

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-009258**Date Inspected:** 28-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-SPSA3-56-4A located on PCMK north tower, lift 3, skin A. Welder was identified as 040533. ZPMC QC was identified as CWI Tu Jun (QC1). The welding variables recorded by QC2 appeared to comply with WPS-B-T-2231-TC-U2-F.

Heat straightening of the skin plate shown on weld map number NDS1-FESA4-1 located on PCMK north tower, lift 4, skin E. ZPMC workers were using a mechanical jack and applying the heat with 2 oxy-fuel torches to the skin plate outside of stiffener E1, 9100mm from the bottom of the skin plate. ZPMC QC was identified as CWI QC2. Assisting QC2 at this location and appearing to be monitoring the operation was ZPMC QC Inspector Wang Hao, who was not a CWI. The heat straightening work appeared to comply with HSR1(T)-10191, which was presented to this inspector by ZPMC QC Inspector Wang Hao.

Bay 11

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

SMAW fit and tack welding of weld joints WSTL4-2I/L-103 at the top and 34 at the bottom of diaphragm 135MM

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as it was being set on PCMK west tower, lift 4, skin A. Welders were identified respectively as 206195 and 053224. ZPMC QC was identified as CWI You Qi Guo (QC2). Assisting QC2 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 QC2 and QC2's assistant appeared to comply with WPS-B-T-4312-TC-P5. This QA inspector observed welder 053224 create an arc strike near the center of the bottom of the bottom plate on diaphragm 135M. The area was marked by both a QC inspector and this QA inspector. QC Inspector Chen Bo assured this inspector that the arc strike would be grinded and tested with magnetic particle testing.

Bay 9 – PMT

This QA inspector monitored OBG Production Monitoring Test (PMT) #3055 for deck panels DP3055-001 and DP3015-001 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 9/28. The visual inspection of tack welds and root gap was performed by ABF Representative Lv Yun (ABF), ZPMC CWI Sun Bo (QC), and this QA inspector. The start time for welding was approximately 0009 hours on 9/29/09 and the finish time was approximately 0037 hours. This QA inspector randomly verified and documented the welding amperage, voltage, and travel speed during the gas metal arc welding (GMAW) process, welds 1 thru 6 at the completion of the GMAW root 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 informed this QA inspector that weld #1 was not acceptable because it displayed 330mm of overlap. QC informed this inspector that MT would be performed on another test panel and another PMT would be performed within a short time. This QA inspector observed ZPMC MT Inspector Sun Gong Chan (MTI) perform MT on the tack welds of another test panel and after some minor grinding, MTI approved the tack welds.

This QA inspector again began monitoring OBG Production Monitoring Test (PMT) #3055 for deck panels DP3055-001 and DP3015-001 at Gantry #2. The visual inspection of tack welds and root gap was performed by ABF Representative Lv Yun (ABF), ZPMC CWI Sun Bo (QC), and this QA inspector. The start time for welding was approximately 0132 hours on 9/29/09 and the finish time was approximately 0154 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, 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 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 location was stamped by ZPMC personnel with the number 3055, the number 8 laid on its side, 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 9/29/2008 for additional information.

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

Inspected By:	Goulet,George	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer
