

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-001942**Date Inspected:** 12-Apr-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:** Li Yan hua**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:** 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 bay 1 (Gantry 2)

QA observed ZPMC qualified welding personnel performing the last of twelve GMAW weld repairs on deck panel DP-298-001 weld W1 U-Rib 180 without an approved repair procedure. The repairs were being performed using the gantry welding head #4 under the guide lines of WPS #WPS-B-T-2341-U1-(U-Rib)-3 which is the WPS used to weld the rib to deck plate. QA informed ZPMC QC CWI identified as Mr. Li Yan hua and ZPMC QA inspector identified as Mr. Shen Xue jun that a Caltrans incident report would be issued for repair welding without an approved repair procedure. Since eleven of the twelve repairs were performed prior to QA arrival, and the twelfth repair was in process QA was unable to verify repair procedure. The following information was obtained from ZPMC QC CWI identified as Mr. Li Yan hua and ZPMC QA inspector identified as Mr. Shen Xue jun: ZPMC QC claims that after the GMAW root pass was completed a visual examination of this weld revealed twelve areas of unacceptable porosity the cause of which is unknown. These areas were excavated by grinding and Magnetic particle Tested (MT) prior to commencement of weld repairs. (NOTE: QA did observe what appeared to be traces of yellow magnetic dust in the area of each repair)

After completion of the repairs on the above mentioned deck panel QA observed ZPMC QC CWI identified as Mr. Li Yan hua perform a visual examination of the repaired areas. Mr. Li Yan hua found the repaired areas appeared to be Visual Test (VT) compliant with AWS D1.5 2002 and the contract documents. QA concurred with

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Mr. Li Yan huas evaluation of the repairs. QA did not observe QC perform any other additional Non Destructive Examinations (NDE) of these areas.

After VT inspection ZPMC were observed by QA grinding the repaired areas back to the original profile of the repaired weld.

After completion of the repairs on deck panel DP-298-001 ZPMC proceeded to the next deck panel with gantry 2 and commenced GMAW weld repairs without an approved repair procedure on DP-136-001 welds W3, W4, W7 and W8. QA observed ZPMC welding personnel perform base metal repair in the weld zone of weld W8. The repair was not performed using the gantry but done by hand using the GMAW process. The remaining three welds were repaired using the gantry. Apparently ZPMC QC rejected the first 350mm to 850mm of the GMAW root pass on the above mentioned welds due to excessive porosity. According to ZPMC QC CWI identified as Mr. Li Yan hua all four of these welds were being welded simultaneously. Upon commencement of the welding the gantry encountered some sort of malfunction and these four welds were exhibiting unacceptable amounts of porosity right from the start of each weld. The welding proceeded for a distance of approximately 1000mm before ZPMC welding personnel suspended the welding operation due to the excessive porosity. According to ZPMC QC identified as Li Yan hua, the affected areas were ground to sound metal and MT'ed prior to repair welding using the gantry and GMAW process. QA did not observe MT however, QA did observe what appeared to be traces of yellow magnetic dust in the excavated areas. After completion of the repairs on the above mentioned deck panel QA observed ZPMC QC CWI identified as Mr. Li Yan hua perform a visual examination of the repaired areas. Mr. Li Yan hua found the repaired areas appeared to be Visual Test (VT) compliant with AWS D1.5 2002 and the contract documents. QA concurred with Mr. Li Yan huas evaluation of the repairs. QA did not observe QC perform any other additional Non Destructive Examinations (NDE) of these areas. Incident reports for both deck panels mentioned above will be issued.

After the completion of all of the weld repairs mentioned above, ZPMC resumed GMAW welding on deck panel DP-136-001 at 1915 hrs. QA and QC monitored the GMAW welding process continuously until its completion. ZPMC did not start SAW welding on either of the panels mentioned above before shifts end.

QA partially completed a production panel welding report for the above mentioned deck panels. The reports are on file in the Caltrans QA office. The welder identifications and welding parameters as measured with the calibrated gages on the machines appeared to be in conformance with the posted WPS's and were as follows:

GMAW DP-298-001

Volts: 30.1 – 31.2 Amps: 355 – 376 Travel speed: 530 mmpm

Welder ID#'s

Weld joint 1: 059361

Weld joint 2: 062265

Weld joint 3: 059416

Weld joint 4: 059437

Weld joint 5: 059416

Weld joint 6: 059437

GMAW DP-136-001

Volts: 30.2 – 31.7 Amps: 356 – 382 Travel speed: 530 mmpm

Welder ID#'s

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- Weld joint 1: 059361
- Weld joint 2: 062265
- Weld joint 3: 059361
- Weld joint 4: 062265
- Weld joint 5: 059416
- Weld joint 6: 059437
- Weld joint 7: 059416
- Weld joint 8: 059437
- Weld joint 9: 059443
- Weld joint 10: 059443



Summary of Conversations:

As noted 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 Patrick Lowery (858)-344-2712, who represents the Office of Structural Materials for your project.

Inspected By:	Hall,Steven	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer
