

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-002529**Date Inspected:** 12-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** ChenChi Ming and 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:** Tower and OBG Components**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) Inspector, M. Paul Stovall, was present at Zhenhua Port Machinery Company (ZPMC) on Changxing Island, Shanghai, China for the purpose of monitoring Quality Control (QC) functions during the fabrication of the Self Anchored Suspension (SAS) and Orthotropic Box Girder (OBG) sections of the San Francisco/Oakland Bay Bridge.

OBG Pre-Assembly Area**Bay 2**

The QA Inspector observed ZPMC personnel rotate the 77-meter Mock-Up, and place it in a fixture to facilitate work on Critical Weld Repairs (CWR). ZPMC QC Inspector Lei Tao informed the QA Inspector that they had previously notified a QA Lead Inspector prior to the start of work on CWR-052 for weld number MUSA-SA104/A/B-41 and CWR-051 for weld number MUSA-SA95-42. When this QA Inspector arrived, work had already started but welding was not in process. Later, the QA Inspector observed ZPMC welding personnel Yang Lei, ID #040690 performing Shielded Metal Arc Welding (SMAW) at the locations on the CWR's. The QA Inspector verified the welding parameter as 168 amperes.

The QA Inspector observed ZPMC personnel bolting exterior Splice Connection plates at the corners of the 114-meter Mock-Up.

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WELDING INSPECTION REPORT

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The QA Inspector observed ZPMC welding personnel Liu Daiquan, ID #066401, Liang Yanhai, ID #049769 and Dai Lu, ID #048659 use the SMAW process to tack weld WT stiffeners to Side Plate (SP) plates SP469-001 and SP561-001. The work appeared to comply with the contract documents.

The QA Inspector observed ZPMC personnel grinding Complete Joint Penetration (CJP) weld splices on various W21 x 57's.

The QA Inspector observed ZPMC personnel remove paint by grinding on various deck plates to lay out the placement of WT's. The faying surfaces of various WT stiffeners are ground by ZPMC fabrication personnel.

ZPMC Certified Welding Inspector (CWI) Inspector Wu Ming Kai notified the QA Inspector that work was progressing on CWR-046 which included welds on SP012-001-(033 and 042). The CWR was for the removal of two (2) cracked tack welds. The QA Inspector observed the tack welds had been removed, but that welding was not performed during this shift.

Bay 4

The QA Inspector observed ZPMC welding personnel Jiang Jingfeng, ID #046830 use the Submerged Arc Welding (SAW) process for a Complete Joint Penetration (CJP) weld on the first production Internal Tower Diaphragm plate splice weld number SSD1-SA27-A/B-1B. ZPMC stopped welding due to the preheat temperature less than the minimum at approximately 0845. The CWI monitoring preheat does not appear to be monitoring the entire length of the weld joint in a timely manner. ZPMC was able to begin welding again at 1245 after stabilizing the minimum preheat and maximum interpass temperatures. The QA Inspector verified the welding parameters at different times and observed the parameters to average 623 amperes and 29.8 volts with a travel speed of 510 millimeters (mm) per minute. ZPMC personnel stopped welding on the "B" side of the weld joint after approximately 40% of the weld was completed. The material was turned over to the "A" side for back gouging but back gouging was not started during this shift. The QA Inspector observed that ZPMC personnel are not using thermocouples to control the ceramic heating pads. The work observed appears to comply with WPS-B-T-3221-B-U3C-S-1 and the contract documents.

The QA Inspector observed ZPMC personnel positioning Tower Internal Diaphragm Splice plates SA335 and PI-459 for fit up.

Summary of Conversations:

QA Inspector had conversations as noted in the body of 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:	Stovall,Paul	Quality Assurance Inspector
Reviewed By:	Hager,Craig	QA Reviewer
