

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-004211**Date Inspected:** 19-Sep-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:** Art Peterson**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 Assembly**Summary of Items Observed:**

This report serves to document the events occurring on this date at the following location. Caltrans Quality Assurance (QA) Inspector Robert Vatcher arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following: The weather today is 31C, clear with winds at 2-3 kph.

Orthotropic Box Girder (OBG) Fabrication

ZPMC QC PMT Macro-Etch Lab

QA arrived at the ZPMC QC Macro-Etch Lab to evaluate final PMT samples that were remaining from the previous evening's PMT operation. QA concluded that remaining samples 6-4 and 6-5 were not prepared well enough and requested that the samples be re-polished and re-etched. QA was presented with Macro Etch samples 6-4 and 6-5 at which time QA rejected for having a linear indication which visually QA evaluated as a crack in both specimens. AB/F QC Mr. Art Peterson was apprised of the situation and evaluated said specimens and accepted. QA is responding that this issue will be elevated to Mr. Kinsey and Mr. Merrill for further disposition.

Tack Weld Trial Tests (OBG Bay I)

QA arrived on station to observe and witness GMAW tack welding for the deck panel to U-Rib partial Joint penetration PJP tack weld trial test. QA observed the following parameters.

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Lv Yun of ZPMC QC department is on hand for quality control functions.

Welder ID 059373

Amps 330 to 355 with AB/F saying that an average of 338 overall.

Volts at a constant 27.1

Travel speed not measured however amps and volts initially outside established PQR & WPS parameters.

Gas flow at 25 MPA utilizing an unverifiable tri-mix of Argon 85%, CO2 15% and O2 at 5%. QA queried AB/F QC Art Peterson and discussed the potential for excessive moisture within the gas blend itself.

At 1300 hrs. QA arrived to further witness the tack welding trial. QA observed Art Peterson performing Magnetic Particle Examinations to perform a quality control function over ZPMC MT personnel. No linear indications discovered at this juncture.

Magnetic Particle examinations performed in the tack weld areas. No linear indications discovered.

Orthotropic Box Girder (OBG) Fabrication

QA arrived at OBG Bay 1 at 1400 hrs. for the purpose of witnessing Production Monitoring Tests (PMT) in accordance with WPS B T 2342 U1 (Urib) -3 combination GMAW/ SAW on closed rib deck plates. Gantry number 1 will be utilized for these tests conducted on this date. Tacking was performed as mentioned above. QA did observe that all three sections equaling to a total of six closed rib joints on one base "Deck" plate had intimate contact between the closed rib plates and the associated base plate material.

QA observed ZPMC QC Lv Yun (CWI for this evolution) and AB/F QC Art Peterson and Man Kit Li were available for this operation. As well the following welders were available and assigned to the corresponding horizontal welding positions that match the same welding positions as the Production Monitoring Tests (PMT's);

Welder ID for Gantry 1 Operator – 201492 (GMAW) 059474 (SAW)

Welder ID for Gantry Weld 1- 062265

Welder ID for Gantry Weld 2- 059361

Welder ID for Gantry Weld 3- 059378

Welder ID for Gantry Weld 4- 059416

Welder ID for Gantry Weld 5- 059468

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Welder ID for Gantry Weld 6- 0594343

As welding began the measured parameters were as follows;

GMAW

	AMPS	VOLTS	Travel Speed
1.	365	30.3	525 mm
2.	340	30.4	Per Minute
3.	361	30.8	Constant
4.	360	30.0	
5.	370	30.6	
6.	370	30.6	

Grinding of the tack welds commenced at this time. Upon grinding QA performed a visual examination of all the root passes including the ground locations of tack welds. QA also observed ZPMC QC Lv Yun (CWI for this evolution) and AB/F QC Art Peterson and Man Kit Li personnel perform the same. QC reported no relevant indications. QA concurred upon visual examination as well.

SAW

	AMPS	VOLTS	Travel Speed
1.	685	25.0	514 mm
2.	680	24.8	Per Minute
3.	684	25.4	Constant
4.	681	24.9	
5.	683	25.1	
6.	683	25.1	

Visual- QA observed ZPMC QC Lv Yun and AB/F QC Art Peterson and Man Kit Li perform a 100% visual

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examination (VT) on Tack Weld Trial represented specimens. As well QA performed a final visual exam of all six joints. QA concurred with QC assessment that all six joints appeared to conform to the contract documents. QA observed that it appeared that no cracks, overlap, under sizing or over sizing, undercut or incomplete fusion were apparent.

QA performed a descriptive turnover to QA representative Mr. Paul Dawson upon the SAW finishing out. Mr. Dawson was informed to observe the marking, stamping and subsequent cutting, sanding, polishing and etching prior to ZPMC QC and AB/F QC performing measurements on all 18 samples.

The above mentioned items as observed & documented by QA pertaining to the Tack Weld Trial appear to conform to the contract documents.

Summary of Conversations:

No relevant conversations this date.

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 138-1694-2685, who represents the Office of Structural Materials for your project.

Inspected By:	Vatcher,Robert	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer
