DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-001473
Date Inspected: 17-Feb-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 600
OSM Departure Time: 1730
Location: Shanghai, China

CWI Name:	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: Tower Shop

Summary of Items Observed:

CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

Crack and critical weld repair CWR # 039 and 042

The QA inspector witnessed the weld repair of the CWR # 039 and 042 at the Tower Mock-up 89 M.
ZPMC started the air carbon arc gouging operations at the junction of the longitudinal stiffener to fitting lug piece marked # p676, weld joint # MUB-MA21G/J-29. The QA inspector observed that the preheat temperature was below of 65 º C (with the crayon temperature indicator) at the back side of the 70 mm plate. ZPMC QC inspector Xu Lefeng and Li Xiu Yang agreed with the QA inspector assessment. The QA inspector requested verify the actual preheat temperature with the infrared thermometer but ZPMC did not have any on the site at that time. The QA inspector had a conversation with ZPMC representative Li Xiu Yang. The QA inspector informed to Mr. Li Xiu Yang that Caltrans QA inspector suppose to measure the depth of the crack and ZPMC supposed backgouged the weld metal with care so the operator could identify when the crack was removed. Mr. Li Xiu Yang relayed to the QA inspector that ZPMC would remove the entire weld.
ZPMC, performed air carbon arc cutting operations at the junction of the longitudinal stiffener to fitting lug piece marked # p1033, weld joint # MUB-MA21A/J-29. ZPMC removed the weld completed. ZPMC ground the weld area smooth and performed a hot magnetic particle testing.
The actual size of the crack was undetermined because ZPMC removed the weld completed while the QA inspector was not presented.

WELDING INSPECTION REPORT

(Continued Page 2 of 2)

After ZPMC ground the weld metal to the bright metal, the QA inspector witnessed ZPMC's QC inspector Cai Xin Xin performing magnetic particle inspection (MT) at air carbon arc gouged areas at the locations where the cracks were removed. The QA inspector observed that Mr. Cai Xin Xin accepted ground areas after completing his MT verifications. The QA inspector performed 100 % of MT verifications of the weld joint MUB-MA21A/J-29. The QA inspector found that welds appears to be in compliance with the contract documents. The QA inspector generated a MT report TL_6028 on this date.

The QA inspector observed welder Pan Meng was observed by the QA Inspector performing welding operations at the junction of the longitudinal stiffener to fitting lug piece marked # p1033, weld joint # MUB-MA21A/J-29. The filler and cover passes were deposit following the approved repair welding procedure specification WPS-. 345-FCAW (3G) 3F-Repair. Base metal was designated as A-709 Grade 50. ZPMC was using the shielded metal arc welding (SMAW) process in the flat (1G) position with the 4.0 mm diameter electrode designated as E7018/AWS A5.1, brand name TL-508. The QA Inspector verified amperage, voltage, travel speed, preheat and heat interpass temperatures. The QA inspector found that the welding parameters appeared to be in accordance with the contract documents.

After approximately 40 minutes of the completion of the weld joint # MUB-MA21G/J-29, the QA inspector verified the postweld heat treatment temperature (PWHT) at the CWR #39 area. The QA inspector found that the temperature was below to 230 º C (minimum PWHT temperature that supposed to be held for one hour). The QA inspector had a conversation with ZPMC QC inspector Xu Lefeng. Mr. Xu Lefeng agreed that temperature measured was below of the minimum required temperature and he start searching for the cause of the temperature drop at the connections of the heaters bands. The QA inspector had to leave at the end of the shift. The QA inspector had a conversation with ZPMC QC inspector Li Xiu Yang. The QA inspector brought to Mr. Li Xiu Yang the PWHT issue at the CWR # 39. After approximately 20 minutes. Mr. Li Xiu Yang had a phone conversation and relayed that ZPMC raise the temperature to the minimum required of 230º C.

The QA inspector observed ZPMC welder Lei Lichao welder ID # 053619 performing weld repairs at the weld joint MUB-MA21/J-8 with flux cored arc welding (FCAW) process (ZPMC internal non critical weld repair # WR-071). The QA inspector found that ZPMC welding operations appeared to be in accordance with the contract documents.

Summary of Conversations:

As noted above.

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:	Acuna,Alfredo	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer