

**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-003269**Date Inspected:** 14-Jul-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**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/Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

**OBG Sub Assembly Bay 3**

QA Inspector Brannon observed ZPMC continuing with the fabrication of various Side, Bottom and Edge Panels designated for the SAS OBG. The general fabrication of said items consist of removing of coating from weld joint areas, cutting stiffener plates, beveling various, splicing of plates, fitting, tack welding and welding.

**Bay 3-OBG side/bottom/edge panels:**

QA Inspector Brannon randomly observed ZPMC qualified welder's, tack welding various T stiffeners plates utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class TL508 non-FCM and filler metal brand E7018, class THJ506Fe-1 for FCM material. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112 and WPS-B-P-2112-FCM respectively.

**Bay 3-OBG Bottom Panel stiffener (splice)**

QA Inspector Brannon randomly observed ZPMC qualified welder splice welding joining BP197-001-010, 013, 015 & 017. Qualified welder was observed welding in the 2F (horizontal) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1. QA Inspector Brannon observed the ZPMC QC CWI Inspector Huang Wen Pang verifying that the welding parameters

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and pre-heat were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2231-B-U2-F-1.

## Bay 3 – Heat straightening:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various side/bottom/edge panels. Side/bottom/edge panels cause for heat straightening welding distortion. Heat Straightening is performed by flame straightening using oxygen acetylene or natural gas using a hand torch.

## Bay 3 OBG side panel splice

QA Inspector Brannon randomly observed ZPMC qualified welder groove welding fill/cover passes for various floor beam web splice. Qualified welder was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand EM12K, class JW3, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2221-B-L2c-S-1.

## Bay 3-OBG side/bottom panel (Gantry 1):

QA Inspector Brannon randomly observed ZPMC qualified welders fillet welding joining T-stiffeners to side panel plate for SP392-001 weld joints 001~012 and SP388-001 weld joints 001~014. Qualified welder was observed welding in the 2F (horizontal) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1. QA Inspector Brannon observed the ZPMC QC CWI Inspector Huang Wen Pang verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2132-3.

## OBG/Tower Sub Assembly Bay 4

### Bay 4 – Heat straightening:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various side/bottom/edge panels. Side/bottom panels cause for heat straightening welding distortion. Heat Straightening is performed by flame straightening using oxygen acetylene or natural gas using a hand torch.

## Bay 4 Tower Diaphragm Flange Sub-assemblies:

QA Inspector Brannon randomly observed ZPMC welder's welding fill pass's at weld joint # WSD1 SA268 5A & 9A, SSD1 SA261 10A and SSD1 SA333 13A. Qualified welder's was observed welding in the 3G (vertical) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2233-B-U3-F.

## Bay 4 Tower Diaphragm Flange Sub-assemblies to Tower Diaphragm:

QA Inspector Brannon randomly observed ZPMC welder fillet welding joining NSD1 SA333 to NSD1 SA261 weld joint #8. Welder was observed welding in the 2F (horizontal) position utilizing flux cored arc welding

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(FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-12JH4, class K-71TSR. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-4132.

The following digital photograph below illustrates observation of the activities being performed.



## Summary of Conversations:

No relevant conversations to 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 13816942685, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Brannon, Sherri	Quality Assurance Inspector
<b>Reviewed By:</b>	Cochran, Jim	QA Reviewer

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