld was around 9.0mm thick. The butter weld was already done prior to install the plate but was still short. The buttering seems done unofficially and the butter weld itself is unacceptable. This QA informed ZPMC/QC Xia Yong Theng regarding this observation but said this has already seen by one of the ABF Inspector Dave Lorrey and he has issued an NCR against ZPMC for this infraction and advised ZPMC to replace this particular connection plate. See attached photo below.

## Bay 8: Tower Diaphragms

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-3221-B-U3c-S-1, to weld the fill pass on plate butt splices of Tower Diaphragm WSD1-SA309-11A/12A. The QA Inspector randomly observed ZPMC CWI Lvliqing, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 617 amps, 30.6 volts with a travel speed of 472 mm per minute. Weld parameters appeared to comply with contract requirements.

This QA observed bevel cutting to 45 degree using oxy-acetylene gas on 40mm thick plates marked P618, P481, P630, P641 and P482 along longitudinal edge (both sides) of the plate, which seems part of tower diaphragm sub-assembly.



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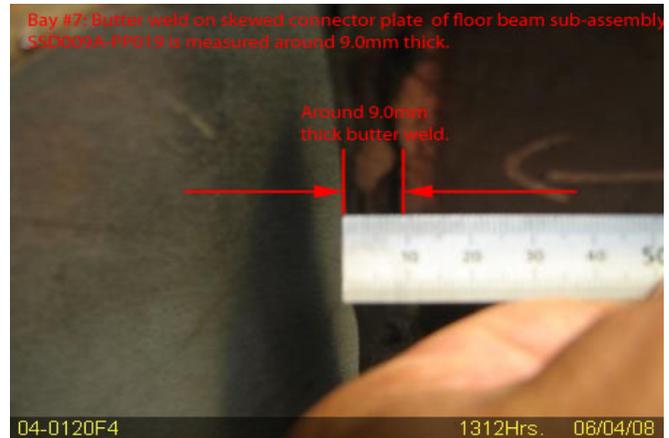
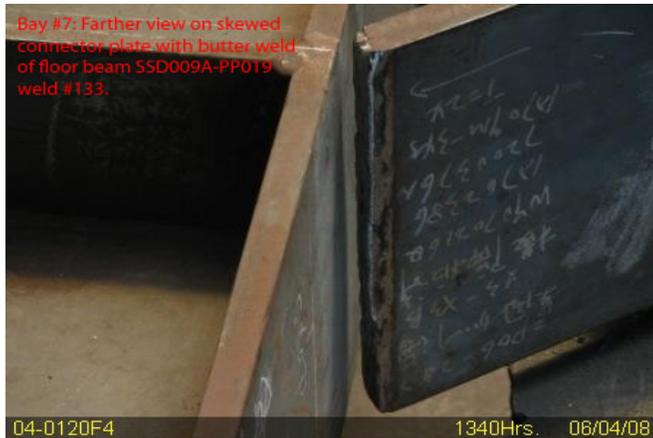
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## Summary of Conversations:

This QA had a discussion with ZPMC/QC Mr. Xia Yong Theng regarding skewed welded connector plate of 300mm X 300mm hollow steel diagonal brace to floor beam bottom flange that was short and seems unofficially buttered. As mentioned above, this issue has been taken care of by ABF Inspector by recommending to replace this plate.

## 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.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Cochran, Jim

QA Reviewer