

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-001182**Date Inspected:** 01-Jan-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2330**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Zhu Zhong Hai**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 Tower Mockup**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Joe Lanz 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 during second shift. While on site the QA Inspector observed and/or discovered the following.

Bay 2

77 Meter Mockup Subassembly Bottom Diaphragm, MUSA-MA-1E/F:

The QA Inspector randomly observed ZPMC welding personnel Fu Yanjie, ID 066268 welding subassembly MUSA-MA5 to MUSA-SA95 complete joint penetration weld number 20. The welding was performed in the 3G (vertical) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal appeared to be E7018, brand name TL-508. The QA Inspector periodically observed the ZPMC QC Certified Welding Inspector Zhu Zhong Hai monitoring the welding and the ZPMC QC inspector Zhu Tian Shu was verifying that the welding parameters of 190 amps, 24.3 volts, 117 millimeters per minute travel speed and the minimum pre-heat of 190° Centigrade were in accordance with the Welding Procedure Specification WPS-B-T-4313-Tc-P5-1 revision 1. The QA Inspector observed that the preheat and welding parameters measured by the QC Inspector appeared to be within the WPS ranges. The welding parameters and work observed by QA Inspector appear to meet the minimum requirements in accordance with the WPS and contract documents.

The QA Inspector randomly observed ZPMC welding personnel He Shibo, ID 066243 welding subassembly MUSA-MA5 to MUSA-SA95 complete joint penetration weld number 11a. The welding was performed in the 3G

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(vertical) position utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal appeared to be E7018, brand name TL-508. The QA Inspector periodically observed the ZPMC QC Certified Welding Inspector Zhu Zhong Hai monitoring the welding and a ZPMC QC inspector was verifying that the welding parameters of 175 amps, 26.0 volts, 120 millimeters per minute travel speed and the minimum pre-heat of 190° Centigrade were in accordance with the Welding Procedure Specification WPS-B-T-4313-Tc-P5-1 revision 1. The QA Inspector observed that the preheat and welding parameters measured by the QC Inspector appeared to be within the WPS ranges. The welding parameters and work observed by QA Inspector appear to meet the minimum requirements in accordance with the WPS and contract documents.

After the above welds were completed the assembly was rotated approximately ninety degrees to allow welding to continue on the assembly.

89 Meter Mockup Subassembly Skin D, MUSB-MA-22:

The QA inspector periodically observed in process grinding of skin D stiffener partial joint penetration weld terminations on weld numbers 13, 14, 15, 16, 17, 18, 19 and 20 as shown on drawing MUSB-MA22B/B. Two ZPMC personnel performed the grinding. The weld terminations were ground to a smooth finish. The work appears to be in general compliance with the contract documents.

Immediately after grinding was completed the skin plate was rotated 180 degrees and placed on the 89 meter mockup and alignment of the plate was started. Note: during the verbal turnover with the dayshift QA inspector, Sherri Brannon it was reported that ZPMC NDT personnel had been performing magnetic particle testing earlier in the day.

During the second shift the QA inspector was not notified if the magnetic particle was completed and or acceptable or given an opportunity to perform the QA verification of the Magnetic particle testing.

Bay 3

OBG Beams

The QA Inspector randomly observed ZPMC welding personnel Zang Feng, ID 049769 tack welding side plate SP001-01 stiffeners, weld numbers 001, 002, 003, 004, 005, 006, 007, 008, 009 and 010. The welding was performed in the 2F (horizontal) position utilizing the gas shielded flux cored arc welding (FCAW-G) process. The QA Inspector observed ZPMC QC Lead Certified Welding Inspector Wu Ming Kai monitoring the welding and the ZPMC QC inspector Xian Feng was verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification WPS-B-T-2132-2. The QA Inspector observed that the preheat and welding parameters of 290 amps, 29.1 volts and travel speed of 400mm per minute as measured by the QC Inspector appear to be within the WPS ranges. The work observed by QA Inspector appears to meet the minimum requirements in accordance with the WPS and contract documents.

The QA inspector periodically observed the in process grinding of floor beam stiffener fillet welds by two ZPMC personnel. The fillet weld profiles were ground to a smooth finish in accordance with the requirements of AWS D1.5-2002. The work appears to be in general compliance with the contract documents.

The QA inspector periodically observed the in process grinding of floor beam stiffener edges by six ZPMC

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personnel. The stiffener edges were ground to a bright smooth finish prior to being fit up in accordance with the requirements of AWS D1.5-2002. The work appears to be in general compliance with the contract documents.

Bay 7

OBG Beams

The QA Inspector randomly observed ZPMC welding personnel Wang Li, ID 044772 tack welding floor beam FB018-06 stiffeners, weld numbers 0047 and 048. The welding was performed in the 2F (horizontal) position utilizing the shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, the filler metal appeared to be E7018, brand name TL-508. The QA Inspector periodically observed the ZPMC QC Lead Certified Welding Inspector Cui Yi Ru monitoring the welding and the ZPMC QC Certified Welding Inspector verifying that the welding parameters and the minimum pre-heat of 40° Centigrade were in accordance with the Welding Procedure Specification WPS-B-P-2112. The QA Inspector observed that the preheat and welding parameters of 166 amps, 22.0 volts and 122millimeter per minute travel speed measured by the QC Inspector appeared to be within the WPS ranges of 140 to 180 amps, 20 to 27 volts and 48 to 194mm per minuet travel speed. The welding parameters and work observed by the QA Inspector appear to meet the minimum requirements in accordance with the WPS and contract documents.

The QA Inspector randomly observed ZPMC welding personnel Huang Xih Lax ID #044780 welding floor beam plate complete joint penetration weld FB021-02-078. The welding was submerged arc welding (SAW) and the approved welding procedure specification WPS-B-T-2221-L2c-S-1 in the 1G (flat) position. The filler metal and flux combination was JW-3C, 4mm diameter and JFB flux. The QA Inspector periodically observed the ZPMC QC Lead Certified Welding Inspector Cui Yi Ru monitoring the welding and the ZPMC QC Inspector Cui Yi Ru verifying that the welding parameters and the minimum pre-heat were in accordance with the Welding Procedure Specification WPS-B-T-2221-U3c-S-1. The QA Inspector observed that the preheat and welding parameters of measured by the QC Inspector (535 amps, 31.5 volts and 425millimeters per minute travel speed) appeared to be within the WPS ranges. The welding parameters and work observed by QA Inspector appear to meet the minimum requirements in accordance with the WPS and contract documents with the following exception.

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



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Summary of Conversations:

No relevant conversations on this date.

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:	Lanz,Joe	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer
