

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-002597**Date Inspected:** 12-Apr-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:** 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.

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

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Yin Guoqin ID #058081 splice welding various floor beam diaphragm plates FB005-011-020 & 002. Mr. Yin was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand EM12k, class JW3 machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing 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 Hu Wei Qing to be: preheat temperature of 65°C and welding parameters amps of 537, volts of 30.1, and a travel speed of 442 mm/min respectively. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2221-L2C-S-1.

Bay 7-OBG - Floor Beam Sub Assembly:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various floor beam plates. Cause for heat straightening welding distortion. Heat Straightening is performed by flame straightening using oxygen acetylene with hand torch.

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Bay 7-OBG - Floor Beam Sub Assembly:

ZPMC NDT (UT):

QA Inspector Brannon randomly observed ZPMC Ultrasonic Testing Technician's Mr. Li Li Ming and Mr. Yue Hai Yong performing Lamination Scan with 2.5mhz transducer and shear wave using a 70° transducer on the following floor beam flange splice welds: FB010-009-026 (accept), FB015-013-026 (accept), FB015-012-026 (accept), FB009-009-026 (accept), FB009-007-1026 (accept), FB016-003-026 (reject), FB016-008-026 (accept), FB016-009-026 (accept), FB016-010-026 (accept), FB016-011-026 (accept), FB016-012-026 (accept), FB016-014-026 (accept), and FB016-013-026 (accept). QA Inspector Brannon observed accept and rejected marked on the floor beam web plates.

Bay 8 – 47.6 Meter Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Han Yang Jie ID #048686 groove welding fill pass's joining SA32 (E) to P1424 (E) weld joint ESD1 SA332-10B. Mr. Han was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand LA-85, class ENi5 machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Lv Jiangang 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 Lv Jiangang to be: preheat temperature of 180°C and welding parameters amps of 618, volts of 30.8, and a travel speed of 479 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

Bay 8 – 38 Meter Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Xi Pei Pei ID #048431 groove welding fill pass's joining SA277 (S) to P560 (S) weld joint SSD1-SA277-1A & 1B. Mrs. Xi was observed welding in the 1f (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand LA-85, class ENi5 machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Lv Jiangang 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 Lv Jiangang to be: preheat temperature of 180°C and welding parameters amps of 611, volts of 30.5, and a travel speed of 475 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

Bay 8 – 38 Meter Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Ma Ying ID #045270 groove welding joining SA316(W) to P778(W) weld joint WSD1 SA316-6A. Mrs. Ma 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 MIL800-HPNI, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Lv Jiangang 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 Lv Jiangang to be: preheat temperature of 180°C and welding parameters amps of 584, volts of 29.6, and a travel speed of 480. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

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Bay 8 – Heat straightening:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various tower diaphragm flange plates. Tower diaphragm plates cause for heat straightening mill induced distortion. Heat Straightening is performed by flame straightening using natural gas with a hand torch.

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



Summary of Conversations:

No relevant conversations to report.

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