

**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-000478**Date Inspected:** 22-Aug-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**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:** 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:** 77.00 Mock-up**Summary of Items Observed:**

Caltrans QA Inspector observed ZPMC shop personnel performing final material preparation of the root, prior to welding root pass weld with the submerged arc welding (SAW) process. The subassembly is identified as skin plate E, piecemark mp15 to MA1. The subassembly fabrication appears to be at step 5.3 in regards to the mock-up fabrication procedure flow plan. The weld joint is identified as a double vee butt joint with a partial joint penetration weld. ZPMC QC reported that nondestructive testing inspector, Mr. Cai Xinxin observed two cracked tackwelds during the magnetic particle testing. The tackwelds were welded with the shield metal arc welding (SMAW) process and appear to be multi-pass, 11mm in size, and length approximately 305mm. Tackweld #1 crack measured approximately 45mm in length at weld termination. Tackweld #2 crack extended the full length of the tackweld. Caltrans QA Inspector observed the removal of the two tackwelds and the reinspection of the weld excavation area. ZPMC QC reported that no relevant indications observed. Work was then terminated on the subassembly. ZPMC QC stated that work on this subassembly would be resumed sometime this afternoon. The shop personnel was then moved to skin plate D subassembly, to perform welding. Following digital pictures illustrate the locations of the cracked tackwelds and removal at skin plate E.

Item	Description	WBS	Dwg No.	Status
1	Skin Plate D	NA	FP-MUA-11	

Caltrans QA Inspector observed SAW in progress at skin plate D, piecemark MA5 to mp14. ZPMC welder is observed welding root and fill pass weld. After the completion of the root pass weld. The weld was then MT'd. ZPMC QC observed random scattered porosity in the root weld pass. This porosity was removed by grinding and reinspected. ZPMC QC stated that no relevant indications observed. The welding was then resumed. Caltrans QA Inspector verified welding in progress for the fill pass weld. The weld joint is identified as a double vee butt joint with a partial joint penetration weld. The welder operator is identified as Mr. Xue Yian. The welder is using welding procedure

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specification (WPS) wps-B-T-2321-B-P3-S-1, Revision 1. Caltrans QA Inspector measured current welding parameters at approximately 524 amps, 30.0 volts and travel speed 441 millimeters per minute (mm/min). Preheat and interpass temperatures were verified during welding activities. The preheat temperature prior to the start of welding measures more than 110 Celsius (225 degree Fahrenheit) but less than 230 degrees Celsius (450 degrees Fahrenheit) during maximum interpass temperature verification. Following digital picture illustrates welding in progress.

### Summary of Conversations:

QC inspector for ABF, Mr. Dustin Brungardt stated that the typical welding sequence for welding of skin plates from side one would be that wps-B-T-2321-B-P3-S-1 would cover the welding of the root pass and two fill passes and then the remainder of the fill and cover pass with wps-B-T-2321-B-P3-S.

### 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.

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<b>Inspected By:</b>	Hasler, Mike	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar, Robert	QA Reviewer

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