

**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-006365**Date Inspected:** 30-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>	Wu Ming Kai, Li Ming, Li Hong			<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

**Bridge No:** 34-0006**Component:** 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 10**

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

SMAW welding of weld joints WD1-A467-23M-3-27,28 located on PCMK shear link 23M. Welder was identified as 040450. ZPMC QC was identified as Wu Ming Kai (QC1). The welding variables recorded by QC1 appeared to comply with WPS-B-T-2112-Tc-U5b. Also at this location and appearing to be monitoring the welding was ABF Representative Li Shi You.

SMAW welding of weld joint WD1-A468-23M-2-6A located on PCMK shear link 23M. Welders were identified as 056200, 057258. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-T-2112-Tc-U5b. Also at this location and appearing to be monitoring the welding was ABF Representative Li Shi You.

**Bay 11**

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

Fitting and FCAW tack welding of weld joints ESD1-FESA3-2B/D-21,22 located on PCMK east tower, lift 3, skin E. Welders were identified respectively as 047701, 202821. ZPMC QC was identified as Li Ming (QC2). The welding variables recorded by QC2 appeared to comply with WPS-B-T-2332-Tc-P5-F. Assisting QC2 at this location and appearing to be monitoring the welding and recording the data was ZPMC QC Inspector Cao Cheng,

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who was not a CWI.

SAW welding of weld joint ESD1-FCSA-2B/C-56B located on PCMK east tower, lift 3, skin A(2). Welder was identified as 042195. ZPMC QC was identified as Li Hong Fei (QC3). The welding variables recorded by QC3 appeared to comply with WPS-B-T-2221-B-U3c-S-2. Also at this location and appearing to be monitoring the welding was ABF Representative Wang Jiang Hua.

SAW welding of weld joint ESD1-FDSA-2B/C-10, 13 located on PCMK east tower, lift 3, skin D. ZPMC QC was identified as QC3. The welding variables recorded by QC3 appeared to comply with WPS-B-T-2221-B-U3c-S-2. Also at this location and appearing to be monitoring the welding was ABF Representative Wang Jiang Hua.

### Bay 9 – PMT

This QA Inspector, George Goulet, monitored OBG Production Monitoring Test (PMT) #1 for deck panels DP266-001 and DP428-001 at Gantry #1. 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 Cai Xin Xin. The visual inspection of tack welds and root gap was performed by ABF Representative Huang Wen Guang (ABF), ZPMC CWI Sun Bo (QC4), and this QA inspector, George Goulet. The start time for welding of PMT #1 was approximately 0041 hours on Tuesday, 3/31/09 and the finish time was approximately 0113 hours. This QA Inspector, George Goulet, randomly verified and documented 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, QC4 and this QA Inspector, George Goulet. QC4 and ABF informed this QA Inspector, George Goulet, that all six welds were acceptable and QA inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Xu Wei, perform UT on each of the 500 mm test welds for depth of penetration and conformance. This QA Inspector, George Goulet, selected fifteen designated locations for macroetch sampling per contract requirements. Each macroetch location was stamped by ZPMC personnel with the number 266, the letter K, 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 QC4, ABF, and this QA Inspector, George Goulet.

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 3/31/2008 for additional information.

### Summary of Conversations:

As noted above, and this QA Inspector, George Goulet, asked each 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. Each QC showed this QA Inspector, George Goulet, 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

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your project.

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<b>Inspected By:</b>	Goulet, George	Quality Assurance Inspector
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<b>Reviewed By:</b>	Carreon, Albert	QA Reviewer
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