

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-002535**Date Inspected:** 21-May-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:	Zhang Bao Lei and Ye Yong Jun			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 and SAS Tower Fabrication		

Summary of Items Observed:

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on these Bays mentioned below;

Bay 2: 77 and 114M Tower Mock-ups, Plate Cutting, Rolling

This QA observed rolling of 60mm thick plate with marking P388B was on going. On horizontal milling machine, two 65mm thick plates with mark P327B and P326 were seen still in the machine table. 114Meter Tower Mock-ups, installation of inside connector plates on stiffener (vertical) splice joint with bolts and nuts in progress.

Bay 3-OBG side/bottom panel:

The QA Inspector randomly observed ZPMC welder operators Liu Zihong ID Number 062447 and ID Number 051246 utilizing the Flux Cored arc Welding (FCAW) Process in the 2F (Horizontal Fillet) Position with gantry mounted welding apparatus and ZPMC Weld Procedure Specification (WPS) WPS-B-T-2132-3, to weld WT-Ribs on Bottom Plate BP168-001 Weld Joint (WJ) Numbers 016/034 and Bottom Plate BP169-001 Weld Joint (WJ) Numbers 020/038. The QA Inspector randomly observed ZPMC CWI Zhang Bao Lei monitoring weld parameters.

The QA Inspector also randomly monitored weld parameters and recorded them as follows: 300 amps, 30.3 volts and 440mm per min travel speed. The weld parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC welder Wang Zhonghua ID Number 053753, and Du Henghua ID number 037779 utilizing the SMAW Process in the 2F (Horizontal Fillet) Position and THJ506Fe-1 4.0mm

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electrode with ZPMC WPS WPS-B-P-2112 FCM, to tack weld WT-Ribs to Bottom Plate BP167-001-032~043. The QA Inspector randomly observed ZPMC CWI Wu Ming Kat monitoring weld parameters. Weld parameters appeared to comply with contract requirements.

This QA Inspector performed Visual Test (VT) on butt splice plate joints on the following; SP414-001-011; SP426-001-011; BP113-001-001 and BP054-001-007. All four VT'd deemed acceptable to project requirements. Caltrans QA also observed drilling of 16-24mm diameter bolt holes on flange of one end of bottom plate BP113 and B32.

Bay 4 Tower Diaphragm

The QA Inspector randomly observed ZPMC welder Wu Zhibing ID Number 049804, utilizing the Submerged Arc Welding (SAW) Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-U3C-S-1, to weld the fill and cover pass on butt splice of Tower Diaphragm Sub-Assemblies. The QA Inspector randomly observed ZPMC CWI Ye Yong Jun, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters during welding of ESD1-SA78-1A(1B) and recorded them as follows: 523 amps, 31.0 volts with a travel speed of 429 mm per minute. Weld parameters appeared to comply with contract requirements.

This QA also observed tack welding of run off tabs using ZPMC WPS-B-T-2332-TcP4-F-1 on diaphragm ring SSD1-SA335-6A/6B; WPS-B-T-3313-Tc-P4 on SSD1-SA261-1A2A splice plate ends and WPS-B-T-2233-B-U3-F on splice plate butt joint of SSD1-SA27-9B. Three welders who performed these tack welding were identified as Li Meng Qian ID number 054460, ID number 048659 and Li Zhao Qian ID number 054460 respectively.

This QA Inspector also observed hot bending using oxy-acetylene gas on heavy plate/flange marked P1255B(N)-4/26(C) and P654B(E)-4/26(F) with the aid of hydraulic ram and welded jig. These plates are intended for diaphragm ring that will be spliced together. The procedures HSR1(T)-1167 and HSR1(T)-1166 are being followed and heat input is monitored by ZPMC QC of less than 650 degree C. Heat straightening of bottom plate BP061-001 using oxy-acetylene gas and procedure HSR1(B)-931 was also noted.

Bay 7-OBG - Floor Beam Sub Assembly:

The QA Inspector randomly observed ZPMC welder Zhang Liang ID Number 067036, utilizing the FCAW Process in the 3F (Vertical Fillet) Position with ZPMC WPS WPS-B-T-2133, to weld web flange on Floor Beam Diaphragm Sub-Assembly FB003-013. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters. The parameters noted were 209 Amps, 25 Volts and 110 mm per min travel speed. These parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC welder Liu Long Xian ID Number 044786, utilizing the FCAW Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-T-2132-3, to weld flange to web on Floor Beam Diaphragm Sub-Assembly FB003-043. The QA Inspector randomly observed ZPMC QC Zhan Hai Feng monitoring weld parameters. The weld parameters appeared to comply with contract requirements. FCAW fillet welding also continues on stiffener plates to web and flange on floor beams FB003-042 and FB003-041-005.

Bay #8: Tower Diaphragms

The QA Inspector randomly observed ZPMC welder Ma Ying ID Number 045270, utilizing the SAW Process in

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the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-U3c-S-, to weld the fill pass on butt splice of Tower Diaphragm WD1-A1-B-1A. The QA Inspector randomly observed ZPMC CWI Shashi, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 686 amps, 34.3 volts with a travel speed of 600 mm per minute. Weld parameters appeared to comply with contract requirements.

This QA observed bending of various sizes and shapes of heavy metal for diaphragm ring. One plate being bent was P613A(E)-4/23(D) using natural gas of less than 650 degree C thermal heat input with the aid of hydraulic ram and welded jig. The procedure HSR1(T)-1654 is being implemented. Other activities observed that are related to welding include grinding/cleaning of groove after back gouging on diaphragm rings ESD1-SA348-10B and WSD1-SA226-10B and carbon arcing of run off tab on ESD1-SA226.



Summary of Conversations:

No significant conversation occurred today.

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: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Cochran, Jim

QA Reviewer