

**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-002799**Date Inspected:** 03-Jun-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:** Lvliqing 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:

This QA Inspector was asked by Task Leader to follow up on tack welds that were reportedly have cracked on floor beam FB010-002-001(NS). Upon arrival, this QA observed the two tack welds that cracked have already been ground removed and tested/accepted with Magnetic Particle (MT) by ZPMC/QC. This QA went back to the office to get the electromagnetic yoke to MT verify the cracked tack weld removal but as soon as this QA arrived at the scene, the area where the cracked tack weld located was already FCAW fillet welded.

The QA Inspector randomly observed ZPMC welder Huang Xin Lan 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 FB020-001-101 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: 510 amps, 31.0 volts with a travel speed of 427 mm per minute. The weld parameters appeared to comply with contract requirements. Using the same process, welding position and WPS, this QA also observed ZPMC welder Sun Gu Zuo welding fill pass in plate splice butt joint FB028-002-079.

FCAW fillet welding (2F) was also observed on stiffener to web plate of floor beam sub-assemblies

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FB010-002-017/018, FB010-002-015/016 and FB016-007-003. Three ZPMC welders working on these were identified as Lin Long Xian ID# 044786, Hong Shin Li ID# 044815 and Liu Xie. ZPMC CWI Hu Wei Qing was noted monitoring the parameters. Tack welding/fit-up was continuing on stiffener to web plate of floor beam FB009-006-017 and FB012-011-017/018 using electrode TL-508. SMAW fillet repair welding(2F) on stiffener to web plate fillet weld due to undersize weld was observed on floor beams FB003-058-014 and FB003-036 weld numbers 070, 069, 061, 062, 077 and 078 using TL-508 electrode.

This QA randomly observed FCAW fillet welding on welded spacer beam W5.5 X 25.5 inches long for various floor beams FB006-050-017, FB029-013, FB006-025-015 and FB006-039 weld numbers 013~016 by two ZPMC welder Chen Chun Zong ID# 044824 and Zhang Liang ID# 067036 using WPS-B-T-2132-3. CJP FCAW welding was also noted on flange to web plate of floor beam FB012-003-043 utilizing WPS-B-T-2232Tc-U4b-F.

This QA randomly observed heat straightening of longitudinal panel LD004-001 weld number 001-012 due to welding distortion. Oxy-acetylene was used and less than 650 degree C thermal heat input was implemented following procedure HSR1(B)-1031. All other related welding activities include bevel cutting to 30 degree floor beam plates for splice butt joint and carbon arcing fillet weld on floor beam FB010-002-001(NS) due to surface porosity.

### 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 splice of Tower Diaphragm NSD1-SA196A/B-1A. The QA Inspector randomly observed ZPMC CWI Lvliqing, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 610 amps, 30.1 volts with a travel speed of 479 mm per minute. Weld parameters appeared to comply with contract requirements.

This QA observed excavation/carbon arcing of UT defect on two tower diaphragm welds WSD1-SA290-11B and NSD1-SA169A/B-1A/1B per welding report number T-WR048 and T-WR053 respectively. Grinding/cleaning of tack welds inside groove on tower diaphragm splice butt joint ESD1-SA316A/B-6A/ESD1-SA316A/B-12A and welding of clamp around tower diaphragm plate NSD1-SA196A/B-1A for distortion control were also noted.

There were no welding or tack welding/fit-up of bent heavy plates for tower diaphragm ring/flange observed today.

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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 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

**Reviewed By:** Cochran, Jim

QA Reviewer