

**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-009200**Date Inspected:** 23-Sep-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 10

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

FCAW welding of weld joint NSD1-SPSA3-56-4B located on north tower, lift 3 splice plate. Welder was identified as 040533. ZPMC QC was identified as CWI Li Ming (QC1). The welding variables recorded by QC1 appeared to comply with WPS-B-T-2231-TC-U5-F.

SMAW welding of base metal on SSTL4-1B/L-3B located on south tower, lift 4, skins A/E. Welder was identified as 057266. ZPMC QC's were identified as CWI Liu Yang (QC2) and CWI Du Zhi Qun (QC3). Assisting QC2 and QC3 at this location and appearing to be monitoring the welding and recording data were ZPMC QC Inspector Shi Jing Wei, who was not a CWI. The welding variables recorded by QC2, QC3 and their assistant appeared to comply with WPS-B-T-3212-C-U2.

FCAW welding of layered surface repairs on NSD1-FASA4 located on north tower, lift 4, skin A, inside surface of rectangular holes in skin plate at 143M, 139M, 123M, 119M. Welders were identified respectively as 057244, 050041, 057280, 052075. ZPMC QC was identified as CWI Du Zhi Qun (QC4). Assisting QC4 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector Shi Jing Wei, who was not a CWI. The welding variables recorded by QC4 and his assistant appeared to comply with

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# WELDING INSPECTION REPORT

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WPS-345-FCAW-2G(2F)-repair as detailed on T-WR2173 presented to this QA inspector by ZPMC QC Inspector Shi Jing Wei.

Bay 9 – PMT

This QA inspector monitored OBG Production Monitoring Test (PMT) #3067 for deck panels DP3067-001, DP3044A-001, and DP3047A-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. The visual inspection of tack welds and root gap was performed by ABF Representative Huang Wen Guang (ABF), ZPMC CWI Guo Yan Fei (QC5), and this QA inspector. The start time for welding was approximately 0020 hours on 9/24/09 and the finish time was approximately 0048 hours. This QA inspector 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 welding variables recorded by QC appeared to comply with WPS-B-T-2342-U1-(U-rib)-4. The welds were visually inspected by ABF, QC5 and this QA inspector. QC5 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 Ma Jilong, 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 sample location was stamped by ZPMC personnel with the number 3067, the letter P upside down appearing as the letter d, and an individual macroetch identifying number for each macroetch sample. After removal from each of the weld test specimens, polishing, and acid etching of the selected end, the macroetch samples were evaluated with a 7X optical magnifier and accepted by QC5, ABF, but macroetch sample #1-2 was rejected by this QA inspector.

Macroetch sample #1-2 appeared to contain a fusion type defect associated with a fusion boundary between weld and U-rib plate at a weld depth of 8.6mm, not in conformance with Caltrans Contract Change Order No. 89 approved on 8/25/08. This QA inspector informed QC5 and ABF of the PMT failure to conform and generated an incident report concerning the failure. See Caltrans U-ribs PMT Inspection Sheet, ZPMC production monitoring test plate inspection report, and Caltrans Macro Etch Log - all dated 9/24/2008 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.

**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
<b>Reviewed By:</b>	Carreon,Albert	QA Reviewer

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