

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-014850**Date Inspected:** 16-May-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 and Tower**Summary of Items Observed:**

CWI Inspectors: Mr. Xu Tao, Mr. Li Yang

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 14

This QA Inspector observed ZPMC welder Mr. Xu Li Fuli, stencil 045136 is using shielded metal arc welding process to make tack weld SEG3004C-009 between deck plate diaphragm plates and floor beams near panel point 112.5, OBG segment 12AW. This QA Inspector observed that the base material near where this welding was taking place appears to be at an ambient temperature of approximately 28 degrees Celsius. This QA Inspector asked ZPMC QC Certified Welding Inspector (CWI) Mr. Xu Tao what preheat temperature is required by the welding procedure specification (WPS). Mr. Xu Tao informed this QA Inspector that the minimum base material preheat temperature is 10 degrees Celsius. This QA Inspector asked Mr. Xu Tao to show this QA Inspector the WPS that is being used and a few minutes later Mr. Xu Tao said Mr. Li Fuli is using welding procedure specification WPS-B-P-2112-FCM-1 which requires the base material preheat temperature to be 40 degrees Celsius instead of the 10 degrees Celsius which he had previously told this QA Inspector. Mr. Xu Tao also informed this QA Inspector that the welder had preheated the base material to 40 degrees Celsius prior to making the tack welds. This QA Inspector observed Mr. Xu Li Fuli appears to be certified to make these tack welds and

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the shielded metal arc welding electrodes are being stored in an electrically heated electrode storage container which is connected to an electrical power supply. Items observed on this date do not appear to fully comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Changmin, stencil 047864 has been using shielded metal arc welding procedure to weld temporary alignment plates between the side plate and corner assembly on the cross beam side of OBG segment 12CE near panel point 116. This QA Inspector observed Mr. Zang Chang Ming appears to be certified to make this weld and the welding electrodes are being stored in a portable electrode storage oven that is warm to the touch. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Segment Assembly

This QA Inspector observed ZPMC welder Mr. Zang Yanbo, stencil 045196 is using shielded metal arc welding procedure WPS-B-P-2212-TC-U4b-FCM-1 to make weld OBG segment 7CD weld SEG039C-022 near panel point 56. This QA Inspector observed Mr. Zang Chang Ming appears to be certified to make this weld and the welding electrodes are being stored in a portable electrode storage oven that is warm to the touch. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Yu Hui Ye, stencil 045143 is using flux cored welding procedure WPS-B-T-2231-T to make weld SEG039B-007. This weld joins the longitudinal diaphragm to the bottom plate on the counterweight side of OBG segment 7DW near panel point 55. This QA Inspector measured a welding current of approximately 290 amps and 32.5 volts. This QA Inspector observed that Mr. Yu Hui Ye appears to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

ABF issued "Inspection Notification Sheet" number 05152010-1 item #2 informing QA that on 05-16-2010 at 18:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired welds CA046-002 and CA046-006 which joins OBG deck plate to edge plate on the bikepath side of OBG segment 7EE. These welds are located in the trial assembly area. ABF/Sense UT Inspectors informed QA Inspector Mr. Mike Hasler that weld repair area Y=13320mm has a rejectable UT longitudinal indication and the other repair area is UT acceptable. This QA Inspector performed random visual and ultrasonic inspections of "Y" locations 10mm and 13310mm for detection of longitudinal and planar transverse indications utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and no additional UT rejections were observed. Items observed on this date appeared to generally comply with applicable contract documents. 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.

ABF issued "Inspection Notification Sheet" number 05152010-1 item #3 informing QA that on 05-16-2010 at 19:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld OBE7C-009 which joins OBG side plates on the bikepath side of OBG segment 7DE to 7EE. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed QA Inspector Mr. Mike Hasler that weld repair area Y=7440mm has a rejectable UT longitudinal indication and this weld repair is visually unacceptable. This QA Inspector performed random visual and ultrasonic inspections of "Y" locations 7360 and 7410 for detection of longitudinal and planar transverse indications utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and no additional UT rejections were observed. Items observed on this date appeared to generally comply with applicable contract

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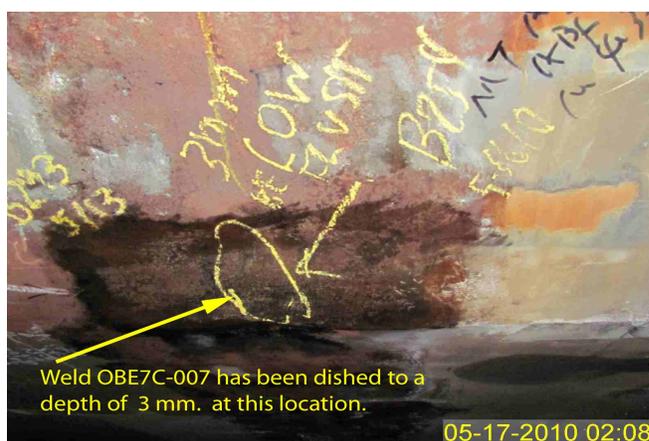
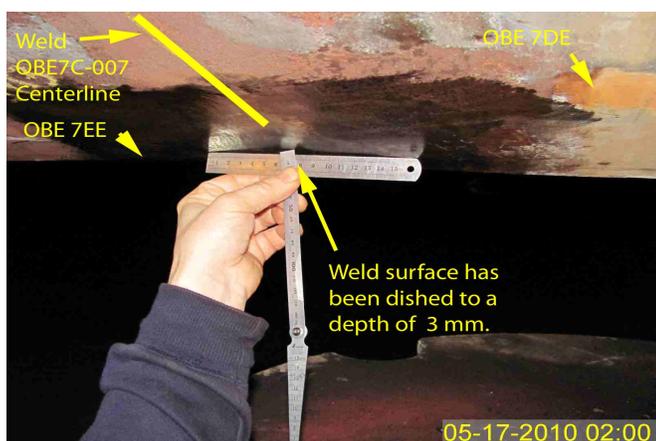
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documents. Note: These inspections are being documented and tracked on “Verification Witness Request” documents. See the TL-6027 UT report for additional information concerning this inspection.

ABF issued “Inspection Notification Sheet” number 05152010-1 item #4 informing QA that on 05-16-2010 at 18:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld OBE7C-007 which joins OBG side plates on the cross beam side of OBG segments 7DE to 7EE. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed QA Inspector Mr. Mike Hasler that this weld repair is visually and UT acceptable. This QA Inspector performed random visual and ultrasonic inspections of “Y” locations 35mm and observed this weld repair area appears to have been ground and the top of the weld surface is dished to a depth of approximately 3mm below the adjacent base material surfaces on either side of the weld. Due to this dished condition this QA Inspector was not able to complete an adequate ultrasonic inspection for detection of longitudinal and planar transverse indications utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7). This QA Inspector documented this visual rejection on a Word document which was attached to the inspection request See the photographs below for additional information. Note: These inspections are being documented and tracked on “Verification Witness Request” documents.

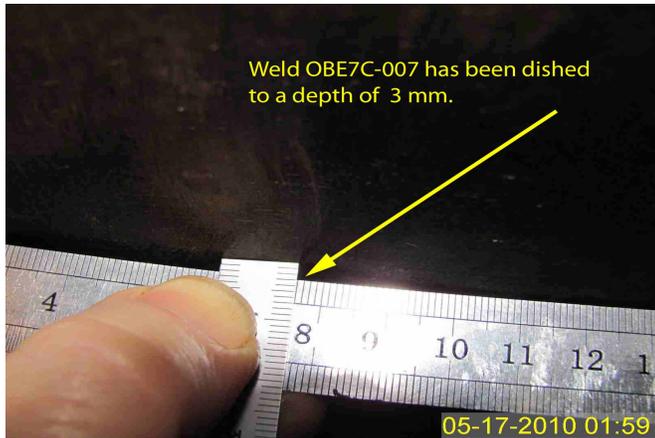
Blast Shop #1

This QA Inspector along with Caltrans QA Inspectors Mr. Mike Hasler, Mr. Daniel Barrentine and Mr. George Goulet performed random visual inspections of North tower lift 1 elevations 0 to 16.5 meters. ZPMC has recently completed initial 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. ABF and ZPMC Inspectors performed a cursory inspection of the areas indicated above and 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 that require rework were marked with colored chalk and ZPMC workers were using electric grinders to remove the visually unacceptable areas and ZPMC will be performing magnetic particle inspections of the arc strike removal areas after they are removed.



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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
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Reviewed By:	Carreon,Albert	QA Reviewer
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