

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-000089**Date Inspected:** 28-Feb-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**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:** Zhou Daging**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:** N/A**Summary of Items Observed:**

The CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the welder and welding operator qualification tests scheduled for this project. Third Party Moody International, Zhou Daging and assistances were observed by the QA inspector performing verifications of the welding parameters, amperages, voltages, travel speeds and preheat and interpass temperatures for the welder qualification tests as follows:

Flux Cored Arc Welding:

ZPMC welders, Zhu Haiping, Wu Xianjian, Liu Xie, Jiang Xiaohu, Jin Rong, Shen Yong, Ye bing and Liu Daiquan welder qualification test plates 2007-030-003, 005, 002, 001, 006, 007, 009, 010 and 013 respectively were performing welding operations using the semi-automatic flux cored arc welding gas (FCAW-G) process in the vertical (3G) position with the 1.4 mm diameter Supercore 71-H electrode following the welding procedure specification WPS-B-T-2233-B-U2a-F on the 26 mm thick meeting the fracture critical requirement and designated as A-709-50F-2. The root opening of the joint was approximately 6 mm. The QA Inspector performed random verifications amperages, voltages, travel speeds and preheat and interpass temperatures after Moody International verifications. The QA discovered that the welding appeared to be in compliance with contract documents. The QA inspector had a conversation with Mr. Zhou. Mr. Zhou relayed to the QA inspector that Yang Shuwei and Zhan Xiangrong welder qualification tests 2007-030-008 and 012 respectively failed because they were welding outside of travel speed established in the WPS.

Shielded Metal Arc Welding:

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ZPMC, welders, Dai Xicheng, Liu Guoxuan, Wu Xianjian, Jiang Xiaohu, Zhu Haiping, Liu Shuying, Liu Xie, Song Degui, Zhan Xiangrong were observed by the QA Inspector performing welder qualification test plates 2007-030-053, 051, 055, 052, 054, 056, 057, 058, 059 and 060 respectively using the shielded metal arc welding (SMAW) process in the vertical (3G) position with the 4.0 mm diameter TL-508 electrode following the welding procedure specification WPS-B-T-2213-B-U2a-F on the 26 mm thick test plate meeting the fracture critical requirement and designated as A-709-50F-2. The root opening of the joint was approximately 6 mm. The QA Inspector performed random verifications amperages, voltages, travel speeds and preheat and heat interpass temperatures after Moody International verifications. The QA discovered that the welding appeared to be in compliance with contract documents. The QA inspectors recorded that the welding parameters appeared to be in compliance with contract documents.

Submerged Arc Welding:

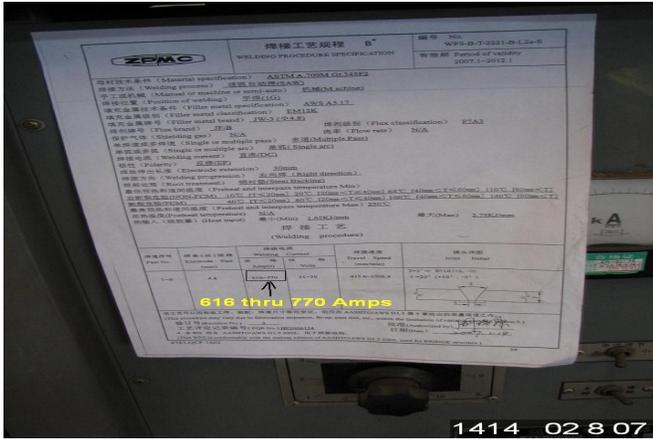
ZPMC, welder operators Zhou Liang, Dong Guixiang, Xie Jinhong were observed by the QA Inspector performing welder qualification test plates 2007-030-102, 104 and 101 respectively using the automated submerged arc welding (SAW) process single electrode in the flat (1G) position with the 4.8 mm diameter JW-3 electrode following the welding procedure specification WPS-B-T-2221-1-FB on the 26 mm thick test plate meeting the fracture critical requirement and designated as A-709-50F-2. The root opening of the joint was approximately 16 mm. The QA Inspector performed random verifications amperages, voltages, travel speeds and preheat and interpass temperatures after Moody International verifications. The QA inspectors recorded that the welding parameters appeared to be in compliance with contract documents. The QA inspector had a conversation with Mr. Zhou. Mr. Zhou relayed to the QA inspector that Xue Yi An and Huang Xin Lan welder qualification tests 2007-030-103 and 105 respectively failed because they were welding outside of interpass temperature established in the WPS.

Summary of Conversations:

The inspector had a conversation of the Caltrans Task Leader Dave McClary. The QA inspector brought to the attention of Mr. McClary that the welding procedure specification (WPS) for SAW used for welding the welder qualification test had listed 616 amperages as the minimum. The 616-770 Amps exceed the minimum amperages of 600 A as required per AWS D1.5 2002 4.9.4 when the groove or filler passes are fused to both side of the groove. The QA inspector questioned if this maximum requirement have to be held during fabrication. Mr. McClary relayed to the QA inspector that he was going to search if the parameters listed on the WPS-B-T-2221-1-FB were suitable for fabrication. The attachments below show the digital photograph of the WPS in question.

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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: Acuna, Alfredo

Quality Assurance Inspector

Reviewed By: McClary, David

QA Reviewer