

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-001839**Date Inspected:** 23-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai China**CWI Name:** Xu Le Feng**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/OBG**Summary of Items Observed:**

This Quality Assurance (QA) inspector arrived at ZPMC to perform observations of Self Anchored Suspension (SAS) Bridge for the SFOBB western span. Below is an account of the day's observation during the fabrication process at ZPMC. It includes the tower mock-ups, Orthotropic Bridge Girders (OBG) which includes side plates and bottom plates at different stages of fabrication from fit-up to welding and inspections.

New tower shop

This QA inspector performed periodic observations in the New Tower shop and observed ZPMC personnel performing grinding on shear link beam welds. This QA inspector noted that on MA25 ZPMC had been grinding an area at the top flange (75mm thick flange end) where they had observed a defect upon further investigation through grinding the defect was removed and ZPMC was to perform Magnetic Particle (MT) inspection of the area.

This QA inspector verified the area after grinding and observed that the grinding was into the base metal of the 75mm flange (see digital photo below). The excavated area measured 35mm x 30mm x 3mm which approximately 35mm x 8mm x 3mm where within the base metal. This QA inspector spoke with ZPMC QC personnel about the area and it was discussed that ZPMC would need engineers approval for repair in the form of a critical weld repair. Also noted in the new tower shop was heat striating being performed by ZPMC personnel on skin plates this QA inspector noted 19 plates total for table 2 in the shop. ZPMC was using procedure HSR (T)-243 with a 650°C maximum temperature. 5 ZPMC QC personnel were noted as being present in the new tower shop. Also noted was ZPMC using the horizontal milling machine to apply 30° bevels on the diaphragm plates for the slice welding process. Several diaphragm plates were being milled on two different milling machines in the shop.

Bay 3

This QA inspector observed ZPMC in bay 3 working side and bottom plates in multiple stages of fabrication that included the following the areas; WT stiffeners were in the process of being fit-up to the deck plate, WT stiffeners

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were being welded together with a Complete Joint Penetration (CJP) groove welds. ZPMC personnel were using abrasive wheels to remove primer coating to the areas where the WT stiffeners will be welded. During the periodic observation it was noted that ZPMC was fitting BP056-001 with the WT stiffeners and that ZPMC was performing a Magnetic Particle (MT) inspection for on BP013-001 by technicians Cai Xin Xin and Zhou Dong Yun after the completion of the MT inspections it was relayed to this QA inspector that there were no rejectable indications . The above work appeared to be within the general requirements of the contract documents.

Bay 4 Diaphragm plate splice

This QA inspector continued his observation at ZPMC in bay 4 for diaphragm plate splices. It was observed that diaphragm number ESD1-SA287 was being spliced together using a double V groove for the Complete Joint Penetration (CJP) weldment with Submerged Arc Welding (SAW) in the flat position(see digital photo below). This QA inspector witnessed ZPMC's QC and CWI personnel monitoring the required preheat temperatures as required by WPS-B-T-3221-B-U3c-S-1 which has a high end of 230°C and a low end of 180°C. ZPMC welding personnel Gu Cai Hong was observed operating the SAW system during the welding process and the welding parameters were verified by this QA inspector as 612 amps, 28.2 volts, and a travel speed of 488 mm/min. This is within the tolerances of the above stated WPS. This QA inspector observed ZPMC's CWI monitor the welding parameters and welding progression during this process. ZPMC continued turning the diaphragm plate 180° over to reduce the welding distortion throughout the welding operations. The joints being welded were 3A, 3B, 4A and 4B. ZPMC's QC/CWI that was present during this operation was Zhao Chen Sun along with an additional 6 QC personnel working in bay 4 monitoring the heat striating process of multiple diaphragm plate according to procedure HSR(T)-243. The above noted work appeared to be within general requirements of the contract documents.



Summary of Conversations:

As noted in the contents 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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Riley, Ken

Quality Assurance Inspector

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Reviewed By: Hager,Craig

QA Reviewer