

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-001700**Date Inspected:** 05-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:** Wang Nan**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:

QA Inspector Brannon observed the Production Monitoring Test (PMT) U-rib welding and welding for Production Panel DP029-001 and DP069-001, closed rib welds in Bay #1. ZPMC welding operators performed gantry machine, gas metal arc welding (GMAW) for the root pass only during this shift. 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 11 degrees Celsius prior to welding. The following weld joint and welders were recorded for the PMT U-rib welding and for production panel's DP029-001 and DP069-001. Weld joint (wj)-#1 Mr. Gao Xin Dong ID#059361, wj-#2 Mr. Jiang Ting Guang ID#062265, wj-#3 Mr. Xu Guo Yin ID#059443, 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. QA Inspector Brannon observed tears and fins on weld joints prior to GMAW welding. Areas were shown to ZPMC personnel prior to welding. Note: The two deck panels had the GMAW root pass applied prior to having the PMT completed resulting in an Incident report.

Production Monitoring Test (PMT)

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Welding started at 08:56 and completed at 08:58, the following welding variables were recorded at, amperage 352 to 379, voltage 30.2 to 30.5 with a travel speed of 530 mm/min for the GMAW. Welding started at 1422 and completed at 1426, the following welding variables of the (PMT) were recorded at, amperage 672 to 681, voltage 24.4 to 25.7 with a travel speed of 530 mm/min for the SAW. All three closed ribs were welded simultaneously weld joints 1~6.

Production panel DP029-001

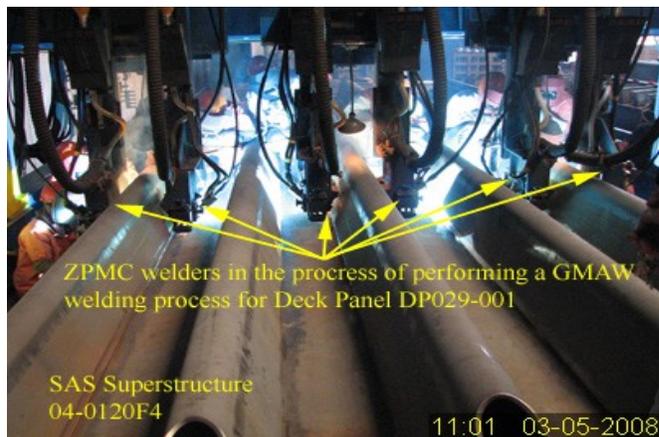
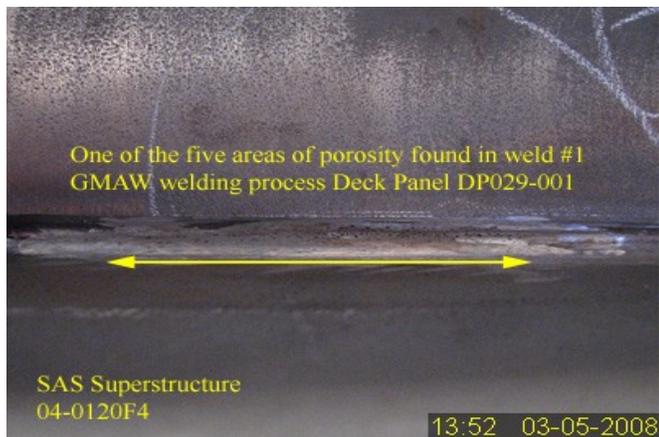
Welding started at 09:09 and completed at 10:24, the following welding variables were recorded at, amperage 347 to 375, voltage 30.1 to 30.5 with a travel speed of 530 mm/min for the GMAW. Weld joints #1, 2, 5 & 6 were welded 1st and weld joint #3 & 4 were welded 2nd for the 3 rib panel. Note: On DP-029-001, weld-1 during routine grinding of the GMAW root pass at various areas to contour the weld in preparation of the SAW weld pass sub-surface porosity was observed at what appeared to be 5 random locations. Starting from the Y end this was observed at the following locations 22-43, 740-750, 800-810, 938-953 and 993-1007 (measurements in cm). The total length of this deck panel was 1007 cm. A visual inspection of the other areas where grinding was performed on welds 1, 2, 3, 4, 5 and 6 (3-rib panel) QA Inspector Brannon did not observe porosity. DP-029-001 was the first panel welded this date at gantry #2. ABF QC representative Peter Shaw was present and aware of the issue. Mr. Shaw stated that ZPMC proposed to continue grinding the 5-areas listed above on DP-029-001-001 until all signs of porosity were gone and then confirm this with a MT inspection of the areas. After clearing the areas they would then be re-welded using the gantry welding system. QA contacted ASMR Ady Velasco via phone and informed of the issue. Repairs to weld 1 had not started before the end of this shift.

Production panel DP069-001

Welding started at 10:55 and completed at 13:12, the following welding variables were recorded at, amperage 340 to 370, voltage 30.1 to 30.6 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 for the SAW weld cover pass had not started by the end of this shift.

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

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



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Summary of Conversations:

No relevant conversations on this date.

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:	Brannon,Sherri	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer
