

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-003765**Date Inspected:** 01-Sep-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Sun Wei**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 Quality Assurance (QA) Inspector Gregory Bertlesman arrived on site at the Zhenhua Port Machinery Company facility on Changxing island, China to periodically monitor welding and Quality Control functions. While on site the Quality Assurance Inspector observed and/or discovered the following.

**OBG Sub-Assembly Bay 1**

ABF Representative Kit Man Li informed QA that ZPMC performed magnetic particle testing to the tack welds on Deck Panel DP-543-001 and marked 2 out of 136 tack welds for repair, and marked 3 out of 250 tack welds for repair on Deck Panel DP-415-001.

The Quality Assurance Inspector observed ZPMC performing fit-up and tack welding operations to Deck Panel DP-147-001 utilizing the gas metal arc welding process.

**Production Monitoring Test**

The Quality Assurance Inspector monitored the Production Monitoring Tests (PMT) and production welding for the OBG Deck Panels U-rib welding. The weld joint is a single bevel Partial Joint Penetration (PJP) weld that joins the U-rib to the deck plate. The Production Monitoring Test (PMT) is performed prior to the production of the Deck Panels (DP). This was the second PMT performed due to the first being rejected due to a non compliant macro sample. PMT #2 consists of (3) ribs totaling (6) weld joints, numbered 1 thru 6. Welding was performed on Gantry 2 and represents production for Deck Panels DP-543-001 and DP-415-001. Welding was performed in accordance with welding procedure specification WPS-B-T-2342 (Dual Process GMAW root pass SAW fill and cover pass). The parameters and welders were recorded in an on site log for future review. ZPMC performed

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Ultrasonic testing to the welds in an effort to determine the depth of penetration. The Ultrasonic Technician relayed the results were acceptable. The Quality Assurance Inspector marked the PMT for locations to macro etch sampled.

## Deck Panel Production Welding

The Quality Assurance Inspector witnessed the welding of the production deck panels DP-543-001(5 rib) and DP-415-001(5 rib). The welding of the deck panel was performed on gantry 2 to produce the partial joint penetration groove weld. Upon completion of the gas metal arc welding (GMAW) root pass ZPMC performed the subsequent submerged arc welding (SAW) pass. The parameters appeared to be within welding procedure specification for dual process WPS-B-T-2342-U1 (U-rib)-3.

## Production Monitoring Tests Macro Etches

The Quality Assurance Inspector performed a visual inspection of production monitoring tests (PMT) macro etch samples, identified as DP-543-001/DP-415-001 after ZPMC and ABF had found the samples to be compliant with the contract documents. All samples appeared to contain penetration greater than 80 percent. The Quality Assurance Inspector observed one sample that contained a linear indication. ZPMC requested to grind and re-etch the sample. The sample was ground and re-etched and the linear indication remained. ABF then found the sample to be non compliant. The Quality Assurance agreed with ABF's results and signed the joint internal document. All the data from the review was recorded in a tracking log and forwarded to Quality Assurance Task Leaders and Structural Materials Representatives. The sample found to be non compliant was digitally photographed and placed on the internal server for future review. Below are two digital photographs of the sample with a linear indication. After completion of the Quality Assurance Inspectors shift the Quality Assurance Inspector was informed that ABF representative Steve Lawton had the sample ground and re-etched for a second time and found the sample to be in compliance. ZPMC then began welding the two above mentioned deck plates.



## Summary of Conversations:

As stated in the contents of the above report.

## 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 Ady Velasco(707) 552 7715, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Bertlesman, Greg	Quality Assurance Inspector
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<b>Reviewed By:</b>	Lanz, Joe	QA Reviewer
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