

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-005169**Date Inspected:** 14-Jan-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1845**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 645**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** You Qi Guo, Li Jia**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:

SAW welding of weld joints WSD1-SA388C/D-49A, 7, 25A, 57, 27A, 37, and 27A located on PCMK west tower, lift 2, skin C. Welder was identified as 047304. ZPMC QC was identified as CWI You Qi Guo (QC1). The welding variables recorded by QC1 appeared to comply with the WPS's: B-T-2221-B-U3c-S-2 for the CJP welds, designated by the letter A, and WPS: B-T-2321-B-P3-S-2 for the other welds, which were PJP welds. Also present at this location and appearing to observe the welding operation was ABF Representatives Wang Cheng Jun (ABF1) and Luo Lai Quan (ABF2).

SMAW welding of a documented weld repair (WRR) with no specific number to weld joint WSD1-SA298A/G-2B located on PCMK west tower. Welder was identified as 040733. ZPMC QC was identified as QC1. The welding variables recorded by QC1 appeared to comply with the WPS written on the WRR and presented to this QA inspector by QC1: 345-SMAW-1G(1F)-repair.

Bay 9 - PMT

This QA inspector monitored OBG Production Monitoring Test (PMT) #1 for deck panels DP463-001 and DP247-001 at Gantry #1. Prior to PMT #1, the magnetic particle test (MT) of the tack welds was noted on the test

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panel as having been performed by ZPMC MT Inspector Cai Xin Xin. The visual inspection of tack welds and root gap was performed by ABF Representative Chang Bao Qing (ABF3), ZPMC CWI Li Jia (QC2), and this QA inspector. The start time for welding of PMT #1 was approximately 0049 hours on Thursday, 1/15/09 and the finish time was approximately 0130 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 welds were visually inspected by ABF, QC and this QA inspector. QC2 and ABF3 informed QA Inspector that weld #2 exhibited two areas of incomplete fusion totaling 110mm and weld #6 exhibited an area of incomplete fusion of 45mm, all at the upper toe of the weld. The maximum allowable area of incomplete fusion in any one weld during the PMT is 25mm at the toe of the weld per Contract Change Order No. 86, approved on 8/25/2008. Both QC2 and ABF3 chose to discontinue PMT #1 and begin to set up for PMT #2.

This QA inspector monitored PMT #2 for deck panels DP463-001 and DP247-001 at Gantry #1. Prior to PMT #2, the magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Cai Xin Xin. The visual inspection of tack welds and root gap was performed by ABF3, QC2, and this QA inspector. The start time for welding of PMT #2 was approximately 0229 hours on Thursday, 1/15/09 and the finish time was approximately 0250 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 welds were visually inspected by ABF, QC and this QA inspector. QC2 and ABF3 informed this QA Inspector that all six welds were acceptable and QA inspector concurred. This QA inspector witnessed ZPMC Ultrasonic Testing (UT) inspector, identified as Xue Hai Wong, perform UT on each of the welds for depth of penetration and conformance.

This QA inspector selected designated locations for macroetch sampling per contract requirements. The macroetch specimens were evaluated with a 7X optical comparator and a 10X optical comparator 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 1/15/2008 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, and QA inspector asked each QC if all the welding variables observed by him appeared to comply with the appropriate WPS, including the preheat requirements according to thickness of the thickest member being welded. Each QC showed this QA Inspector that he was carrying the proper temperature sticks to monitor the minimum and maximum preheat and interpass temperatures and replied that all he observed did appear to comply.

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.

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Inspected By:	Goulet, George	Quality Assurance Inspector
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Reviewed By:	Lindenmuth, Mahlon	QA Reviewer
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