

**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-008375**Date Inspected:** 07-Aug-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:** tower fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Li Zhijiang, and Mr. Wang Chuan Qing

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. Xu Li Fuli, stencil 045136 is using shielded metal arc process WPS-B-T-2112 to tack "T" stiffener plate welds and these "T" stiffeners will later be welded to various OBG floor beams. This QA Inspector observed a welding current of approximately 165 amps and Mr. Xu Li Fuli is qualified to make this weld. This QA Inspector observed the shielded metal arc welding electrodes are being stored in an electrically heated electrode storage container which is warm to the touch and it appears to be connected to the welding power supply cable. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Xu Fubao, stencil 200569 is using shielded metal arc process WPS-B-T-2112 to tack "T" stiffener plate welds and these "T" stiffeners will later be welded to various OBG floor beams. This QA Inspector observed a welding current of approximately 165 amps. This QA Inspector observed the shielded metal arc welding electrodes are being stored in an electrically heated electrode storage container

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which is warm to the touch and it appears to be connected to the welding power supply cable. This QA Inspector observed Mr. Xu Fubao is qualified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Bay 3

This QA Inspector observed ZPMC welder Mr. Wang Changfa, stencil 058102 using shielded metal arc process WPS-B-T-2133 to make OBG cross beam tack weld CB202A-010-008. The QA Inspector observed a welding current of 180 amps. This QA Inspector observed Mr. Wang Changfa is qualified to make this weld and that the welding electrodes are being stored in a portable heated electrode storage container. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Yang Xhue, stencil 057795 using shielded metal arc process WPS-B-T-2113 to weld pad eyes on OBG cross beam CB202A2. The QA Inspector observed a welding current of 160 amps. This QA Inspector observed Mr. Yang Xhue is qualified to make this weld and that the welding electrodes are being stored in a portable heated electrode storage container. Items observed on this date appeared to generally comply with applicable contract documents.

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 cross beam weld CB202G-028-002. This QA Inspector observed ZPMC QC has recorded a welding current of 206 amps and 25.3 volts. Items observed on this date appeared to generally comply with applicable contract documents.

### Tower Bay 10

ZPMC issued "Inspection Notification Sheet" number 3887 informing QA that ZPMC has completed ultrasonic inspections of the following tower connection plate complete joint penetration welds: ND1-A6002-16-5, ND1-A6002-17-5, ND1-A6002-18-5, ND1-A6002-16-6, ND1-A6002-17-6, ND1-A6002-18-6, ED1-6003-5-1, ED1-6003-5-2, ED1-6003-5-3, ED1-6003-5-4, ED1-6003-5-5, ED1-6003-6-1, ED1-6003-6-2, ED1-6003-6-3 and ED1-6003-6-4. This QA Inspector performed ultrasonic inspections of approximately 10 percent length on each of the welds listed above and items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on these inspections see the TL6027 Ultrasonic Test Report.

ZPMC issued "Inspection Notification Sheet" number 3887 informing QA that ZPMC has completed ultrasonic inspections of South Tower lift 3 corner weld SSTL3-1BK-85A(B) between skin plate D and skin plate E, and this inspection is limited to the three locations for a distance of 1200 mm each where this weld is located between the double diaphragms. This QA Inspector performed a random visual inspection of the exterior surface of weld SSTL3-1BK-85B in the locations that are referenced above and observed ZPMC appears to have performed a weld repair of this weld where the upper double diaphragm is located. This QA Inspector observed the weld repair is visually rejectable due to having excessive reinforcement, weld spatter and improper transition with the base material. This QA Inspector informed ZPMC CWI Mr. Wang Chuan Qing that ZPMC appears to have performed a weld repair in one of the areas that are referenced on the "Inspection Notification Sheet" and that the weld appears to be visually rejected. AWS D1.5 Welding Code requires all welds to be visually accepted prior to performing any non destructive testing and ZPMC should not perform ultrasonic inspections since this weld is

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visually rejectable. Mr. Wang Chuan Qing informed this QA Inspector that he agrees the weld is visually rejectable and that ZPMC will need to grind the weld surface prior to Mr. Xu Li Fuli is qualified to make this weld performing nondestructive inspections. See the photographs below for additional information. Items observed by this QA Inspector do not appear to be progressing in compliance with project specifications and this QA Inspector issued a TL-015 Incident Report to document this visual rejection.



### 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 Serge Sinevod phone: 134-8257-0045 , who represents the Office of Structural Materials for your project.

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

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