

**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-001073**Date Inspected:** 25-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:** Sha Zhi, Xu Lefeng**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 randomly observed machine Submerged Arc Welding (SAW) of fill passes on the Upper Shaft Assembly of the 114M Tower Mock-Up, Weld No. MUC-MA106 B/C-1A. This is the outside weld of Skin D to Skin E. This is a complete joint penetration (CJP) groove weld and was being welded in the flat groove (1G) welding position. The welding operator was Yun Chaunjin (I.D. No. 0503060), whose qualifications for this welding are listed in ZPMC's Master List of Welders/Welding Operators/Tack Welders, Revision 7. Welding Procedure Specification (WPS) No. WPS-B-T-2221-C-U2b-S was being used for this weld. ZPMC CWI, Xu Lefeng (CWI No. 07031411) was present during this welding. The QA Inspector also noted that documentation of minimum/maximum preheat/interpass temperatures, voltage, amperage and travel speed by the CWI were within the specified ranges of the WPS up until the time of random observation. The QA Inspector observed that, during the welding of the first pass of his observation, that the machine malfunctioned and stopped, and did not resume for the rest of the observation, nor was it in operation during a later observation, approximately two hours later.

The Caltrans QA Inspector also randomly observed the manual Shielded Metal Arc Welding (SMAW) on the 89M Tower Mock-Up, Weld Nos. MUSB-MA22 B/B-17 thru 20. These welds join stiffener Piece Marks mp535b and mp536b to Piece Mark p1009.

This is part of Skin D Sub-Assembly MA22 shown on Drawing MUSB-MA22B/B. These are partial joint

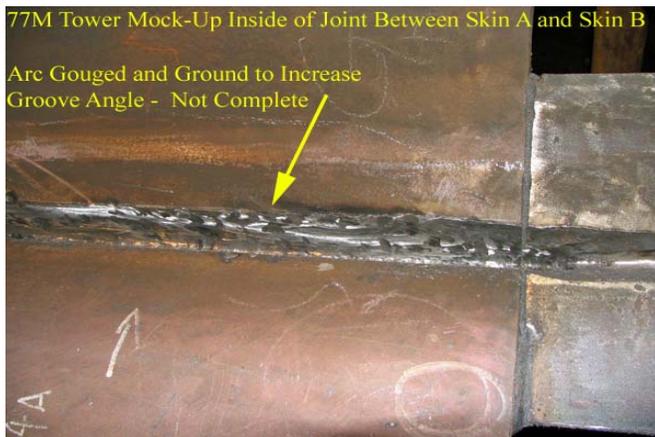
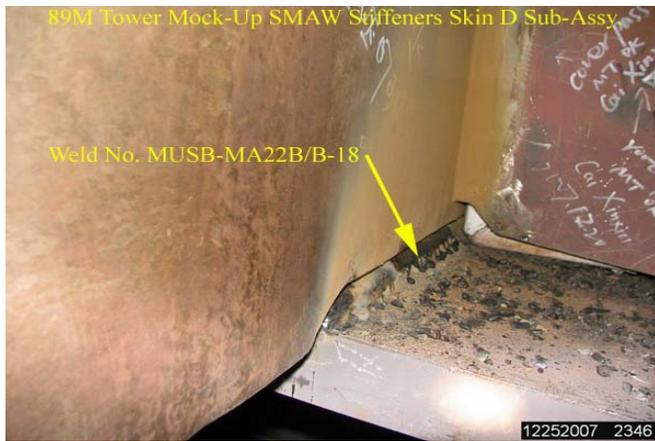
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penetration (PJP) groove weld and were being welded in the horizontal groove (2G) welding position. The four welders were Yang Shui Wei (I.D. No. 066280), Cao Tao (I.D. No. 066163), Liang Yanhai (I.D. No. 066457), and Tan Xiang (I. D. No. 066459; all of whose qualifications for this welding are listed in ZPMC's Master List of Welders/Welding Operators/Tack Welders, Revision 7. Welding Procedure Specification (WPS) WPS-B-T-4312-TC-P5-1-S was being used for this welding. The specified electrode, THJ506-Fe-1 (E7018-1) was being used and portable electrode ovens were in use. It was observed that preheating was being utilized. ZPMC CWI, Sha Zhi (CWI No. 07081551) was present during this welding as was Bureau Veritas Inspector, Zhang Xu Wang. The QA Inspector also noted that ZPMC's documentation of minimum/maximum preheat/interpass temperatures, voltage, amperage and travel speed by the CWI were within the specified ranges of the WPS for the passes welded during the time of observation. The QA Inspector also randomly measured the amperage and voltage by use of a calibrated Fluke amp/volt meter.

The Caltrans QA Inspector also randomly observed the arc gouging and grinding on the inside of the joint between Skin A and Skin B on the 77M Tower Mock-Up in order to increase the groove angle from 30° to 45°. The outside of this joint was tacked during this operation and no preheat was applied.

All observations appeared to meet the requirements of the job specifications.

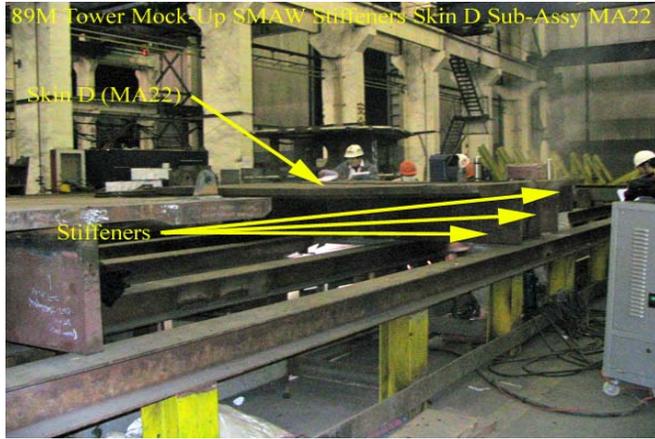


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## Summary of Conversations:

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.

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**Inspected By:** Jobs, Kenneth

Quality Assurance Inspector

**Reviewed By:** Cochran, Jim

QA Reviewer

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