

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-007630**Date Inspected:** 26-Jun-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:** OBG and Tower Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Chen Ying Xin, Wan 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:

Prior to Caltrans QA Inspectors' concurring with issuance of OBG deck plate closed rib green tag releases a review of the ultrasonic inspection database is performed to verify all closed rib tack weld repair locations have been ultrasonically accepted. Today this QA Inspector, Mr. Paul Dawson, performed data entry of ultrasonic inspection information from the field generated Ultrasonic inspection data sheets onto the common drive computer database for the following OBG deck panels: DP102-001, DP182-001, DP264-001 and DP392-001.

Segment Assembly Area

This QA Inspector performed random visual observations of the workers in the interior of the westbound OBG near panel point 16. This QA Inspector observed ZPMC welder Mr. Chen Jing Qian, stencil 219589 performing tack welding of a splice plate on the crossbeam side longitudinal diaphragm. It appears that the purpose of these tack welds is to maintain alignment of the splice plate bolt holes which will be used to indicate where crossbeam holes will need to be drilled prior to installation of bolting at the splice between segments 2AW and 2BW. This QA Inspector observed Mr. Qian does not appear to have removed the zinc based paint were these tack welds were

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being made. Similar tack welds have also been made on the counterweight side and ZPMC appears to have also welded over the zinc based painted surfaces. AWS D1.5 paragraph 3.2.1 requires steel surfaces to be free of foreign materials prior to welding. This QA Inspector informed ZPMC QC Inspector Mr. Pan Wen Long and QC representative Mr. Lei Tau that there is paint where the tack welds had been made. Mr. Tau informed this QA Inspector that these temporary welds will be removed and ZPMC will remove paint prior to installing additional tack welds.

Tower Bay 10

This QA Inspector observed ZPMC welder Mr. Zhu Cheng Dong, stencil 040582 is using shielded metal arc process WPS-B-T-3221-TC-U5-S-1 to make Shear Link weld EDI-A5007-1-1B. This QA Inspector observed a welding current of approximately 220 amps and the base material where the weld is being heated with an electric heating element. ZPMC QC and ABF personnel are monitoring this welding. 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. This QA Inspector observed the location where the Shear Link welding was taking place is not directly electrically grounded with the adjacent steel frames where some of the other shop welding is taking place, and the electrical ground is being made by pieces of steel that are touching each other as they bridge the span between the work platform and the permanent steel work frames. This QA Inspector observed, as the welding is taking place, that one of the pieces of steel through which the electrical ground is being made appears to be getting very hot and shines with a red color due to the heat and when the welding stops the steel cools and it loses the red color. This QA Inspector showed ZPMC QC personnel the glowing steel and one of the welders make tack welds to secure the grounding steel pieces together. ZPMC welder Mr. Zhu Cheng Dong then resumed welding of the Shear Link and ZPMC QC then measured a welding current of approximately 190 amps. Mr. Zhu Cheng Dong stopped welding and adjusted his welding machine to approximately 230 amps. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Sun Dao Qing, stencil 040269 is using shielded metal arc process WPS-B-T-3221-TC-U5-S-1 to make Shear Link weld EDI-A5007-4-1B. This QA Inspector observed a welding current of approximately 240 amps and the base material where the weld is being heated with with an electric heating element. ZPMC QC and ABF personnel are monitoring this welding. 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. Zhang Weibao, stencil 052923 is using shielded metal arc process to tack weld a spacer plate to the exterior surface of tower lift 3 skin plate A. This QA Inspector observed the location where this weld was made had not been ground and the surface did not have any of the gray primer paint removed. AWS D1.5 paragraph 3.2.1 requires steel surfaces to be free of foreign materials prior to welding. This QA Inspector informed ZPMC QC/CWI Mr. Chen Ying Xia and ABF representative Mr. Liu Cheng that welding has been performed on the exterior of tower lift 3 skin plate A that had not been cleaned of paint or other contaminants. Mr. Chen Ying Xia informed this QA Inspector the tack weld will be removed and the base material will be ground prior to making additional tack welds. Items observed on this date do not appeared to fully comply with applicable contract documents.

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ZPMC issued "Inspection Notification Sheet" #3527 informing QA that ZPMC has completed ultrasonic inspections of tower welds NSD1-FESA4-3A/F-24 and NSD1-FESA4-3A/F-25. ZPMC ultrasonic Inspectors had previously accepted all of these welds. This QA Inspector performed random ultrasonic inspections 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.

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
Reviewed By:	Carreon,Albert	QA Reviewer
