DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000071
Date Inspected: 30-Nov-2006

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 800
OSM Departure Time: 1700
Location: Shanghai, China

CWI Name:	Liu Liu			**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: N/A

Summary of Items Observed:

Office of Structural Materials Quality Assurance Inspector (QA) David McClary observed quality control functions related to procedure qualification (PQR) testing at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

Item	Description	WBS	Dwg No.	Status
1	3G FCAW PQR RT			

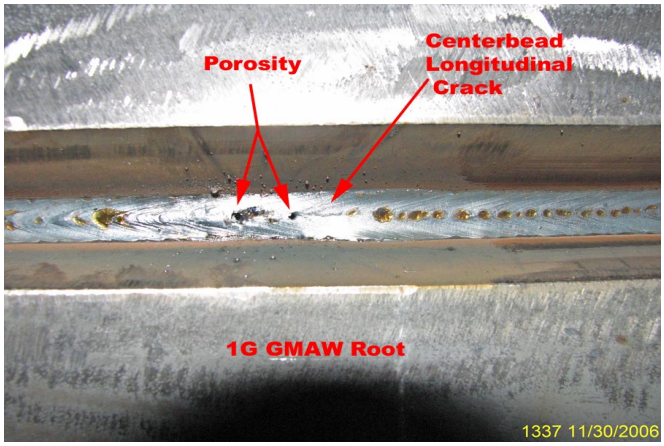
The QA Inspector reviewed the Radiographic Testing (RT) film for 3G (vertical) Flux Cored Arc Welding (FCAW) Procedure Qualification (PQR) identified as HP-2006118. The QA Inspector observed a crimp mark on the film in the area of interest; however, no welding discontinuities were observed (see conversations).

2 1G FCAW PQR Welding

The QA Inspector observed welding of a Procedure Qualification (PQR) test plate identified as HP-2006107. The test was conducted using Flux Cored Arc Welding (FCAW), Hyundai Supercored 71H, electrode in the 1G (flat) position to AWS D1.5, Section 5.12.1 (Maximum Heat Input). The QA Inspector observed ZPMC Quality Control (QC) recording the essential variable (amps, volts, travel speed) for each pass and randomly verified the parameters using an Amprobe® amperage / voltage meter and a stopwatch. The welding appeared to comply with the contract documents. Lot Number B60-024-06 was assigned for tracking purposes. See TL-6032 for additional details.

3 1G GMAW PQR Welding

The QA Inspector observed welding of a Procedure Qualification (PQR) test plate identified as HP-2006119. The test was conducted using Gas Metal Arc Welding (GMAW), Supertech SM-70, electrode in the 1G (flat) position to AWS D1.5, Section 5.13 (Production Procedure). The initial plate had porosity and center bead cracking at the root. ZPMC adjusted the parameters and welding another test plate. The QA Inspector observed ZPMC Quality Control (QC) recording the essential variable (amps, volts, travel speed) for each pass and randomly verified the parameters using an Amprobe® amperage / voltage meter and a stopwatch. The welding appeared to comply with the contract documents. Lot Number B60-025-06 was assigned for tracking purposes. See TL-6032 for additional details.



Summary of Conversations:

The QA Inspector spoke with ZPMC Quality Control (QC) regarding the RT film for PQR HP-2006118 and informed them that although QA will allow the mechanical testing to proceed, crimp marks in production RT film will not be considered as acceptable film quality and will need to be RT tested again.

The QA Inspector spoke with ABF Quality Control Manager (QCM) Jim Bowers regarding the parameters used for the GMAW test. This test is being performed to qualify the root pass of the formed-rib to skin plate weld. Mr. Bowers what not sure what parameters ZPMC wanted to use for this root pass. Mr. Bowers informed QA that the parameters he knew about were based upon Lincoln Electric Companys research with Lincolns welding machine and electrodes, and that he did not know what parameters ZPMC wanted to conduct their root pass at since they were using different welding equipment and electrodes.

WELDING INSPECTION REPORT

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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:	McClary,David	Quality Assurance Inspector
Reviewed By:	Lowry,Patrick	QA Reviewer