

**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-009466**Date Inspected:** 04-Oct-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**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 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:

SMAW welding of weld joint WD1-A6003-4-10A located on a west tower strut. Welder was identified as 058009.

ZPMC QC was identified as CWI You Qi Guo (QC1). Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector Chen Bo, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-B-T-3212-TC-U5b.

FCAW welding of weld joints WD1-A504A/C-307, 308 located on west tower, skirt plate. Welders were identified respectively as 070254, 070140. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with WPS-B-T-2132.

Bay 10

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

SMAW repair welding of weld joint SSSL3-1B/K-84B located on the outside of PCMK south tower, lift 3.

Welder was identified as 053829. ZPMC QC was identified as CWI Wang Chuang Qing (QC2). The welding variables recorded by QC2 appeared to comply with WPS-345-SMAW-2G(2F).

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SMAW welding of weld joint SSSL4-1B/L-5A located on the outside of PCMK south tower, lift 4, at the 121M elevation. Welder was identified as 056200. ZPMC QC was identified as QC2. The welding variables recorded by QC3 appeared to comply with WPS-345-SMAW-4G(4F).

FCAW welding of weld joints NSTL3-3B/K-77, 78 located inside PCMK north tower, lift 3, skin C to skin D angle stiffener between 109M diaphragm and 111.67M diaphragm. Welder was identified as 057266. ZPMC QC was identified as CWI Tu Jun (QC3). Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector Li Peng Fei, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-B-T-2331-TC-P4-F-2 on weld #77 and WPS-B-T-2332-TC-P4-F-2 on weld #78. Also present at this location and appearing to be monitoring the welding and recording data was ABF Representative Ma Zhen Yi.

FCAW welding of weld joints NSTL3-3B/K-80, 79 located inside PCMK north tower, lift 3, skin B to skin C angle stiffener between 109M diaphragm and 111.67M diaphragm. Welder was identified as 053870. ZPMC QC was identified as QC3. Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector Li Peng Fei, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-B-T-2331-TC-P4-F-2 on weld #80 and WPS-B-T-2332-TC-P4-F-2 on weld #79. Also present at this location and appearing to be monitoring the welding and recording data was ABF Representative Ma Zhen Yi.

FCAW welding of weld joints NSTL3-3B/K-77, 78 located inside PCMK north tower, lift 3, skin C to skin D angle stiffener between 105.5M diaphragm and 109M diaphragm. Welder was identified as 040533. ZPMC QC was identified as QC3. The welding variables recorded by QC3 appeared to comply with WPS-B-T-2331-TC-P4-F-2 on weld #77 and WPS-B-T-2332-TC-P4-F-2 on weld #78.

FCAW welding of weld joints NSTL3-3B/K-80, 79 located inside PCMK north tower, lift 3, skin B to skin C angle stiffener between 105.5M diaphragm and 109M diaphragm. Welder was identified as 053870. ZPMC QC was identified as QC3. The welding variables recorded by QC3 appeared to comply with WPS-B-T-2331-TC-P4-F-2 on weld #80 and WPS-B-T-2332-TC-P4-F-2 on weld #79.

FCAW welding of weld joints NSTL3-3B/K-80, 79 located inside PCMK north tower, lift 3, skin B to skin C angle stiffener between 99.5M diaphragm and 102.5M diaphragm. Welder was identified as 053870. ZPMC QC was identified as QC3. The welding variables recorded by QC3 appeared to comply with WPS-B-T-2331-TC-P4-F-2 on weld #80 and WPS-B-T-2332-TC-P4-F-2 on weld #79.

### Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3020 for deck panels DP3020-001 and DP3016-001 at Gantry #2. Prior to the start of the PMT, the magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Jin Jianting on 10/2. The visual inspection of tack welds and root gap was performed by ABF Representative Lv Yun (ABF), ZPMC CWI Guo Yanfei (QC), and this QA Inspector. The start time for welding was approximately 0012 hours on 10/5/09 and the finish time was approximately 0043 hours. This QA Inspector randomly verified and documented the welding

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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 welding variables recorded by QC appeared to comply with WPS-B-T-2342-U1-(U-rib)-4. The welds were visually inspected by ABF, QC and this QA Inspector. QC and ABF informed this QA Inspector that all six welds were acceptable and this QA Inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Tang Xingshan, 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 3020, the letter P positioned sideways, and an individual macroetch identifying number for each macroetch. After removal from each of the weld test specimens, polishing, and acid etching of the selected end, the macroetches were evaluated with a 7X optical magnifier 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 10/5/2008 for additional information.

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

### **Summary of Conversations:**

No relevant conversations except 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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

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