

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-002875**Date Inspected:** 10-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 Hu Wei Qing**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 Chen Xi Feng ID #052692, 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 fill pass in plate splice butt joint FB032-001-079 and FB029-001-081 floor beams. 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: 517 amps, 30.1 volts with a travel speed of 430 mm per minute. The weld parameters appeared to comply with contract requirements.

QA Inspector J. Lizardo randomly observed ZPMC qualified welders Zhang Qingquan ID #044774 and Liu Kai Ge ID #044830 groove welding fill pass on (flange to web plate) tee joint. Mr. Zhang and Mr. Liu were 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 FB012-011-043 and FB011-005-043 respectively. QA Inspector Lizardo observed the ZPMC QC CWI Inspector Huang Wen Pang verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS).

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FCAW fillet welding (2F) was also observed on flange to web plate of beam sub-assembly FB015-012-017. ZPMC welder working on this was identified as Zhuo Jibo ID# 055564. ZPMC CWI Hu Wei Qing was noted monitoring the parameters. Tack welding/fit-up was continuing on stiffener to web plate of floor beam FB001-005-011/012 and FB012-010-017/018 using electrode TL-508. During tack welding/fit-up of these sub-assemblies, paint coating was removed, close and tight gap noted and preheating was used. This QA randomly observed heat straightening of floor beam sub-assembly FB040-001 weld joints 078, 079, 080, 081 101 and 108 due to welding distortion. Oxy-acetylene was used and less than 600 degree C thermal heat input was implemented following procedure HSR1(B)-1088.

This QA randomly observed FCAW fillet welding on welded spacer beam W5.5 X 25.5 inches long for floor beam FB006-247 weld joint numbers 007, 008, 011 and 012 by two ZPMC welder Chen Chun Zong ID# 044824 and Zhang Liang ID# 067036 using WPS-B-T-2132-3.

This QA observed completely welded and tack welded floor beam sub-assemblies are being improperly stacked on top of each other making it possible for distortion/loss of flatness to these assemblies. On same location, two butt welded splice plates are wedged with 4x4 lumber at the edge of these plates, which could also bring the same problem mentioned above. This QA called the attention of ZPMC CWI Hu Wei Qing, one ABF Inspector on the floor and ABF Inspector Kevin Dye to look at these floor beam situation. They all agreed and said to let ZPMC fix this scenario. See 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 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: 611 amps, 30.5 volts with a travel speed of 465 mm per minute. Weld parameters appeared to comply with contract requirements.

This QA observed bending of heavy metal for tower diaphragm flange. Plate being bent was P1082(W)-4/13(Z) using natural gas of less than 650 degree C thermal heat input with the aid of hydraulic ram and welded jig. The procedure HSR1(T)-1197 was implemented. Bevel cutting/grinding on these heavy metal plates was also noted. Other related welding activities observed include back gouging (after partially welding one side) of tower diaphragm plate splice butt joint ESD1-SA316 A/B-6B/12B, oxy-acetylene bevel cutting to 45 degree 14mm thick plates for various longitudinal diaphragms and grinding off paint coating on weld areas of cut stiffener plates for the same.

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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.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Cochran, Jim

QA Reviewer