

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-001854**Date Inspected:** 19-Mar-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.

Bay 7-OBG - Floor Beam:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Sun Ling ID #048047 splice welding floor beam flange plates FB014-005-042 and FB003-019-003. Mr. Sun was observed welding in the 1G (flat) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, manual. QA Inspector Brannon observed the ZPMC QC CWI Inspector Huang Wen Pong 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 Huang Wen Pong to be: preheat temperature of 87°C and welding parameters amps of 297, volts of 30.2, a travel speed of 435 mm/min and a gas flow of 21L/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2211-B-U2.

Bay 7-OBG - Floor Beam:

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Zhang Qinguan ID #044774 fillet welding stiffener to flange plate for FB003-014-008 and FB003-014-020. Mr. Zhang was observed welding in the 3F (vertical) 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. QA Inspector Brannon observed the ZPMC QC CWI Inspector Huang Wen Pong verifying that the welding parameters and pre-heat were in accordance with the

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Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Mr. Huang Wen Pong to be: preheat temperature of 47°C and welding parameters amps of 198, volts of 24.7, a travel speed of 115 mm/min and a gas flow of 22L/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2233-Tc-U4b-F.

Bay 7-OBG - Floor Beam Web Plates:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Sun Guzuo ID #058100 splice welding floor beam web plates for FB003-005-001 side b. Mrs. Sun was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand JW-3, class EM12K, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Huang Wen Pong 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 Huang Wen Pong to be: preheat temperature of 60°C and welding parameters amps of 520, volts of 29.5, and a travel speed of 437. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2221-B-L2c-S-1.

Bay 7-OBG - Floor Beam:

QA Inspector Brannon randomly observed ZPMC qualified welders, welding stiffener plates to floor beam FB025-02 using a shield metal arc welding (SMAW) process. Note: ABF David Larue informed QA Inspector Brannon that the above floor beam tacks 3 had cracked, 2 in weld joint 114 and 1 in weld joint 106. Mr. Larue stated that ZPMC will generate and submit a Critical Welding Repair (CWR) for the cracked tacks.

Bay 7-OBG - Floor Beam - ZPMC NDT (UT):

QA Inspector Brannon randomly observed ZPMC Ultrasonic Testing Technician's Mr. Li Li Ming performing shear wave using a 70° transducer and Mr. Yong Jun performing Lamination Scan with 2.5mhz transducer on the following floor beam flange splice welds: FB003-15-003 (accept), FB014-01-042 (reject), FB014-02-042 (accept), FB003-16-103 (accept), FB003-17-103 (accept), FB014-03-042 (accept), FB014-04-042 (reject) and FB003-18-103 (accept). QA Inspector Brannon observed accept and rejected marked on the floor beam flange plates.

Bay 7-OBG - Floor Beam (repair)

QA Inspector Brannon randomly observed ZPMC personnel at FB003-10-103 excavating an ultrasonic testing (UT) indication by method of carbon arc gouging on face b floor beam flange. See ZPMC report number B-WR096.

ZPMC NDT (MT):

QA Inspector Brannon observed ZPMC magnetic particle (MT) technician Mr. Bo Ting Yui performing (MT) at FB007-05-004 excavation for B-CWR047. Mr. Bo stated to QA Inspector that he found no linear indication's in the excavation.

Bay 7-OBG - Floor Beam (B-CWR047):

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Zhang Qingquan ID #044774 repair welding at FB007-05-004. Mr. Zhang was observed welding in the 2G (vertical) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H,

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semi automatic. QA Inspector Brannon observed the ZPMC QC CWI Inspector Huang Wen Pong 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 Huang Wen Pong to be: preheat temperature of 109°C and welding parameters amps of 288, volts of 29.5, a travel speed of 520 mm/min and a gas flow of 22L/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-345-FCAW-2G (2F)-repair-1.

Bay 7-NDT (VT/MT):

QA Inspector Brannon observed ZPMC magnetic particle (MT) technician Mr. Bo Ting Yui performing (MT) the fillet weld for FB026-001 and accepted the fillet welds. QA Inspector Brannon performed visual inspection (VT) and magnetic particle testing (MT) on the fillet welds for FB026-001 weld joint 022~067, 073~076, 084~085, 089~091, 096~100, 104~105, 109~110, 112~113, 115~116 and 118~119. See Caltrans Magnetic Particle Test Report, TL-6028 dated March 19, 2008 for additional information.

Bay 8 - Tower 47.6 Meter:

QA Inspector randomly observed ZPMC personnel performing heat straightening on tower 28 meter top piece # SA316 (W), ZPMC report #HSR1 (T)-210 and 38 meter top piece #SA227 (S), ZPMC report #HSR1 (T)-188. ZPMC personnel flame straightening by natural gas.

Bay 8-Tower Diaphragm:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Ma Ying ID #045270 groove welding fill pass's joining SA334 (N) to P248 (N) weld joint NSD1 SA334 A/B-1A. 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 Xu Bing 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 180°C and welding parameters amps of 598, volts of 31.0, and a travel speed of 485. 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-Tower Diaphragm:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Xu Pei Pei ID #050323 groove welding fill/cover pass's joining SA326(S) to P632(S) weld joint SSD1 SA326-1A. Mrs. Xu 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 Xu Bing 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 180°C and welding parameters amps of 605, volts of 30.0, 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.

Bay 8-Tower Diaphragm:

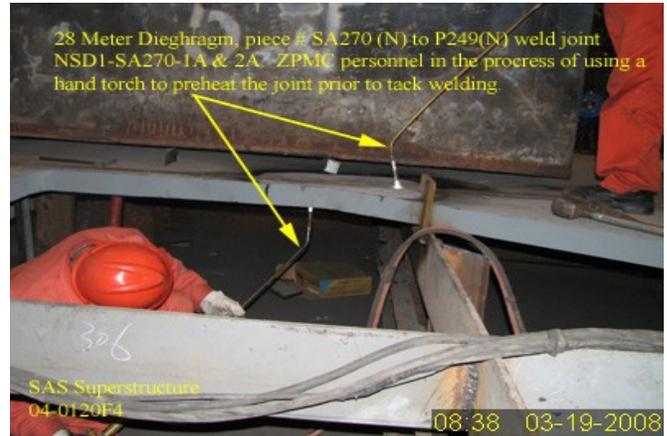
QA Inspector Brannon randomly observed ZPMC welder's Mr. Yun Cheng Zian #045138 and Mr. Zhang Houquan ID#048431, tack welding joining P249 (N) to SA270 (N); weld joint NSD1-SA270-1A. Mr. Yun and Mr.

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Zhang was observed welding in the 1G (flat) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand Excalibur 9018M MR, class E9018M-H4R manual . QA Inspector Brannon observed the ZPMC QC CWI Inspector Xu Bing 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 Mr. Xu Bing to be: preheat temperature of 180°C and welding parameters amps of 188/170 respectively. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3211-B-U3b-1.

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



Summary of Conversations:

As stated within the 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
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Reviewed By:	Cuellar, Robert	QA Reviewer
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