

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: 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-001731**Date Inspected:** 13-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**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 Deck Panels**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.

**Bay 1-OBG Deck Panels (Gantry 2):**

QA Inspector Brannon observed the Production Monitoring Test (PMT) U-rib welding and welding for Production Panel DP043-001, closed rib welds in Bay #1, Gantry 2. ZPMC welding operators performed gantry machine, gas metal arc welding (GMAW) for the root and submerged arc welding (SAW) for the cover pass. Qualified welders were observed welding in the 2G (horizontal) position utilizing gas metal arc welding (GMAW) process for the root pass with a 1.4mm diameter electrode, filler metal brand JM-56, class ER70S. ZPMC used a dual process WPS-B-T-2342-U1 (U-rib)-3 that was posted as the welding procedure specification (WPS) for closed U-rib to deck panel welding. The ambient temperature in bay #1 was recorded at 12 degrees Celsius prior to welding. The following weld joint and welders were recorded for the PMT U-rib welding and for production panel DP043-001. Weld joint (wj)-#1 Mr. Xu Guo Yin ID#059443, wj-#2 Mr. Jiang Ting Guang ID#062265, wj-#3 Mr. Xiang Jie ID#059378, wj-#4 Mr. Song Yin Shu ID#059421, wj-#5 Mr. Zhang Shao Hui ID#059403 and wj-#6 Mr. Xiang Huan Feng ID#059416. Gantry operator was Mr. Li Xi De for GMAW and SAW. QA Inspector Brannon observed tears and fins on weld joints prior to GMAW welding. Areas were shown to ZPMC personnel prior to welding.

**Production Monitoring Test (PMT)**

Welding started at 0842 and completed at 0844, the following welding variables were recorded at, amperage 344

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to 387, voltage 30.4 to 30.8 with a travel speed of 530 mm/min for the GMAW. Note: The 2nd u-rib weld #3 & 4 in the group of 3 u-ribs showed visible porosity in the GMAW root pass. ZPMC removed the 2nd u-rib and replaced and welded. Welding started at 0947 and completed at 0949, the following welding variables were recorded at, amperage 358 to 379, voltage 30.3 to 30.4 with a travel speed of 530 mm/min for the GMAW. Welding started at 1310 and completed at 1312, the following welding variables of the (PMT) were recorded at, amperage 675 to 685, voltage 24.3 to 25.5 with a travel speed of 495 mm/min for the SAW. All three closed ribs were welded simultaneously for SAW weld joints 1~6.

Production panel DP043-001

Welding started at 0957 and completed at 1106, the following welding variables were recorded at, amperage 352 to 374, voltage 30.1 to 30.9 with a travel speed of 530 mm/min for the GMAW. Weld joints #1, 2, 5, 6, 9 & 10 were welded 1st and weld joint #3, 4, 7 & 8 were welded 2nd for the 5 rib panel. Welding started at 1324 and completed at 1354, the following welding variables were recorded at, amperage 673 to 685, voltage 24.4 to 25.2 with a travel speed of 515 mm/min for the SAW. Weld joints #1, 2, 5, 6, 9 & 10 were welded 1st and weld joint #3, 4, 7 & 8 had not started prior to the end of this shift. Note: QA Inspector Brannon noticed temporary bracing tacked at the run off tab.

QA Inspector Brannon randomly observed ZPMC QC CWI Inspector Mr. Sun Wei monitoring welding parameters were in accordance with the above Welding Procedure Specification (WPS).

Bay 1-OBG Deck Panels:

ZPMC Mr. Fu Jun requested QA Inspector Brannon to mark locations for Radiographic Testing (RT) for the deck panels. QA Inspector Brannon mark (RT) locations for 5% of the transverse butt splice for the following deck panels welds: DP002-002-009 125mm marked, DP001-001-007 87mm marked, DP004-001-007 87mm marked and DP007-001-011 151mm marked in random locations.

OBG Deck Panel (PMT)

QA Inspector Brannon performed visual inspection (VT) on Production Monitoring Test (PMT) DP073-001 U-rib welding. QA Inspector Brannon (VT) a 500mm section marked by ZPMC personnel. QA Inspector Brannon observed in weld #1 - 89mm of overlap (OL), weld #2 - ok, weld #3 - two areas of (OL), 80mm and 30mm, weld #4 - 20mm underfill and two areas of (OL), 40mm and 45mm, weld #5 - 27mm (OL) and 25mm underfill and weld #6 - 500mm (OL).

OBG Deck Panel (PMT)

QA Inspector Brannon performed visual inspection (VT) on Production Monitoring Test (PMT) DP44-001 U-rib welding. QA Inspector Brannon (VT) a 500mm section marked by ZPMC personnel. QA Inspector Brannon observed in weld #2 - ok, weld #3 - 110mm (OL).

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

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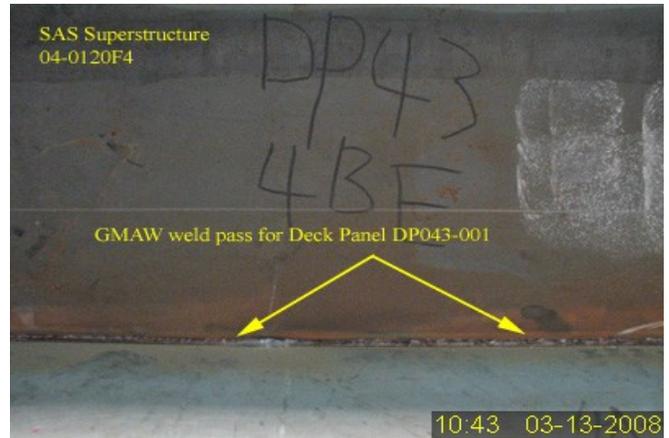
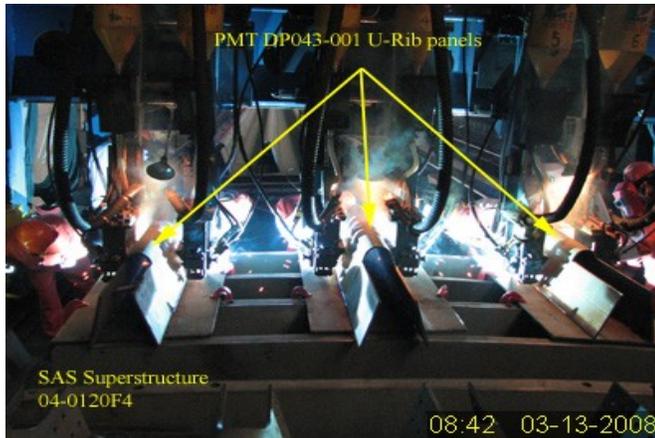
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## Summary of Conversations:

As stated within the 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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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**Inspected By:** Brannon, Sherri

Quality Assurance Inspector

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**Reviewed By:** Cuellar, Robert

QA Reviewer