

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-001100**Date Inspected:** 27-Dec-2007**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:** Li Zhi Jiang**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 7

OBG Beams

The Caltrans Quality Assurance (QA) inspector received from ZPMC QC inspector Xu Jen, one Material in/out Record in lieu of a bill of lading for twenty four each Floor Beam flanges designated X6A for FB3 floor beams and X5C for FB4 floor beams. The material test reports and the material cut lists were reviewed by the QA inspector. The QA inspector performed a random visual inspection of the 48 cut flanges and observed that they appeared to be in general compliance with the contract documents with the following exception. The cut edges of the flanges were not completed and still had evidence of cut ties that were cut by hand after the majority of the plate was cut. The tie locations were not ground flush with the edge of the flanges and had evidence of notches in the base metal. The digital photographs below illustrate this issue. ZPMC QC inspector Xu Jen stated that the flanges were being shipped to Wuxi Huaguang Boiler Company to be bent and then returned to ZPMC and the flange edges would be finished at that time. The material Caltrans lot number B31-182-07 was assigned for tracking purposes. The QA inspector placed one green tag on the Material in/out Record and it was placed in a pouch with a copy of the Material Test Reports. The pouch was attached to one of the flanges. A Component Material Inspection Report (TL-6011) for material that was green tagged in accordance with the contract requirements was generated on this date.

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The QA Inspector randomly observed ZPMC welding personnel Hong Shui Li, ID #044815 and Yuan Wen Song, ID #055491 welding floor beam FB015-04 stiffener 6mm fillet welds, weld joint #'s FB015-04-015, FB015-04-016, FB015-04-017 and FB015-04-018. The welding was performed in the 2F (horizontal) position utilizing a semiautomatic self shielded flux cored arc welding (FCAW-S) process. The QA Inspector observed ZPMC QC Certified Welding Inspector Li Zi Jiang monitoring the welding and the ZPMC QC inspector Xu Tao was verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification WPS-B-T-2132-1. The QA Inspector observed that the preheat and welding parameters measured by the QC Inspector (294 amps, 27.9 volts and travel speed of 535mm per minute for Hong Shui Li and 295 amps, 29.0 volts and travel speed of 542mm per minute for Yuan Wen Song) appeared 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 randomly observed ZPMC welding personnel Liu Longxian, ID #044786 welding floor beam FB015-04 stiffener 6mm fillet welds, weld joint #'s FB015-04-015, FB015-04-016, FB015-04-017 and FB015-04-018 weld terminations that were not accessible by the semiautomatic welders noted above. The welding was performed in the 2F (horizontal) position utilizing the self shielded flux cored arc welding (FCAW-S) process. The QA Inspector observed ZPMC QC Certified Welding Inspector Li Zi Jiang was initially not monitoring the welding and the ZPMC QC inspector Xu Tao was not verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification WPS-B-T-2132-1. The QA inspector asked to review welding parameters recorded by the QC inspector. The ZPMC QC inspector Xu Tao immediately started a log sheet for this welding and began verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification WPS-B-T-2132-1. No further action was taken at this time. The QA Inspector observed that the preheat and welding parameters measured by the QC Inspector (290 amps, 30.0 volts and travel speed of 404mm per minute) appeared 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 randomly observed ZPMC welding personnel Chen Chuan Zong, ID #044824 welding temporary lifting devices on floor beam FB008-01. The welding was performed in the 3F (vertical) position utilizing the self shielded flux cored arc welding (FCAW-S) process. The QA Inspector periodically observed the ZPMC QC Certified Welding Inspector Li Zi Jiang monitoring the welding and the ZPMC QC inspector Wang Safia Ming Kai was verifying that the welding parameters and the minimum pre-heat of 20° Centigrade were in accordance with the Welding Procedure Specification WPS-B-T-2113-F. The QA Inspector observed that the preheat and welding parameters of 235 amps, 25.7 volts and travel speed of 110 millimeters per minute, 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 Yang Xuhe, ID #057795 welding 8mm fillet weld on floor beam flange, weld number FB007-01-044. The welding was performed in the 3F (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 Li Zi Jiang monitoring the welding and the ZPMC QC inspector Zhu Tian Shu was verifying that the welding parameters and the minimum pre-heat of 20° Centigrade were in accordance with the Welding Procedure Specification WPS-B-2113-F. The QA Inspector observed that the preheat and welding parameters measured by

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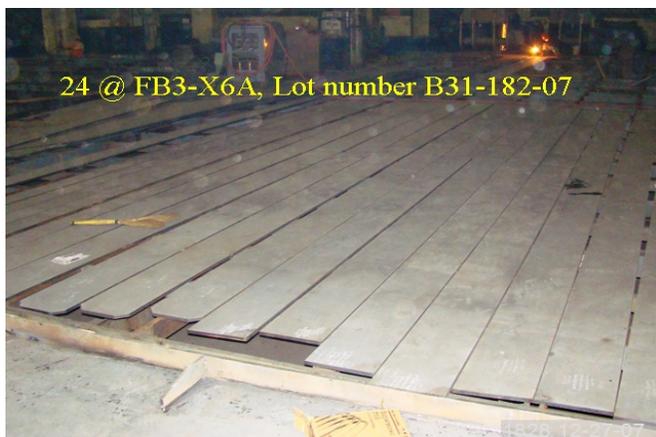
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the QC Inspector appeared to be within the WPS ranges of 140 to 180 amps, 20 to 27 volts and 48 to 194mm per minuet travel speed. The welding parameters and work observed by QA Inspector appear to meet the minimum requirements in accordance with the WPS and contract documents.

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



## Summary of Conversations:

As referenced above.

## 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.

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**Inspected By:** Lanz,Joe

Quality Assurance Inspector

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**Reviewed By:** Cochran,Jim

QA Reviewer