

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-002623**Date Inspected:** 05-Apr-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:** See below**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/Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

New Tower Shop

Bay 1 and Bay 2:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various tower plates.

Cause for heat straightening mill induced distortion. Heat Straightening is performed by flame straightening using oxygen acetylene and natural gas.

Bay 1 and Bay 2:

QA Inspector Brannon randomly observed ZPMC personnel CNC torch cutting 75% natural and 25% oxygen for various pieces for the tower.

89 Meter Mock-up - Bay 1:

QA Inspector Brannon randomly observed ZPMC qualified welder's Mr. Huang You Jin ID#066416 and Mr. Tan Xiang Bo ID#0664559 groove welding at the weld joint #MUSB-MA21-G/T7-2 and MUB-MA21 A/J-70 respectively. Mr. Huang and Mr. Tan was observed welding in the 2G (horizontal) position utilizing shielded metal arc welding (SMAW) process with a 5.0mm diameter electrode, filler metal brand E7018, class THJ506Fe-1.

QA Inspector Brannon observed the ZPMC QC Inspector Mr. Zhu Zhong Hai verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector

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Brannon observed preheat and welding parameters measured by the QC CWI Inspector Mr. Zhu Zhong Hai to be: a minimum preheat temperature of 160°C and welding parameters amps of 229/227 respectively. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-4312-Tc-P4-2.

Tower Shaft Skin Plates - Bay 1 and Bay2:

QA Inspector Brannon randomly observed ZPMC qualified welder's Mr. Xue Yian ID#040634, Mrs. Xu Yan ID#052917 ID#, Mr. Chen Hongxia ID# 040460 groove welding fill/cover passes at the weld joint WSD1-SA107 D/J-16A joining SA107 (W) to P882 (W), SSD1-SA16 F/G-6A, joining SA16 (S) to P149 (S), and SSD1-SA173 A/K-13B, joining SA173 (S) to P219 (S). Mr. Xue, Mrs. Xu and Mr. Chen was observed welding in the 1G (flat) position utilizing submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand EM12K, class JW-3 machine. QA Inspector Brannon observed the ZPMC QC Inspector Mr. Zhu Zhong Hai verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon observed preheat and welding parameters measured by the QC CWI Inspector Mr. Zhu Zhong Hai to be: a minimum preheat temperature of 110°C and welding parameters amps of 687/632/654, volts of 32.9/35.5/32.6, and a travel speed of 610/598/655 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2221-B-U3c-S.

Deck Panels Bay-3

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Yuan Fengchuan ID#059355 splice welding root pass joining deck panel DP300-001-007, pl141a to pl141b. Mr. Yun was observed welding in the 1G (flat) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1. QA Inspector Brannon observed the ZPMC QC Inspector Mr. Huang Wei Pang verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon observed preheat and welding parameters measured by the ZPMC QC to be: preheat temperature of 20°C and welding parameters amps of 254 volts of 28.2, a travel speed of 535 mm/min and a gas flow of 21L/min respectively. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2132-3.

NOTE: QA Inspector Brannon was in the Tower Assembly Shop Bay 3 1500 to 1600 to observe welding on Deck Panel Complete Joint Penetration (CJP) weld splice root pass for DP086-001-007, DP300-001-007, DP275-001-007 and DP302-001-007. QA Inspector Brannon observed ZPMC welding personnel welding using a Flux Cored Arc Welding (FCAW) process and upon completion of the weld root pass's on the above Deck Panels splice, QA Inspector noticed that a ZPMC CWI Inspector was not in close proximity during the welding therefore exceeding the 30 minutes period as required. An Incident report was written on the above.

OBG/Tower Sub-Assembly

Bay 2

77 & 144 Meter Mock-up:

QA Inspector Brannon observed tower mock-up to be idle during this shift. QA Inspector Brannon also, randomly observed ZPMC personnel CNC torch cutting with 75% natural gas and 25% oxygen for interior splice plate for various tower elevations.

Bay 4 – Heat straightening side panel:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various

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side/bottom/edge panels and tower diaphragm plates. Side/bottom/edge panels cause for heat straightening welding distortion and tower diaphragm pates cause for heat straightening mill induced. Heat Straightening is performed by flame straightening using oxygen acetylene or natural gas using a hand torch.

Bay 4 Tower 33 Meter Elevation:

QA Inspector Brannon randomly observed ZPMC welder Mr. Han Xiaofeng ID #054467 tack welding joining SA335 (N) to P459 (N) weld joint # NSD1 SA355 A/B-1A/2A. Mr. Han was observed welding in the 1G (flat) position utilizing a shielded metal arc welding (SMAW) process with a 4.8mm diameter electrode, filler metal brand E9018, class Excalibur 9018M MR, manual. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Zhao Chen Sun to be: preheat temperature of 180°C and welding parameters amps of 229. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3211-B-U3b-1.

Bay 4 Tower 33 Meter Elevation:

QA Inspector Brannon randomly observed ZPMC welder Mr. Jiang Jing Teng ID #046830 welding fill pass's joining SA317 (E) to P831 (E) weld joint # SSD1 SA317-3A/4A. Mr. Jiang was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.0mm diameter electrode, filler metal brand LA-85, class ENi5, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Zhao Chen Sun to be: preheat temperature of 180°C and welding parameters amps of 606, volts of 31.2, and a travel speed of 473. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

The following digital photograph below illustrates observation of the activities being performed.



Summary of Conversations:

As stated within this report.

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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:	Brannon, Sherri	Quality Assurance Inspector
Reviewed By:	Cuellar, Robert	QA Reviewer
