

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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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-014528**Date Inspected:** 06-Jun-2010**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 Inspector (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 joints ND1-STSA4-10-119M-39, 40, 34 located on PCMK north tower, strut assembly. Welder was identified as 046709. QC was identified as ZPMC CWI An Qing Xiang (QC1). Welding variables recorded by QC1 appeared to comply with WPS-B-T-2112. Also at this location and appearing to be monitoring the welding operation was ABF Representative Li Shi You.

SMAW welding of weld joints ED1-STSA4-10-119M-21, 49, 50 located on PCMK east tower, strut assembly. Welder was identified as 041271. QC was identified as QC1. Welding variables recorded by QC1 appeared to comply with WPS-B-T-2112. Also at this location and appearing to be monitoring the welding operation was ABF Representative Li Shi You.

Bay 10

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

SMAW layered repair welding of 8 plates marked as ASTM A345 and displayed on a ZPMC document as brace stiffeners. Welder was identified as 040581. QC was identified as QC1. Assisting QC1 at this location and

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appearing to be monitoring the welding and recording data was ZPMC QC Yuan Hui Gang, who was not a CWI. Welding variables recorded by QC1's assistant appeared to comply with WPS-345-SMAW-2G(2F)-repair and WPS-345-SMAW-3G(3F)-repair in conformance with the above noted ZPMC document with the reference T-WR with no number and displaying drawing number A42/A43 presented to this QA Inspector by ZPMC QC Yuan Hui Gang.

SMAW welding of weld joint SSD1-SPSA5-19-1B located on PCMK south tower, splice plate assembly. Welder was identified as 052930. QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Lu Wei Chao, who was not a CWI. Welding variables recorded by QC1's assistant appeared to comply with WPS-B-T-3211-TC-U5b-1.

Heavy Dock

ABF Representative Zhao Ying Sheng informed this QA Inspector that no work was being performed on the heavy dock. All 4 tower lift 2's were erect with south and east lift 3's attached above, respectively. A floating crane of unknown lifting capacity was moored off the foot of the dock, positioned over east tower, lift 3 and appeared to be attached to east tower, lift 3. The worker access elevator was dark. North and west towers, lift 1's were laying horizontally at the foot of the dock.

Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3131 for deck panels DP3131(PL3327A/B)-001 and DP3150-001(PL3346A/B/C)-001 at Gantry #2. Prior to the start of the PMT, this QA Inspector observed the root openings to be within the 0.0 to 0.5mm tolerance. The magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Technician Wang Wei on 6/6/10. The visual inspection of tack welds and root gaps was performed by ABF Representative Wang Wan Cheng (ABF), ZPMC CWI Chen Shigang (PQC), and this QA Inspector. The tack welds and root gaps appeared to be within prescribed tolerances. This QA Inspector observed that the deck plate of the test panel was 20mm thick and the deck plate of the production panels were 20mm thick. The ambient temperature was approximately 21°C. Flame preheat was applied to the specimens to above 60°C immediately prior to start of the gas metal arc welding (GMAW) pass. The interpass temperature was checked between processes and observed to be above 60°C. The start time for welding of the 3–12mm x 20mm specimens was approximately 0020 hours on 6/7/10 and the finish time was approximately 0050 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, and performed a visual inspection welds 1 thru 6 at the completion of both the GMAW root pass and SAW cover pass. The welding variables recorded by PQC appeared to comply with WPS-B-T-2342-U1-(U-rib)-5. The welds were visually inspected by ABF, PQC and this QA Inspector. PQC and ABF informed this QA Inspector that all 6 welds were acceptable and this QA Inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) technician, 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 sample location was stamped by ZPMC personnel with the number 3131, a letter G, chosen randomly by this QA Inspector as a verification mark, and an individual progressive 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 PQC, ABF, and this QA Inspector.

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All fifteen sample macroetch samples 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 6/7/2010 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 Eric Tsang, 150-0042-2372, who represents the Office of Structural Materials for your project.

Inspected By:	Goulet,George	Quality Assurance Inspector
Reviewed By:	Dawson,Paul	QA Reviewer
