**DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Pursell, Gary
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-011338
**Date Inspected:** 01-Jan-2010

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

**OSM Arrival Time:** 1900
**OSM Departure Time:** 700
**Location:** Shanghai, China

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| **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

**Summary of Items Observed:**
CWI Inspectors: Mr. Du Zhiqun, Mr. You Qi Guo

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:

Blast Shop #1

This QA Inspector performed random visual inspections of the upper internal surfaces of OBG Segment 8BW between the open end of the OBG and panel point (PP)67 and panel points PP66 and PP67 as per ZPMC Notice of Inspection request number 2413. ZPMC had recently completed grit blasting, prior to application of paint, and the steel surfaces that were inspected were mostly free of rust oxide and other contaminants that had previously obscured portions of the plates and weld surfaces. This QA Inspector visually observed approximately 50 locations that required grinding to resolve visual weld spatter, arc strikes, shallow nicks, scrapes, and other minor surface rejections. The areas were marked with colored chalk and ZPMC workers used electric grinders to remove the visually unacceptable areas and ZPMC performed magnetic particle inspections of the arc strike removal areas after they were removed.

Heavy Dock

This QA Inspector observed ZPMC welder Ms. Pu Xuezhen, stencil 052075 had recently completed using flux cored welding procedure WPS-B-T-2233-TC-P4-F to make South tower lift 1 weld SSD1-SA17-F/G-32. This weld is located inside the base of South tower on the Heavy Dock. This QA Inspector observed ZPMC CWI Mr. You Qi Guo has recorded a welding current of 210 amps and 25.4 volts and Ms. Pu Xuezhen appears to be certified to make this weld. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

This QA Inspector observed ZPMC welder Ms. Dong Yumei stencil 054069 had recently completed using flux cored welding procedure WPS-B-T-2233-TC-P4-F to make South tower lift 1 weld SSD1-SA17-F/G-83. This weld is located inside the base of South tower on the Heavy Dock. This QA Inspector observed ZPMC CWI Mr. You Qi Guo has recorded a welding current of 208 amps and 25.1 volts and Ms. Dong Yumei appears to be certified to make this weld. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

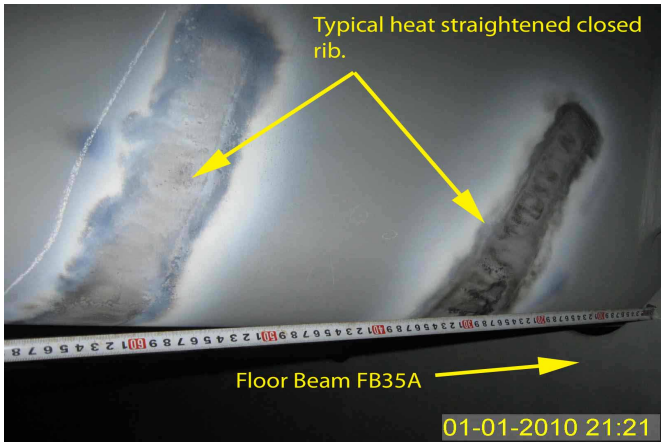
This QA Inspector observed ZPMC welder Ms. Dong Yuqin, stencil 053116 is using flux cored welding procedure WPS-B-T-2233-TC-P4-F to make South tower lift 1 weld SSD1-SA17-F/G-83. This weld is located on the outside of the base of South tower on the Heavy Dock. This QA Inspector observed ZPMC CWI Mr. You Qi Guo is monitoring this welding and this QA Inspector measured a welding current of approximately 230 amps and 25.0 volts and Ms. Dong Yuqin appears to be certified to make this weld. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

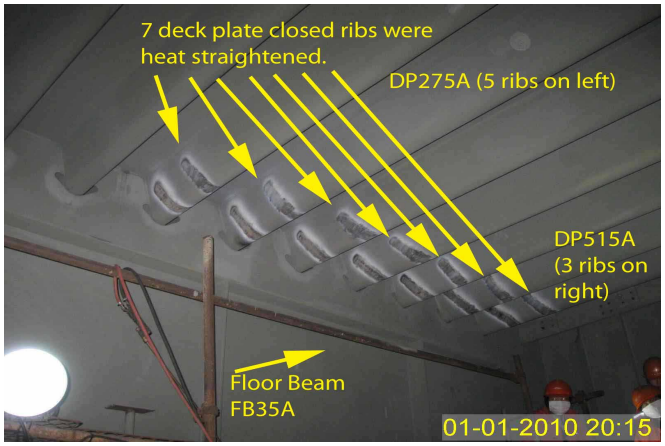
Segment Assembly

This QA Inspector observed ZPMC welder Mr. Li Wengou, stencil 066261 is using shielded metal arc procedure WPS-B-T-2333-TC-PP4-F to install temporary alignment plates at the weld joint between OBG segment 6BW and 6CW. This QA Inspector measured a welding current of approximately 170 amps. This QA Inspector asked CWI Mr. Li Wang what is the maximum welding current that is allowed by this welding procedure and Mr. Li Wang informed this QA Inspector that the maximum welding current is 160 amps. This QA Inspector informed Mr. Li Wang ZPMC welder Mr. Li Wengou appears to have high welding current. Mr. Li Wang said his welding measurement meter is in his office, but that he will have the welder decrease his welding current. This QA Inspector later measured welder Mr. Li Wengou to have a welding current of approximately 140 amps. This QA Inspector confirmed that Mr. Li Wengou is certified to make this weld. ZPMC personnel are using a torch to preheat the base material prior to commencement of the welding. This QA Inspector observed the shielded metal arc welding electrodes are being stored in an electrically heated electrode storage container. Items observed on this date appeared do not fully comply with applicable contract documents.

At around 2000 hours this QA Inspector observed ZPMC workers using two torches to perform heat straightening of an OBG segment 6CW closed ribs. A total of seven deck panel closed ribs have been heat straightened, three U-ribs on DP515A and four ribs on DP275A. This QA Inspector did not observe any ZPMC QC personnel in the area where this work was taking place. This QA Inspector asked the job supervisor if he has a heat straightening document that authorized heat straightening of these seven deck panel closed ribs and ZPMC showed this QA Inspector a copy of Heat Straightening Document HSR(B)-340. This QA Inspector observed the HSR document states a total of three U-Ribs are to be heat straightened and that ZPMC has applied heat straightening on a total of seven ribs. This QA Inspector called Caltrans engineer Mr. Eric Tsang who confirmed that this HSR document

authorizes ZPMC to heat straighten a maximum of 3 U-Ribs and that ZPMC is in violation of the requirements of this HSR document. This QA Inspector issued an incident report to document this violation. See the photographs below for additional information.




**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.

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| **Inspected By:** | Dawson,Paul | Quality Assurance Inspector |
| **Reviewed By:** | Carreon,Albert | QA Reviewer |