

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-010042**Date Inspected:** 23-Oct-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 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:

SMAW repair welding of weld joints ND1-A501D/E-1, 2 located on PCMK north tower, skirt plate to skirt plate beam. Welder was identified as 053829. ZPMC QC was identified as Liu Zhong An (QC1). The welding variables recorded by QC1 appeared to comply with WPS-345-SMAW-3G(3F)-repair.

FCAW welding of weld joint SSSL4-1B/L-5B located inside PCMK south tower, lift 4, skin B to skin C, at 115M single diaphragm. Welder was identified as 050041. ZPMC QC was identified as Chen Ying Xin (QC2).

Assisting QC2 at this location and appearing to be monitoring the welding and recording data was ZPMC Jiang Xiao Bo, who was not a CWI. The welding variables recorded by QC2's assistant appeared to comply with WPS-B-T-2232-TC-U4b-F.

FCAW welding of weld joint SSSL4-1B/L-3B located inside PCMK south tower, lift 4, 115M to 119M elevation. Welder was identified as 040343. ZPMC QC was identified as QC2. Assisting QC2 at this location and appearing to be monitoring the welding and recording data was ZPMC Jiang Xiao Bo, who was not a CWI. The welding variables recorded by QC2's assistant appeared to comply with WPS-B-T-2232-TC-U4b-F.

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SMAW repair welding of weld joint NSTL3-3B/K-84B located outside PCMK north tower, lift 3, skin A to skin E.

The unnumbered ZPMC repair order listed the location of UT indication as Y location 8250. Welder was identified as 052930. ZPMC QC was identified as QC2. Assisting QC2 at this location and appearing to be monitoring the welding and recording data was ZPMC Jiang Xiao Bo, who was not a CWI. The welding variables recorded by QC1's assistant appeared to comply with WPS-345-SMAW-2G(2F)-repair listed on the ZPMC unnumbered repair order.

Bay 11

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

FCAW repair welding of WSD1-SA97 (weld number incomplete), as displayed on ZPMC repair order T-WR2583 located on PCMK west tower, lift 1, skin A splice plate. Welder was identified as 046706. ZPMC QC was identified as Zhan Bo (QC3). Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC Fu Weimin, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-345-FCAW-3G(3F)-repair listed on the ZPMC the repair order.

FCAW welding of weld joint ESTL4-2K/L-132 located on PCMK east tower, lift 4, skin B, top of 143M double diaphragm to fit lug. Welder was identified as 040759. ZPMC QC was identified as QC3. Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC Fu Weimin, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-B-T-4133.

FCAW welding of weld joint ESTL4-2I/L-20 located on PCMK east tower, lift 4, skin B, bottom of 135M double diaphragm, skin stiffener to fit lug. Welder was identified as 042218. ZPMC QC was identified as QC3. Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC Fu Weimin, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-B-T-4133.

FCAW welding of weld joint ESTL4-2G/L-23 located on PCMK east tower, lift 4, skin B, top of 123M double diaphragm to fit lug. Welder was identified as 040736. ZPMC QC was identified as QC3. Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC Fu Weimin, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-B-T-4133.

FCAW welding of weld joint ESTL4-2F/L-24 located on PCMK east tower, lift 4, skin B, 123M double diaphragm, skin stiffener to fit lug. Welder was identified as 049220. ZPMC QC was identified as QC3. Assisting QC3 at this location and appearing to be monitoring the welding and recording data was ZPMC Fu Weimin, who was not a CWI. The welding variables recorded by QC3's assistant appeared to comply with WPS-B-T-4133.

Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3024 for deck panels DP3024-001 and DP3046-001 at Gantry #2. Prior to the start of the PMT, this QA Inspector observed the root opening 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

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having been performed by ZPMC MT Inspector Ding A Cheng on 10/23/09. The visual inspection of tack welds and root gap was performed by ABF Representative Wang Wen Shong (ABF), ZPMC CWI Guo Yan Fei (QC), and this QA Inspector. The tack welds and root gap appeared to be within prescribed tolerances. This QA Inspector observed that the deck plate of the test panel was 20mm thick and the production panels DP3046-001 and DP3024-001 were 14mm and 20mm thick respectively. The start time for welding of the 3–12mm x 20mm specimens was approximately 0023 hours on 10/24/09 and the finish time was approximately 0052 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 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 location was stamped by ZPMC personnel with the number 3024, the letter M placed sideways, 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 10/24/2008 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.

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