

**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-015082**Date Inspected:** 23-Jun-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 Inspectors: Mr. Tian Lei, Mr. Xu Xian Ping, 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 Bay 2**

This QA Inspector observed ZPMC welder Mr. Niu Rihai, stencil 066443 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG segment 13 welds FB3189-001-043 and -044 between stiffener plates and floor beam FB3189-001. This QA Inspector observed QC Certified Welding Inspector Mr. Tian Lei has recorded a welding current of 306 amps and 30.4 volts. Mr. Niu Rihai appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Ms. Pi Lijuan, stencil 062438 is using flux cored welding procedure WPS-B-T-2132-TC-U4b-F to make OBG floor beam weld FB3198-001-025. This QA Inspector observed ZPMC QC Certified Welding Inspector Mr. Tian Lei has recorded a welding current of 315 amps and 30.6 volts. This QA Inspector observed Ms. Pi Lijuan appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

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## WELDING INSPECTION REPORT

( Continued Page 2 of 4 )

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This QA Inspector observed ZPMC welder Mr. Jiang Yong Sheng, stencil 045240 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG floor beam weld FB3198-001-028. This QA Inspector observed ZPMC QC Certified Welding Inspector Mr. Tian Lei has recorded a welding current of 306 amps and 30.2 volts. This QA Inspector observed Mr. Jiang Yong Sheng appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Ms. Wang Chaili, stencil 045203 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG floor beam weld FB3198-001-023. This QA Inspector observed ZPMC QC Certified Welding Inspector Mr. Tian Lei has recorded a welding current of 306 amps and 31.0 volts. This QA Inspector observed Ms. Wang Chaili appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Bay 3

This QA Inspector observed ZPMC welder Mr. Chen Chuanzong, stencil 044824 is using flux cored welding procedure WPS-B-T-2233-TC-U4b-F to make OBG welds FB3123-001-055 and -057. This QA Inspector measured a welding current of approximately 240 amps and 27.2 volts. Mr. Chen Chuanzong appears to be certified to make these welds and the base material appears to have been heated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Cheng Xueying, stencil 050977 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG segment floor beam welds FB3123-001-055 and -057. This QA Inspector measured a welding current of approximately 230 amps and 27.2 volts. Mr. Cheng Xueying appears to be certified to make these welds and the base material appears to have been heated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Li Zhu Jun, stencil 052696 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG segment 13 weld FB3125-001-015 between stiffener plates and floor beam FB3125-001. This QA Inspector observed QC Certified Welding Inspector Mr. Tian Lei has recorded a welding current of 310 amps and 30.0 volts. Mr. Li Zhu Jun appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Ms. Xia Chun Rong stencil 206386 is using flux cored welding procedure WPS-B-T-2132-3 to make OBG floor beam welds FB3134-001-048 and -049. This QA Inspector observed a welding current of approximately 300 amps and 32.0 volts. This QA Inspector observed Ms. Xia Chun Rong appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Liu Ming, stencil 044790 is using flux cored welding procedure WPS-B-T-2231-B-U2-F to make OBG floor beam groove welds FB3149-001-003 and -010. This QA Inspector observed a welding current of approximately 310 amps and 30.6 volts. This QA Inspector observed Mr. Xia Chun Rong appears to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

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## WELDING INSPECTION REPORT

( Continued Page 3 of 4 )

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This QA Inspector observed floor beam groove weld FB3157-001-003 which is located close to where ZPMC welder Mr. Liu Ming had just completed welding appears to have a root pass weld in the bottom of the groove. This QA Inspector observed the weld bevels appear to have been made with an acetylene torch and there are deep oxide grooves in the weld bevel surfaces where weld material has been deposited. This QA Inspector showed this area to ZPMC CWI Mr. Tian Lei who informed this QA Inspector that he will issue a repair document to remove the weld and grind the bevels prior to additional welding. This QA Inspector observed floor beam groove weld FB3157-001-010 has not been welded and the weld grooves have similar grooves. Mr. Tian Lei marked this weld as needing to be ground prior to commencement of welding. See the photographs below for additional information.

### OBG Bay 6

This QA Inspector observed ZPMC workers are performing heat straightening of bottom plate BP3036A-001 which contains weld -013 through -036. This activity is being documented on HSR1(B)8646 revision #0. ZPMC QC Inspector Mr. Liu Chuan Gang has an infrared heat measurement device to monitor the temperature of the base material as it is being heat straightened. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Bay 7

This QA Inspector observed ZPMC welder Mr. Xiao Lin, stencil 049485 is using shielded metal arc welding procedure WPS-B-P-2112 to make OBG segment tack weld BP3035A-001-043 between stiffener plates and bottom plate BP3060A-001. This QA Inspector measured a welding current of approximately 170 amps and Mr. Xiao Lin appears 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. Zhang Ruyou, stencil 049771 is using shielded metal arc welding procedure WPS-B-P-2112 to make OBG segment tack weld BP3060A-001-045 between stiffener plates and bottom plate BP3060A-001. This QA Inspector measured a welding current of approximately 175 amps and Mr. Zhang Ruyou appears to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Bay 16

ZPMC CWI Mr. Liu Hua Jie informed this QA Inspector that ZPMC welders Mr. Wang Chang Ming, stencil 047864 and Mr. Li Jun, stencil 051348 have been using shielded metal arc welding process to complete magnetic particle rejection repair welds on OBG cross beam CB10. This QA Inspector observed a torch being used to preheat the base material prior to welding and both welders appear to be certified to perform these welds. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Segment Trial Assembly

ABF issued "Inspection Notification Sheet" number 06222010-2 item #1 informing QA that on 06-23-2010 at 18:30 hours ABF Inspectors will be performing ultrasonic (UT) inspections of hold back repair welds

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## WELDING INSPECTION REPORT

( Continued Page 4 of 4 )

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SEG037A-007, SEG039A-005, Y=430 mm, which is located between the side plate and the bottom plate on the counterweight side of OBG segments 7CW and 7DW. This weld repair is located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that the weld repair area is accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and the weld repair appears to comply with project specifications. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.



### 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

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**Reviewed By:** Carreon,Albert

QA Reviewer