

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-000971**Date Inspected:** 05-Dec-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**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:** OBG**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) Inspector Charlie Franco was present at the time requested to randomly observe welding and associated operations being performed for the Orthotropic Box Girders (OBG).

Bay 1 OBG:

The QA Inspector randomly observed ZPMC personnel attaching splice plates to the closed ribs between the 1.7 meter and the 13 meter OBG Deck Mock Up. The QA Inspector randomly observed that only temporary bolts were being installed and that drift pins were being used to facilitate the alignment of the bolt holes. The attached photograph provides additional detail.

Bay 3 OBG:

The QA Inspector randomly observed ZPMC welder He Yu Mei ID Number 048625, utilizing the Flux Cored Arc Welding (FCAW) Process with approved ZPMC Weld Procedure Specification (WPS) WPS-B-T-2132-1 in the 2F position to tack weld T-Ribs to Bottom Plate PL34C at WJ's BP005-01-010 and 011. The QA Inspector observed ZPMC CWI Li Chan Woo monitoring weld parameters. Weld parameters appeared to comply with the above approved ZPMC WPS.

The QA Inspector randomly observed ZPMC welder Li Zihong ID Number 062447, utilizing the FCAW Process with approved ZPMC WPS WPS-B-T-2132-1 in the 2F position to tack weld T-Ribs to Bottom Plate PL36B at WJ's BP004-01-028 and 029. The QA Inspector observed ZPMC CWI Li Chan Woo monitoring weld parameters.

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Weld parameters appeared to comply with the above approved ZPMC WPS. The attached photograph provides additional detail.

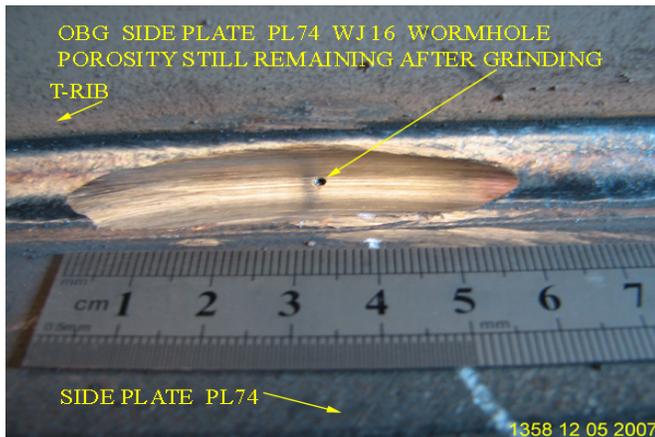
The QA Inspector randomly observed ZPMC welder Sun Tiyu ID Number 054459, utilizing the FCAW Process with approved ZPMC WPS WPS-B-T-2132-1 in the 2F position to tack weld T-Ribs to Bottom Plate PL36B at WJ's BP004-01-026 and 027. The QA Inspector observed ZPMC CWI Li Chan Woo monitoring weld parameters.

Weld parameters appeared to comply with the above approved ZPMC WPS.

The QA Inspector randomly observed ZPMC welder Wei Dashuai ID Number 051246, utilizing the FCAW Process with approved ZPMC WPS WPS-B-T-2132-1 in the 2F position to tack weld T-Ribs to Bottom Plate PL37A at WJ's BP006-01-032 and 033. The QA Inspector observed ZPMC CWI Li Chan Woo monitoring weld parameters. Weld parameters appeared to comply with the above approved ZPMC WPS.

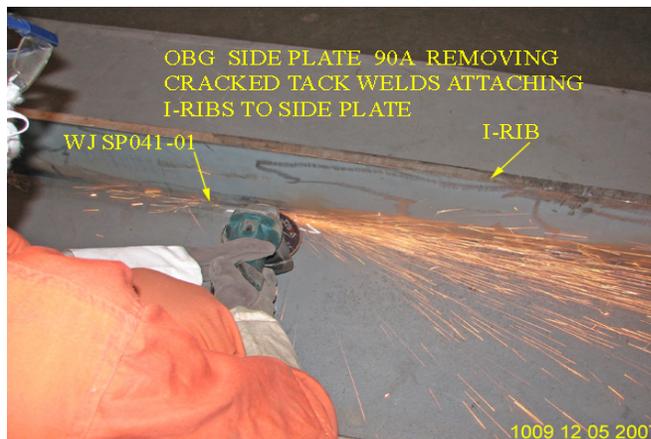
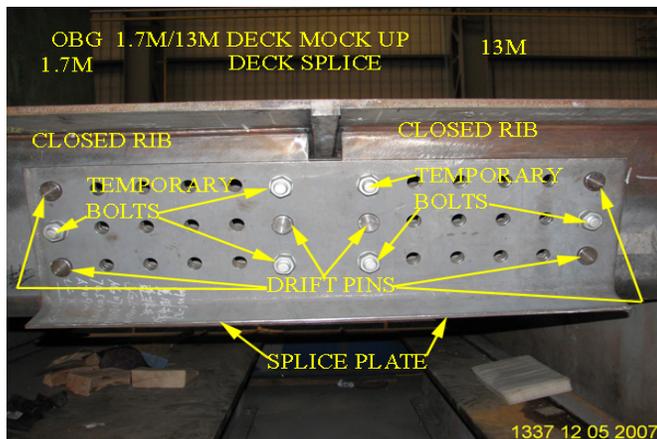
The QA Inspector randomly observed ZPMC welding personnel utilizing grinders to remove defects in areas of the fillet welds attaching the T-Ribs to Side Plate PL74, that had been marked up by ZPMC Quality Control (QC) Personnel for rework. The QA Inspector randomly observed that several of the areas that had been marked up by ZPMC QC Personnel, had been marked up due to wormhole porosity in the fillet welds. The QA Inspector also randomly observed that wormhole porosity still remained in some of the areas after grinding. The QA Inspector made ZPMC aware of those areas and grinding was resumed to remove all of the wormhole porosity. The T-Ribs had been welded with the FCAW process with the gantry mounted FCAW apparatus in the 2F position. The attached photograph provides additional detail.

The QA Inspector randomly observed ZPMC welding personnel utilizing grinders to remove cracked tack welds attaching I-Ribs to Side Plates 87A and 90A. The attached photograph provides additional detail.



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Summary of Conversations:

The QA Inspector was informed by ZPMC CWI Lee Chan Woo that the I-Ribs on Side Plate 90A with the cracked tack welds, had been welded without preheat and with FCAW. The 1 I-Rib that had no cracked tack welds had been welded with preheat and with the Shielded Metal Arc Welding (SMAW) Process. Mr. Woo also informed the QA Inspector that 3 out of 5 of the I-Ribs on Side Plate 87A had been welded with preheat and the other 2 had not. According to Mr. Woo, all I-Ribs had been welded with FCAW. The 2 I-Ribs that were welded without preheat had several tack welds with transverse cracks, longitudinal cracks and both transverse and longitudinal cracks. The 3 I-Ribs that had been welded with preheat contained only a total of 4 cracked tack welds. Mr. Woo further informed the QA Inspector that future welding of the I-Ribs would be done with preheat and with SMAW.

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: Franco,Charlie

Quality Assurance Inspector

Reviewed By: Cochran,Jim

QA Reviewer