

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-000309**Date Inspected:** 18-Jul-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:** Xu Bing**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 welding qualification testing pertinent for the welding qualification record (PQR) HP2007144-1 scheduled for this project. ZPMC, welder Zhu Hai Ping was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-3213 for the PQR identified as HP2007144-1. Base metal was designated as A-709 Grade HPS485WT2/Z (Heat # 07101250N). ZPMC followed the Production procedure WPS criteria (AWS 5.13) using the shielded metal arc welding (SMAW) process in the vertical (3G) position with the 4.0 mm diameter designated as E9018M-H4R, brand name Excalibur. The QA Inspector verified amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspector witnessed passes 51 through 59 (layer 19 through 21). The QA inspector performed random verifications of the welding parameters for a total of 8 passes. The QA inspector found that the welding parameters taken by Quality Control (QC) inspector Xu Bing and Lu Jian Ping appeared to be accurate and in accordance with the contract documents. However, the QA inspector found that the temperature inside of the oven designated to storage electrodes E9018M H4 R and E7018-1 for welding Caltrans PQRs/A709 HPS 485W dropped at approximately 70-80 degree Celsius. The QA inspector had a conversation with ABF QA inspector Kevin Dye. The QA inspector brought to the attention of Mr. Dye that the temperature inside of the oven designated to storage electrodes E9018M H4 R and E7018-1 for welding Caltrans PQRs/A709 HPS 485W dropped below the minimum 120 degree Celsius required. The QA inspector questioned Mr. Dye how and when the drop of temperature occurred. After Mr. Dye conversation with ZPMC representatives, Mr. Dye relayed to the QA inspector that ZPMC inadvertently push the button turning off the oven and ZPMC did not know exactly when the drop of temperature occurs after the 1100 hours. Mr. Dye added that ZPMC as corrective action resolved to re-dry all the electrodes inside the oven as per AWS D1.5 section 12 for welding HPS 485W material. The QA inspector observed ZPMC QC representative Xu Bing

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setting up the temperature of the oven to 450 degree Celsius for 2 hours. ZPMC stopped welding the PQR-HP2007144-1 because ZPMC decided to re-dry the electrodes E 9018M H4 R on hand. The digital photographs below show the temperature recorded from the oven digital screen on the left side and the temperature inside of the oven measured directly using the infrared temperature indicator gun.



## Summary of Conversations:

As noted 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:** Acuna,Alfredo

Quality Assurance Inspector

**Reviewed By:** McClary,David

QA Reviewer

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