

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-001048**Date Inspected:** 08-Dec-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 2300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Chen Xi**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:** Caltrans Mock-Up**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Ken Jobes, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, to randomly monitor welding and Quality Control (QC) functions. While on site, the QA Inspector observed and/or discovered the following:

The Caltrans QA Inspector observed semi-automatic Flux Cored Arc Welding (FCAW) of the root passes on the 114M Mockup, Lower Shaft Assembly, Weld Nos. 1B and 2B. Weld 1B is the inside of the complete joint penetration (CJP) groove weld joining Skin Plate D to Skin Plate E. Weld 2B is the inside of the CJP groove weld joining Skin Plate C to Skin Plate D. The welder for both welds was Chang Chuancang (Welder No. 053870) and CWI Chen Xi (No. 07072021) was present during this welding. Reference Drawings MUSC-MA109 for Skin Plate E and MUSC-MA113 for Skin Plate D. The Welding Procedure Specification (WPS) used for both welds was WPS-B-T-2232-TC-U4b-F. The QA Inspector verified that the recorded preheat/interpass temperatures, volts, amps and travel speed were with the parameters of the WPS up until the time of random measurement of such by use of temperature indicating crayons for preheat/interpass temperature; calibrated Fluke voltage/amperage meter for amps and volts; and a stopwatch and tape measure for travel speed.

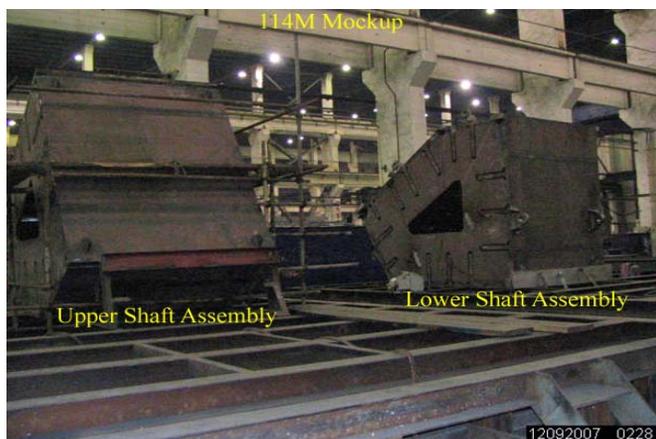
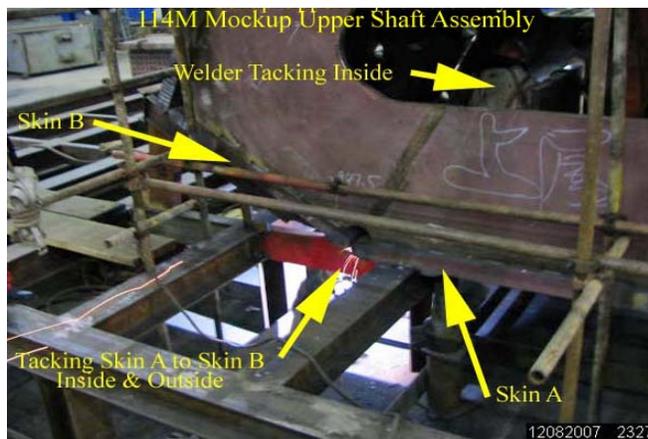
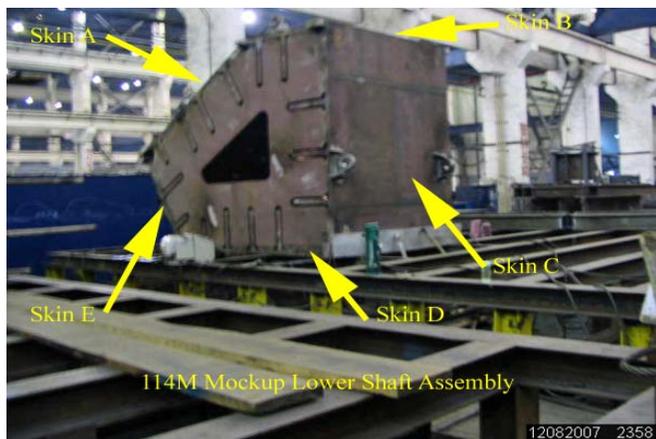
The QA inspector also observed the shielded metal arc (SMAW) tack welding on the Upper Shaft Assembly on the 114M Mockup. Tacking was done using two WPS's. WPS-B-P-2212-TC-U5b was used for tacking the inside in the horizontal groove (2G) welding position and WPS-B-P-2214-TC-U5b was used for tacking the outside in the overhead groove (4G) welding position. The joint tacked was Skin Plate A to Skin Plate B. The electrode used was E7018, which has requirements for maximum time of exposure to the ambient environment. The base material was ASTM A709 Grade 50 2, and is not specified to meet fracture critical requirements. The QA

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Inspector observed that electrodes were taken directly from portable ovens during the tack welding process and that the base material was being preheated and checked by ZPMC Quality Control (QC) personnel using a calibrated infrared temperature indicator. Electrodes taken directly out of the oven were only warm to the touch.

Two tack welders were used. Feng Huajun (Welder No. 066258) was tacking the outside in the 4G welding position and Han Jianshe was tacking inside in the 2G welding position. Both welders presented their qualification cards for the tacking being performed, but neither was listed on ZPMC's Master List of Welders/Welding Operators/Tack Welders, Revision 6. This item did not appear to meet the requirements of the job specifications. All other observations appeared to meet the requirements of the job Specifications.



Summary of Conversations:

As identified within the contents of this 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: Jobs, Kenneth

Quality Assurance Inspector

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Reviewed By: Cochran,Jim

QA Reviewer