

**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-003799**Date Inspected:** 02-Sep-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2300**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Chen Chih-Ming**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 side, bottom and deck panels**Summary of Items Observed:**

On this day CALTRANS OSM Quality Assurance Inspector (QA) Steve Hall was present during the times noted above for observations relative to the fabrication of the SAS Superstructure being performed by Zhenhua Port Machinery Company (ZPMC) at Changxing Island, in Shanghai, China. QA observed and/or found the following:

OBG assembly bay 2

QA observed that weld joint SSD11A-PP027-013 on OBG section 4BW floor beam 4B at PP-027 has a root opening exceeding 8mm and ZPMC has attached a backing bar to this joint and elected to use a WPS not designated for that joint. This QA along with swing shift task leader Albert Carreon talked to ZPMC QA Mr. Fu Yuhong concerning this joint and the WPS they intended to use. Mr. Yuhong informed QA that ZPMC would not use this WPS instead they would butter one edge of the joint to bring it within acceptable limits, remove the backing and prepare the joint for fit up and weld with the proper WPS.

QA performed Phased Array Ultrasonic Testing (PAUT) after Caltrans NDE technicians performed the preliminary scan with conventional Ultrasonic Testing (UT) in the tacked areas of the Partial Joint Penetration (PJP) welds joining u-ribs to deck plates. QA inspectors performed 100 % PAUT in the areas that exhibited crack like indications with conventional UT. QA inspectors confirmed crack like indications as follows:

DP-015-001: (PAUT)

Weld# 2 – 3 tacks PAUT'ed – 3 indications verified

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Weld# 3 – 1 tacks PAUT'ed – 1 indications verified

Weld# 5 – 3 tacks PAUT'ed – 3 indications verified

Weld# 7 – 4 tacks PAUT'ed – 2 indications verified

NOTE: 2 Deck Panels were purchased by Caltrans for testing and initial UT and PAUT procedural development purposes. At this time no written PAUT procedure has been issued. However, all the test samples identified with the PAUT method as crack indications were confirmed after macro-etching and magnetic particle testing.

QA observed ZPMC qualified welding personnel SMAW tacking floor beam slice at PP-027 south side of OBG section 4BW (top splice)

QA observed ZPMC QC Ultrasonic Testing (UT) technicians UT OBG side panel splices on the following joints: SEG-023A-012, SEG-023A-013 and SEG-023A-014.

QA observed ZPMC qualified welding personnel SMAW in the 4G position, joints SEG-020-018 and SEG-020-017 on east OBG following the guide lines of WPS-B-P-2214-Tc-U4b-F. QC monitored the welding process continuously throughout the evening. The welder ID's and welding parameters as measured with Quality Controls calibrated instruments appeared to be in conformance with the posted WPS's and were as follows:

SEG-020-018

Volts: 26 Amps: 180 Travel speed: 125mm/min

Welder ID: 567610

SEG-020-017

Volts: 26.2 Amps: 180 Travel speed: 128mm/min

Welder ID: 044837

QA observed ZPMC qualified welding personnel SMAW floor beam to side panel joint at PP-020 on east OBG north side following the guide lines of WPS-B-P-2113-FCM. QC monitored the welding process continuously throughout the evening. The welder ID's and welding parameters as measured with Quality Controls calibrated instruments appeared to be in conformance with the posted WPS's and were as follows:

Volts: 25.5 Amps: 182 Travel speed: 125mm/min

Welder ID: 067611 and 051359

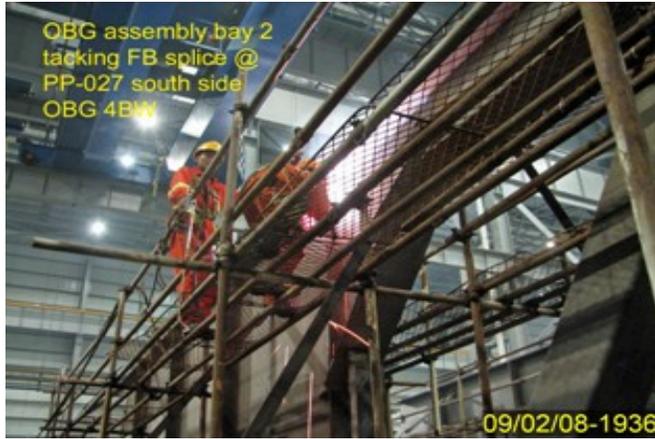
Other general observations include ZPMC personnel fitting and welding OBG temporary support columns, grinding and weld bevel prep on various OBG components.

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## Summary of Conversations:

As mentioned above.

## 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 Ryan Smith, (858) 232-6799, who represents the Office of Structural Materials for your project.

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

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