

**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-001118**Date Inspected:** 12-Nov-2007**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

<b>CWI Name:</b>	Gou Den Yun			<b>CWI Present:</b>	Yes	No	
<b>Inspected CWI report:</b>	Yes	No	N/A	<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A	<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A	<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A	<b>Approved WPS:</b>	Yes	No	N/A
				<b>Delayed / Cancelled:</b>	Yes	No	N/A
<b>Bridge No:</b>	34-0006			<b>Component:</b>	Tower Mock-up and OBG		

**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.

Item Description	WBS	Dwg No.	Status
1 OBG Deck plate Mock-up U-ribs			
The QA inspector assisted the QA inspector Larry Viars performing dimensional verifications to the U-ribs U-01 through U-10. Mr. Viars informed to the QA inspector that he found excessive gap at the junction of the deck plate to the U-rib between tack welds of 1.1 mm. The maximum gap allowed in accordance with ZPMC fabrication procedure was 0.5 mm. The QA inspector informed ZPMC of the results obtained after the dimensional inspection.			

# WELDING INSPECTION REPORT

( Continued Page 2 of 4 )



## 2 Magnetic Particle Testing (MT) to the flange Diaphragm ring fillet

The QA inspector observed that ZPMC was performing magnetic particle inspection to the fillet weld at the junction of the flange reinforcement ring SA-274 with the diaphragm SA-104. The QA inspector asked ZPMC QA inspector Li Xue Yang what was the cooling time after the weld was completed. After Mr. Li Xue Yang asked the QC personnel, Mr. Li Xue Yang informed the QA inspector that the cooling time was less than 48 hours. The QA inspector relayed that the required time was 48 hours and the QA inspector recommended that wait until the cooling time was completed. ZPMC QC and QA inspectors at that location were not aware of the cooling time required before performing non destructive testing per special provisions, when welding grade HPS 485W. The QA inspector had a conversation with ABF representative Kevin Dye and Art Peterson. The QA inspector informed the ABF representatives that ZPMC QC inspectors were not aware that ZPMC needed to wait before MT as per special provision 48 hours after welding a fillet weld. ABF agreed and relayed this information to ZPMC about this requirement.

Later after the cooling time was completed, The QA inspector observed that ZPMC performed MT verifications of the fillet weld at the junction flange reinforcement ring SA-274 with the diaphragm SA-104. The QA inspector found that ZPMC verifications appeared to be in accordance with contract documents.



## 3 OBG Mock-up Deck plate root face and FCAW Electrode Storage for Fracture critical members

The QA inspector had a conversation with the ABF representative Mr. Peter Ferguson. The QA inspector brought to the attention of Mr. Peter Ferguson that the following items had happened over the weekend:

1. After ZPMC performed extra grinding to the root faces on the OBG Mock-up U-ribs to obtain a minimum of 1.5 mm root face, The QA inspector observed root faces on U-ribs for the OBG Mock-up that measured < 1.5 mm on localized areas. The QA inspector added that the QA inspector informed ZPMC QA representative Mr. Hu Gang, Mr. Xu Jun

# WELDING INSPECTION REPORT

( Continued Page 3 of 4 )

and ABF representative Mr.Zhang Xu Liang. ABF and ZPMC representatives agreed and Mr. Xu Jun informed ZPMC technical department that would address these issues.

2. ZPMC fit-up the U-ribs to the deck plate without informing ABF or Caltrans whether ZPMC repaired the root areas with less than 1.5 mm on the root face.

3. The QA inspector asked Mr. Peter Ferguson for the ZPMC's records showing that ZPMC tack welded fracture critical member (FCM) on the 11/10/07 with electrode that has been stored according with AWS D1.5 (2002)section 12 for the OBG splice bottom plate PL 36A to 36B, PL 37A to PL 37B and side plates PL 63A and 63B. Mr. Peter Ferguson said that he would provide ZPMC's records showing how the above mentioned splices were welded.

After Mr. Peter Ferguson conversation with ZPMC production Supervisor. Mr. Peter Ferguson informed to the QA inspector that ZPMC repaired all the areas with root faces less than 1.5 mm before tack welded the U-ribs to the deck plate on Sunday.

## 4 Tower 89 M Ultrasonic Testing (UT)

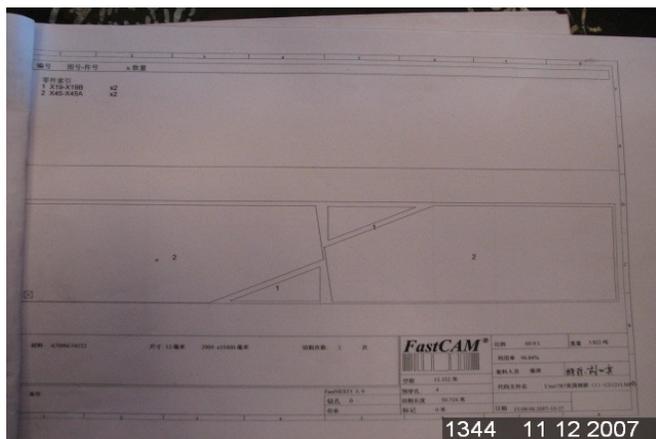
The QA inspector observed ZPMC Li Li Ming and Xue Hai Yang performing UT verifications at the longitudinal stiffeners splices for skin C,D and E Tower Mock-up 89 M. ZPMC UT verifications appeared to be in accordance with the contract documents.

ZPMC reported a rejectable indication with 17 mm of length at the skin C weld # 8 at the junction of plates 534 c to 534 b.



## 5 OBG cutting CNC operations

The QA inspector observed ZPMC representatives performing cutting operations with the CNC cutting machine to the plate 18B and 45A. See photographs below



---

---

# WELDING INSPECTION REPORT

( Continued Page 4 of 4 )

---

---

**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.

---

<b>Inspected By:</b>	Acuna,Alfredo	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar,Robert	QA Reviewer

---