

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-004027**Date Inspected:** 01-Oct-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 600**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

CWI Name:	Wu Ming Kai	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:	OBG	

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:

OBG Sub-Assembly Shop – Bay 1

The QA Inspector observed the drilling of holes in RS plates using a template. Grinding on deck plate DP560 in preparation for fitting U-ribs was also observed as was the fitting/tacking of u-ribs to deck plate using gas metal arc welding (GMAW) JM-56 electrode.

OBG Sub-Assembly Shop – Bay 3

The QA Inspector observed the intermittent fillet welding of T-stiffeners on side plates SP484-001, SP616-001 and SP536-001. The welding procedure (WPS) being used was WPS-B-P-2112 for shielded metal arc welding (SMAW). The welding was being done in the horizontal fillet (2F) welding position using TL508 (E7018) electrodes. Certified Welding Inspector (CWI), Wu Ming Kai (CWI No. 04082031) was present during this welding as was ABF QA Inspector, Hu Gui Hua. The use of portable electrode ovens and preheating was observed.

The welders being used for SP484-001 were Jia An Quan (I. D. No. 201725) and Wang Fei (I. D. No. 051786). The welders being used for SP616-001 were Chen Ding Ding (I. D. No. 048923), Xiao Di (I. D. No. 203204), and

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Shi Wei (I. D. No. 053859). The welders being used for SP536-001 were Wang Hong Bo (I. D. No. 203206) and Sun Zhou When (I. D. No. 048920). The QA Inspector verified the qualifications of the welders for the work they were performing by looking at their welder qualification cards. The QA Inspector also verified that the electrode classification and diameter, voltage and amperage were within the ranges specified on the WPS.

The QA Inspector also observed miscellaneous grinding and burning.

OBG Sub-Assembly Shop – Bay 4

The QA Inspector observed the preheating of stiffeners in preparation for welding to a diaphragm plate. The Weld Nos. were SSD1-SA20-79 and SSD1-SA20-80. Although actual welding was not observed, the WPS listed on ZPMC's QC documentation was WPS-B-T-2132-2, for flux cored arc welding (FCAW). The specified electrode was E71T-1. The QA Inspector verified that the correct classification was on the wire feeder. The welder standing by to perform this welding was Ji Jin Gang (I. D. 205771) and Certified Welding Inspector (CWI), Yu Dong Ping (CWI No. 07121251) was also present. The QA Inspector verified the qualifications of the welder for the work to be performed by looking at his welder qualification card.

Miscellaneous grinding and burning were also observed.

OBG Sub-Assembly Shop – Bay 8

The QA Inspector observed that welding had been performed on two diaphragm plates using submerged arc welding (SAW) prior to the time of observation. These welds were still hot and ZPMC personnel were in the process of applying preheat equipment. They groove splices. Welding and QC personnel were not longer present.

Additional Observations - OBG Sub-Assembly Shop – Bay 1

Caltrans Quality Assurance (QA) Inspector, Ken Jobes, was present to monitor activities associated with the Production Monitoring Test (PMT) of Orthotropic Box Girder (OBG) Deck Panel U-rib welds. The PMT representing Deck Panel DP148-001 was monitored. After MT of the tack welds was accepted by ZPMC Level II MT Technician, Zhen Dong Yun, the three ribs (six welds) were simultaneously welded to three simulated deck plates, one rib per plate, in the horizontal groove (2G) welding position. The Welding Procedure Specification (WPS) used was WPS-B-T-2342-U1(Urib)-4. It is a combination procedure using gas metal arc welding (GMAW) for the root pass and submerged arc welding (SAW) for the cover or fill pass. The filler metals being used were verified to be as specified on the WPS; 1.4 mm diameter, ER70S-6 (JM-56) for GMAW and 4.8 mm diameter EH14K (H14) for SAW. During the test, the Caltrans QA Inspector recorded the parameters of amperage, voltage, and travel speed on the U-Ribs PMT Inspection Sheet, dated 10-01-08, for both welding processes. The name of the gantry operator and each of the six welding operators' identification numbers were also recorded on the U-Ribs PMT Inspection Sheet. ZPMC Certified Welding Inspector (CWI), Sun Bo (08021741) and ABF QA Inspector Chang Bao Qian were present during welding.

The final weld was visually examined and accepted by ZPMC CWI, Sun Bo; and ABF QA Inspector Chang Bao Qian. All welds appeared to meet the specified visual examination acceptance criteria.. After ultrasonic

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examination (UT) and acceptance by ZPMC Level II UT Technician, Ma Ji Long, the Caltrans QA Inspector designated the locations for the fifteen required macro-etch specimens. The QA Inspector was informed at 03:25 by ZPMC QA representatives, Zhang Jiadi (Ken) and Sun Bo that the macro-etch specimens would not be completed during the current shift due to malfunction of the cutting equipment. This information was passed on to the 10-01-08 day shift QA personnel.

All above 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 Ady Velasco (13816942685) China, who represents the Office of Structural Materials for your project.

Inspected By:	Jobes, Kenneth	Quality Assurance Inspector
Reviewed By:	Carreon, Albert	QA Reviewer
