

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-001185**Date Inspected:** 08-Jan-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

CWI Name:	ZPMC- Xu Le Feng, Zhao Chen	CWI Presenting Jun	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:** 77m, 89m, 114m and #1 deck mock-ups**Summary of Items Observed:**

On this date, the Caltrans Quality Assurance (QA) representative, John P. Tracy, conducted assessments while on site at Zhenhua Port Machinery Company (ZPMC) for Caltrans Project 04-0120F4-SAS. The following is the detailed review of the following observations:

Bay 1: Submerged Arc Weld (SAW) gantry welder is inactive. The Caltrans representative was sent out to the deck mock-up to add a letter designation to each of the number locations that were previously selected for cut-out. The letter designation would provide each location with its own traceable, unique identifier.

Bay 2 operations: The 77m mock-up has ongoing thermal operations with multiple locations being heated and welded in unison at diaphragm to longitudinal stiffener attachment welds and plate to plate attachment welds.

For the Shielded Metal Arc Weld (SMAW) process there were two separate Welding Procedure Specification (WPS), two separate materials; each having unique preheat qualities and two different electrodes for the eight different vertical (3G) weld locations. The following is a detail for those activities:

WPS-B-T-4113-2 was used for the American Society of Testing Materials (ASTM) A709 Gr485 to Gr345 attachment welds. These joints were made with the specified THJ-506-Fe electrode. Weld numbers MUSA-SA95-15 and -19 were made by ZPMC welder Fu Yanjie (066268) and weld numbers MUSA-SA104-16 and -20 were made by ZPMC welder Liu Shouhai (066456). WPS-B-P-2113 was used for the ASTM A709 Gr345 to Gr345 attachment welds. These joints were made with the specified TL-508 electrode. Weld numbers MUSA-SA95-16 and -20 were made by ZPMC welder Fu Yanjie (066268) and weld numbers MUSA-SA104-15 and -19 were made by ZPMC welder Liu Shouhai (066456).

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

For the Flux Core Arc Weld (FCAW) process, WPS-B-T-2232-TC-U4b-F was utilized for plate to plate attachment weld joint number MUA-MA1 E/F-15A by ZPMC welder Zhang Binghua (053316).

Submerged Arc Weld (SAW) process was performed under WPS-B-T-2221-C-U2b-S by ZPMC welder Xia Yongliu (048882) for joint number MUA-MA1 D/F-17B. This joint had some cleaning issues and when discussed with ZPMC personnel the concerns were corrected.

ZPMC Certified Welding Inspector (CWI) Xu Le Feng and Zhao Chen Sun and their three Quality Control (QC) assistants continually monitored preheat and interpass temperatures (with both laser pyrometer and melting temperature indicators) and welding parameters. Observed values appeared to be in accordance with the criteria set forth within the contractual documents.

89m mock-up had welding operation ongoing on the internal diaphragm to plate attachment welds for joint numbers MUB-MA21 G/J-57 AND -58 under WPS-B-T-4112-3. ZPMC CWI Ye Yong Jun was on site and attentive to the welding activities of the two ZPMC welders; (#57) Shen Yong (066257) and (#58) Li Zhengxu (066179). Observed values appeared to be in accordance with the criteria set forth within the contractual documents.

MUSB-MA25 and MUSB-MA26-1 and -2 shear links are idle and awaiting upper and lower web to flange and upper and lower stiffener to flange weld out.

89m MUSB-MA29 Cross Brace has had heat straightening operations performed and stiffener components that have been tack welded and have root passes already in place however, the component remains incomplete and inactive.

114m upper and lower mock-up sections are idle. Critical Weld Repair (CWR) procedure numbers 032, 033, 034 and 035 have been completed. Notification was given to the Caltrans representative that Ultrasonic Testing (UT) inspection was to be conducted on the off-shift by ZPMC inspectors.

Included below are digital pictures that support the observations recorded within this report.



WELDING INSPECTION REPORT

(Continued Page 3 of 4)



Summary of Conversations:

At the completion of the above stated operations, the ZPMC Certified Welding Inspectors, Xu Le Feng, Zhao Chen Sun and Ye Yong Jun, reported that the parameters followed and their noted results were found to be in accordance with the criteria set forth within the contractual documents.

Caltrans representative, Mr. Scott Croff, posed a scenario to me surrounding the joint configurations on the plate to plate attachment welds for the tower mock-up components. Through his observations, he believes that the ZPMC Ultrasonic Testing (UT) inspections are not providing adequate volumetric coverage through 100% of the

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

weld because of two reasons:

- 1) The angles being used with the plate thickness coupled with the fact that,
- 2) the inspectors are not going from the "face C" surface.

The general notes in Table 6.2 of American Welding Society (AWS) D1.5-2002 provides insight in which the UT inspector shall utilized when indications are noted. The Caltrans representative spoke Caltrans Lead Inspector, Mr. Alfredo Acuna, on this issue. The two agreed that the profile should be mapped out on an Computer Assisted Drawing (CAD) program to obtain more factual data. Further action is pending.

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:	Tracy,John	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer
