

**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-000619**Date Inspected:** 26-Sep-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**CWI Name:** Ye YongJun**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 Mock-up 77 and 114 M**Summary of Items Observed:**

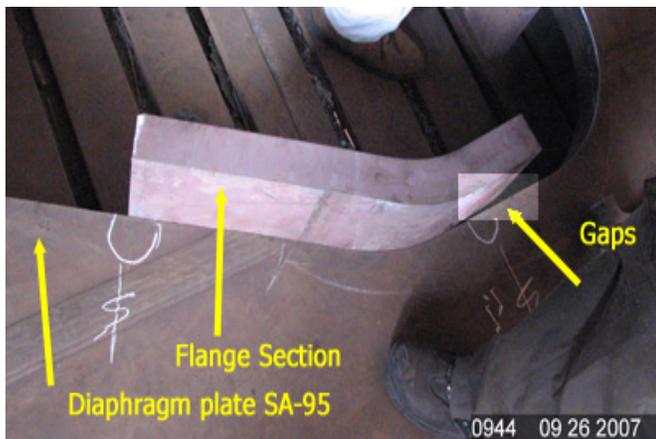
CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication of the Mock-up 77, 89 and 114 meters elevations scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

**Tower Mock-up 77 Meter Elevation**

The QA inspector observed ZPMC pre-installing the flange sections (4 sections of 60 mm thick) to the lower diaphragm SA-95 opening. ZPMC was measuring the gaps between the four sections (individually) of the flange and the diaphragm's opening. The QA inspector had a conversation with the ZPMC QA inspector Shen Xue Jun. Mr. Shen relayed to the QA inspector that the bent flange sections did not meet the tolerance of the contract documents, and that the bent flange sections might be rejected by ZPMC. The photo below shows the member being fit-up to the opening.

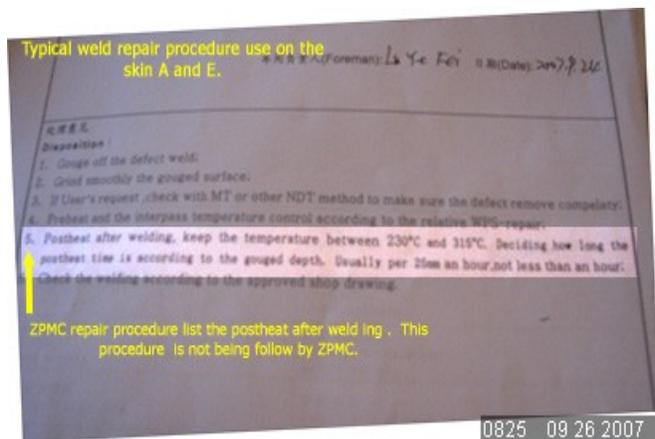
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Item	Description	WBS	Dwg No.	Status
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1	<p>Postheat after Repair Report Tower Mock-up 77 Meter Elevation</p> <p>The QA inspector observed that ZPMC was setting up to weld the Skin A and E for the Tower Mock-up 77. The QA inspector had a conversation with ZPMC QC inspector Xin Zhai Gu. The QA inspector asked the welding repair report pertinent for the skin plate A and E. After the QA inspector reviewed ZPMC's welding repair report, the QA inspector asked the QC inspector if ZPMC was performing postheat after welding on weld repairs according to the step # 5 of the repair procedure report. Mr. Xin relayed to the QA inspector that ZPMC did not intend performing postheat after welding and that ZPMC inadvertently wrote in the welding repair report the posheat after welding requirement. ZPMC QA Shen Xue Jun and Mr. Xin relayed to the QA inspector that ZPMC was following the approved WPS-345-SMAW-1G-Repair. The QA inspector brought it to the attention of ABF representative Mr. Jeff Evans that ZPMC had a weld repair report that ZPMC was not following. Mr. Evans relayed that ABF's position was that ZPMC needed to follow what was written in the welding repair report. The digital photograph below depicts the step # 5 of the welding repair report.</p>			
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2	<p>ZPMC Ultrasonic Testing (UT) Verications Skin B Upper Panel and Skin A Lower Panel Tower Splice Mock-up 114 Meter Elevation</p> <p>The QA inspector witnessed ZPMC Quality Control inspector E Shuiqin and Li Li Ming performing Ultrasonic testing at the junction of the skin B upper panel and A to lower panel longitudinal stiffeners.</p> <p>The QA inspector observed that the UT verifications performed by Ms. E and Mr. Li appeared to be in general compliance with AWS D1.5 2002. However, the QA inspector observed that Ms. E was calibrating the angle with</p>			
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the probe-target technique calculating the angle beam from the projection on the center of the 50 mm plastic cylinder in lieu of checking the engraved mark on the block (ZPMC calibration IIW block type II, does not give the ability the inspector to measured 70 +/- 2 of the nominal angle. See digital photograph below taken on 09/17/07). In addition, the QA inspector observed that ZPMC UT operators were performing UT operations scanning lower level than the required in table 6.3 from the AWS D1.5.2002. The QA inspector had a conversation with ABF QA Manager Mr. Steve Lawton. The QA inspector voiced that ZPMC is using a UT technique that is not in the contract documents; in addition, the QA inspector relayed to Mr. Steve Lawton that Ms. E and Mr. Li were not scanning in accordance with the table 6.3 AWS D1.5 2002. Mr. Steve Lawton agreed with QA inspector that the scanning level needed to be performed as required within AWS D1.5 (2002). In addition, Mr. Steve Lawton met with ZPMC to discuss ZPMC scanning technique. Mr. Steve Lawton relayed to the QA inspector that ZPMC relayed to him that ZPMC was scanning in compliance with AWS D1.5 2002. Mr. Steve Lawton relayed that ABF was planning to give a training section to ZPMC about calibration and scanning technique per AWS D1.5. 2002. The photograph below shows Mr. Steve Lawton discussing and giving demonstrations about scanning techniques.

The results from ZPMC's UT testing were (reported to the QA inspector) as follows:

Skin B lower panel was found acceptable on side A and B.

Skin A lower Panel

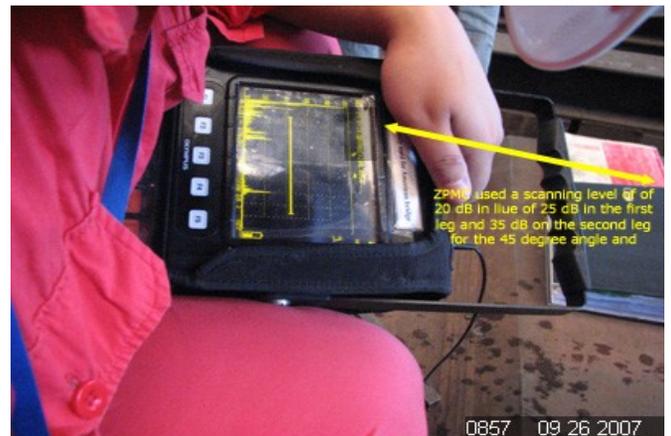
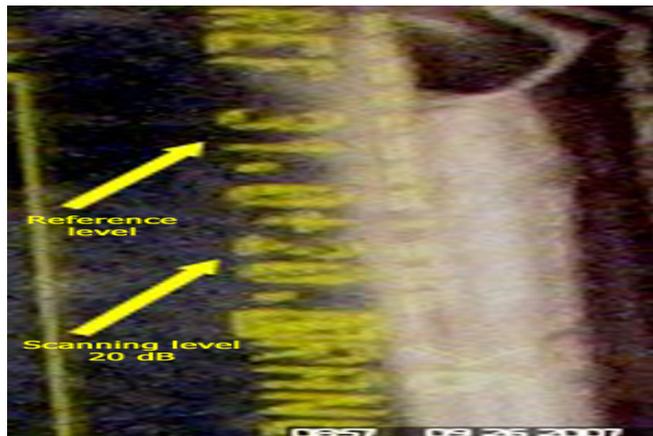
total length of the weld CJP 500 mm.( CJP + PJP= 1035 mm)

Weld joint # 1 identified two (2) defects with the reported length of L1=30 mm and L2=30 mm. Total 60 mm of defect length.

Weld joint # 2 identified 1 defect with the reported length of L1= 30 mm

Weld joint # 3 identified a total of three (3) defects with reported length L1= 410 mm, L2=30 mm and L3=20 mm.

Note: Laminar tearing scanning, that ZPMC would perform from face C is still pending on skin B upper panel.



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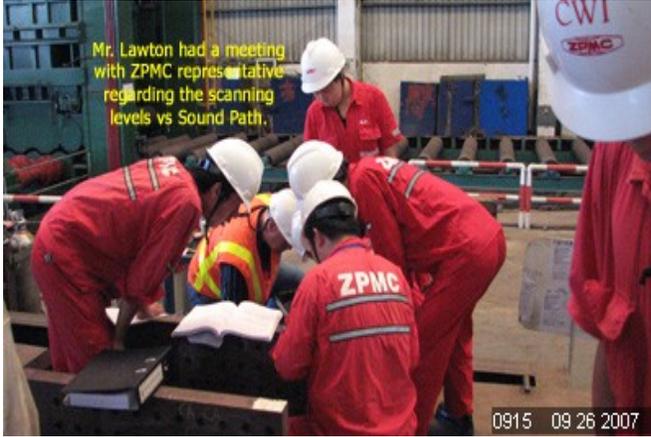
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## Summary of Conversations:

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.

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

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