

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-015041**Date Inspected:** 15-May-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 10

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

FCAW repair welding of base metal on plate ND1-A10-1 located on PCMK north tower. Welder was identified as 054069. QC was identified as ZPMC CWI Li Lin (QC1). Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Yuan Hui Gang, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-345-FCAW-1G(1F)-repair as listed on ZPMC repair order T-CWR620. Also present at this location and appearing to be monitoring the welding operations were ABF Representatives Zhao Ying Sheng and Li Nan.

FCAW repair welding of base metal on plate WD1-A2-1 located on PCMK west tower. Welder was identified as 057180. QC was identified as QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Yuan Hui Gang, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-345-FCAW-1G(1F)-repair as listed on ZPMC repair order T-WR3226. The repair order also noted that the base metal had been damaged by removal of a backing strip after a weld layering repair. Also present at this location and appearing to be monitoring the welding operations were ABF Representatives Zhao Ying Sheng and Li Nan.

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Bay 11

This QA Inspector randomly observed no welding related work in progress in Bay 11.

Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3118 for deck panels DP3118-001 and DP3122-001 at Gantry #1. 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 5/15/10. The visual inspection of tack welds and root gaps was performed by ABF Representative Cao Hai Zhou (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 19°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 0042 hours on 5/16/10 and the finish time was approximately 0115 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 3118, a number 4 laid sideways, 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.

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 5/16/2010 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.

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Inspected By: Goulet, George

Quality Assurance Inspector

Reviewed By: Dawson, Paul

QA Reviewer