

**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-007629**Date Inspected:** 25-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**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 and Tower Fabrication**Summary of Items Observed:**

CWI Inspector: Mr. Shen Fu You

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

Prior to Caltrans QA Inspectors' concurring with issuance of OBG deck plate closed rib green tag releases a review of the ultrasonic inspection database is performed to verify all closed rib tack weld repair locations have been ultrasonically accepted. Today this QA Inspector, Mr. Paul Dawson, performed data entry of ultrasonic inspection information from the field generated Ultrasonic inspection data sheets onto the common drive computer database for the following OBG deck panels: DP-102-001, DP156-001 and DP392-001.

**Segment Assembly Area**

This QA Inspector performed random observations of ZPMC personnel performing final tension verification of lower Chevron M22-2.5\*70 and M22-2.5\*80 bolts on OBG lift 2 east, between panel point 14 and panel point 18 as listed on "Bolting Inspection Notification Sheet : #00044. ZPMC workers performed final bolt tightening verification at the direction of ZPMC QC Mr. Hu Mei Gang (QC1) using ZPMC calibrated wrench identified as XO2-584 for the majority of the bolts and a hydraulic bolt tensioning wrench Hydra electric pump PW090331002 model MP582-2 wrench serial number Y090520002, model 2XLCT-36mm for the bolts with limited access. Two

---

---

## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

---

---

sets of ASTM A325 bolts, (10%) at each connection were torque tested.

ZPMC QC Mr. Hu Mei Gang presented the following bolting information to this QA Inspector:

RC Set No. DHGM220004 – M22-2.5x70 – required torque 453N.M

RC Set No. DHGM220006 – M22-2.5x80 – required torque 440N.M

The torque of the above noted bolt sets were verified by torque testing with the above noted calibrated wrench with the wrench setting displayed as 455N.M. and the hydraulic tensioning machine was adjusted to 23 MPa. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 19

This QA Inspector performed random magnetic particle (MT) inspection of OBG crossbeam bottom plate welds BP025-007-001, BP025-007-002, BP025-007-003, BP025-009-001, BP025-009-002, BP025-009-003, BP026-009-001, BP026-009-002 and BP026-009-003. These welds had previously been MT inspected and accepted by ZPMC inspection personnel. This QA Inspector observed the welds that were MT inspected by this QA Inspector appear to comply with project specifications. For additional information on these inspections see the TL6028 Magnetic Particle Test Report.

OBG Bay 14

This QA Inspector observed ZPMC welder Ms. Song Wei Rong, stencil 056205 is using flux cored welding process to make fillet welds between deck plate DP371-001 closed ribs and diaphragm plates in the 3F position. This QA Inspector observed a welding current of approximately 200 amps and 23.0 volts. This QA Inspector observed no Quality Control (QC) personnel monitoring this welding for approximately an hour. Items observed on this date do not appear to generally comply with applicable contract documents. This QA Inspector issued an incident report to document ZPMC personnel performing welding without QC monitoring.

This QA Inspector observed ZPMC welder Ms. Li Jiao, stencil 056205 is using shielded metal arc welding process to make fillet welds between deck plate DP148-001 closed ribs and diaphragm plates in the 3F position. This QA Inspector observed a welding current of approximately 150 amps. This QA Inspector observed no Quality Control (QC) personnel monitoring this welding for over an hour. Items observed on this date do not appear to generally comply with applicable contract documents. This QA Inspector referenced this welding on the incident report listed in the previous paragraph.

This QA Inspector observed ZPMC welder Mr. Ji Hong Wei, stencil 058245 is using flux cored welding procedure WPS-345-FCAW 2G(2F)-Repair to make OBG Segment 035\*-047. This QA Inspector observed QC Inspector Mr. Li Ming Yang had recorded a welding current of 300 amps and 30.1 volts. Items observed by this QA Inspector appear to be progressing in compliance with project specifications. Mr. Li Ming Yang informed this QA Inspector that he has responsibility to monitor welding of the westbound OBG sections and that the eastbound OBG welders in the other parts of OBG Bay 14 are not his responsibility. This QA Inspector informed Mr. Li Ming Yang that this QA Inspector is going to issue an incident report to document ZPMC performing welding without having QC Inspectors monitoring this activity.

---

---

# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

---

---

## Tower Bay 11

This QA Inspector observed ZPMC welder Mr. Xue Yian, stencil 040634 using submerged arc welding procedure specification WPS-B-T-4221-BU3-C-S-1 to make groove weld SD1-A6002-3-3B. This QA Inspector observed CWI Mr. Zhan Bo monitoring the base material temperature with a 110 degree Celsius temperature indicating crayon and QC personnel were monitoring other welding attributes. This QA Inspector observed CWI Mr. Zhan Bo measured a welding current of approximately 640 amps and 29.0 volts. This QA Inspector measured a welding travel speed of 460 mm per minute. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

This QA Inspector observed ZPMC welder Ms. Dong Jun Feng, stencil 202756 using submerged arc welding procedure specification WPS-B-T-4221-BU3-C-S-1 to make groove weld SD1-A6002-7-4B. This QA Inspector observed CWI Mr. Zhan Bo monitoring the base material temperature with a 110 degree Celsius temperature indicating crayon and QC personnel were monitoring other welding attributes. This QA Inspector observed CWI Mr. Zhan Bo measured a welding current of approximately 610 amps and 30.5 volts and a welding travel speed of 420 mm per minute. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.



### Summary of Conversations:

See 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 Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

---

**Inspected By:** Dawson,Paul

Quality Assurance Inspector

---

**Reviewed By:** Carreon,Albert

QA Reviewer