

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-005798**Date Inspected:** 15-Mar-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1845**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 645**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

<b>CWI Name:</b>	Ming Li, Chen Li Kun, Li Jia	<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
		<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006	<b>Component:</b>	Tower and OBG Components		

**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector George Goulet was present during the times noted above for observations relative to the work being performed.

**Bay 11**

This QA Inspector randomly observed the following work in progress in Bay 11:

SAW welding of weld joint ESD1-FASA3-2E/E-23A located on PCMK east tower, lift 3, skin A. Welder was identified as 056975. ZPMC QC was identified as Ming Li (QC1). The welding variables recorded by QC1 appeared to comply with WPS: B-T-2221-B-U3c-S-2. Assisting QC at this location and appearing to be monitoring the welding was ABF Representative Chen Xiao Ping (ABF2).

**Bay 10**

This QA inspector proceeded to Bay 10 in response to a ZPMC notification of witness inspection to perform MT inspection as follows:

This QA Inspector performed MT of approximately 15% of the area previously tested and accepted by ZPMC Quality Control personnel. This QA inspector generated an MT report for this date. The member is identified as north tower, lift 2, skin A. The weld designations reviewed are as follows: NSD1-SA166E/F-17, 18, 20, 21, 25, 26, 29, 30, 2, 3, 4, 5, 19, 10, 13, 14 and NSD1-SA166D/F-18, 19, 21, 22, 26, 27, 30, 31, 2, 3, 5, 6, 10, 11, 14, 15. QA Inspector also notated MT review on the yellow tag attached to the member.

This QA Inspector randomly observed the following work in progress in Bay 10:

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SAW welding of weld joints SSD1-FCSA3-E/E-40A, 53A located on PCMK south tower. Welders were identified as 207746 and 207745. ZPMC QC was identified as Chen Li Kun (QC2). The welding variables recorded by QC2 appeared to comply with WPS: B-T-2221-B-U3c-S-2. Also observed at this location and appearing to be monitoring the welding was ABF Representative Yang Yi Heng (ABF2).

### Bay 9 - PMT

This QA inspector arrived at the OBG Production Monitoring Test (PMT) #1 for deck panels DP455-001 and DP213-001 at Gantry #2 at 0205 hours. This QA inspector observed that the SAW cover pass of the PMT test had been completed. ABF Representative Cao Hai Zhou (ABF), ZPMC CWI Li Jia (QC) reported the following to this QA inspector: Prior to PMT #1, the magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Zhou Dong Yun. The visual inspection of tack welds and root gap was performed by ABF and QC. The start time for welding of PMT #1 was approximately 0126 hours on Monday, 3/16/09 and the finish time was approximately 0152 hours.

This QA inspector observed and recorded documentation of the welding amperage, voltage and travel speed during the gas metal arc welding (GMAW) and submerged arc welding (SAW) processes, welds 1 thru 6 at the completion of both the GMAW root pass and SAW cover pass. The welds were visually inspected by ABF and QC. QC and ABF informed this QA Inspector that all six welds were acceptable and QA inspector concurred. This QA inspector randomly witnessed ZPMC Ultrasonic Testing (UT) inspector, identified as Xue Hai Rong, perform UT on each of the 500 mm test welds for depth of penetration and conformance. This QA inspector selected fifteen designated locations for macroetch sampling per contract requirements. Each macroetch location was stamped by ZPMC personnel with the number 455, as well as the letter D, and an individual macroetch identifying number for each macroetch. After removal from each of the weld test specimens and polishing of the selected end, the macroetches were evaluated with a 7X optical comparator and a 10X optical comparator and accepted by QC, ABF, and this QA Inspector.

All fifteen sample macros appeared to meet requirements and were noted to appear acceptable. See Caltrans U-ribs PMT Inspection Sheet, ZPMC production monitoring test plate inspection report, and Caltrans Macro Etch Log - all dated 3/16/2008 for additional information.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

### Summary of Conversations:

As noted above, and QA inspector asked QC if all the welding variables observed by him appeared to comply with the appropriate WPS, including the preheat requirements according to thickness of the thickest member being welded. QC showed this QA Inspector that he was carrying the proper temperature sticks to monitor the minimum and maximum preheat and interpass temperatures and replied that all he observed did appear to comply.

### 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 Eric Tsang, 134-8257-0045, who represents the Office of Structural Materials for your project.

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**Inspected By:** Goulet, George

Quality Assurance Inspector

**Reviewed By:** Carreon, Albert

QA Reviewer