

**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-015829**Date Inspected:** 25-Jul-2010**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**Summary of Items Observed:**

CWI Inspector: Mr. Liu Hua Jie

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:

**OBG Segment Trial Assembly**

This QA Inspector observed ZPMC welder Mr. Hu Yanming, stencil 062092 was using shielded metal arc procedure WPS-345-SMAW-2G(2F)-FCM-Repair-1 to make OBG segment 9EE hold back weld SP709A-021. This QA Inspector observed the welding electrodes were being stored in a portable rod oven which is warm to the touch and it was connected to an electric power cable. This QA Inspector measured a welding current of approximately 150 amps and Mr. Hu Yanming appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Zhong Hua, stencil 053753 has used shielded metal arc procedure WPS-345-SMAW-3G(3F)-FCM-Repair-1 to make repairs to weld OBE9C-002 that joins side plates between OBG Segments 9DE and 9CE. This repair was authorized by critical weld repair document B-CWR1704 revision #2. This QA Inspector observed a welding current of approximately 170 amps and Mr. Wang Zhong Hua appeared to be certified to make this weld. Items observed on this date appeared to generally comply with

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applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Peng Jian Cheng, stencil 222396 was using flux cored welding procedure WPS-B-T-2231-TC-U4c-F to make OBG segment 9DE longitudinal diaphragm hold back weld. ZPMC QC informed this QA Inspector that he did not know the weld number that was being welded. This QA Inspector observed ZPMC appears to have used electric heating elements to preheat the base material prior to welding and Mr. Peng Jian Cheng appeared to be certified to make this weld. This QA Inspector observed a welding current of approximately 320 amps and 32.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Dai Lu, stencil 048659 was using shielded metal arc procedure WPS-345-SMAW-2G(2F)-FCM-Repair-1 to make repairs to weld CA060-001. This weld repair was the result of ultrasonic rejections and is being performed per weld repair document WR14113. This QA Inspector observed the welding electrodes were being stored in a portable rod oven which was connected to an electric power cable, Mr. Dai Lu had a welding current of approximately 190 amps and Mr. Dai Lu appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Li Guimin stencil 220069 was using flux cored welding process to make temporary alignment plate tack welds between OBG segment 9DW and cross beam CB12 side plate stiffener plate hold back welds. This QA Inspector observed ZPMC personnel used a torch to preheat the base material prior to welding. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhang Qui Jun, stencil 07333 is using shielded metal arc welding procedure WPS-B-P-2213-B-U2-FCM-1 to make 3G (vertical) position shielded metal arc weld OBW9A-005 between OBG segments 9CW and 9DW side plates. This QA Inspector observed Mr. Zhang Qui Jun has a welding current of approximately 160 amps and Mr. Zhang Qui Jun appears to be certified to make this weld. This QA Inspector observed the welding electrodes are being stored in a heated portable electrode storage oven and the base material appears to have been preheated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

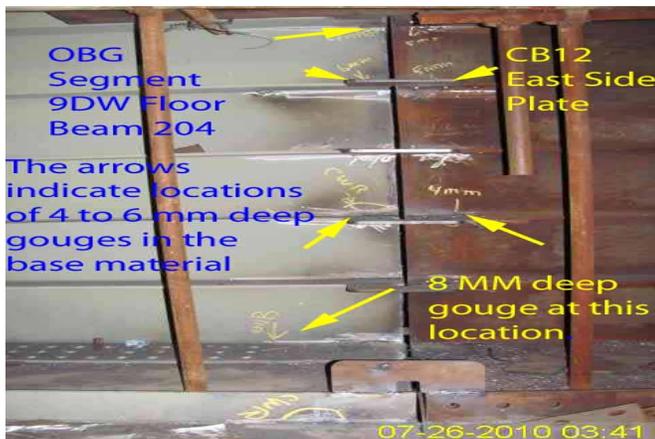
During random in process observation of OBG cross beam 12 to segment 9DW this Quality Assurance Inspector observed the following issues and an Incident Report was issued:

- ZPMC personnel have used an acetylene/oxygen torch to remove numerous Seismic Performance Critical Material (SPCM) and non-SPCM stiffener plate and side to bottom panel hold back tack welds.
- The base material of stiffener plates and adjacent SPCM base material were damaged during tack weld removal.
- SPCM and non-SPCM base metal damage include gouges ranging from 3mm to 13mm deep. A number of these areas have been weld repaired prior to ZPMC obtaining Engineers approval. (see photos below)
- SPCM weld identified as BP025-042 has a gouge depth, into the non-SPCM stiffener, up to 13 mm and a length of 130 mm. (see photos below)
- The SPCM hold back corner weld joint between floor beam SP208A and BP205A has a gouge depth of 8mm and other portions of this weld joint appear to have had similar gouges welded over prior to obtaining CWR.
- The two above mentioned SPCM welds are not listed on Welding Repair Report B-WR14103.
- ZPMC CWI stated the weld removal and repairs are authorized by Welding Repair Report B-WR14103.

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-See photos below for additional information.



Welding Repair Report				报告编号	0
项目名称 Project Name	美国海湾大桥 SFOBB	零件图号 Drawing No	9DE+CB12+9DW	报告编号	0
合同号 Contract No.	04-0120F4	零件名称 Items Name	筋板 Stiffener	NDT报告编号 Report No of DT	NA
项目编号 Project No.	ZP06-787				

焊缝缺陷描述:  
Description of welding discontinuity:  
CB12线型调整到位后, 准备开始码缝, 检查发现联系梁内部筋板与箱梁内部筋板部分错位, 强行平无法保证平整度, 详细数据见下图, 可能涉及的焊缝编号有:  
After adjusted CB12 line and start welding fixture, and the misalignment was found a cross beam inner stiffener and box stiffener, and can't meet flatness after fixture, the detail sees the following draft relevant weld id:  
SEG056-050/051, 041/042, 014/015, 032/033, 028/024, 174/175, 165/166, 066/067, 156/157, 147/148, SEG055D-075/076, 111/112, 120/121, 043/044, SSD1A-167/168, 172/173, 175/176, SSD10A-188/189, 174/175, 177/178, FB039-003-022/023, 024/025, FB027-007-032/033, FB023-007-036/037, 040/041, FB040-003-030/031, DP204-012-001-004, DP202-012-001-014, DP201-012-001-008, DP203-012-001-014, DP205-012-001-004, SP203-012-001-008, SP209-012-001-008, SP207-012-001/002, FB203-012-001-006, FB202-012-001-006, CB201A-012-008, 020, 002, 014, BP204-012-001/002, BP202-012-003/004, BP201-012-003/004

检验员 (Inspector) : WJ Bin 日期(Date) : 2010.07.24

焊缝缺陷位置示意图:  
Draft of welding discontinuity: CB12

07-25-2010 21:13

## 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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<b>Inspected By:</b>	Dawson,Paul	Quality Assurance Inspector
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<b>Reviewed By:</b>	Carreon,Albert	QA Reviewer
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