

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-016125**Date Inspected:** 28-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. Wei Dashuai stencil 051246 used flux cored welding procedure WPS-B-T-2231-TC-U4c-F to make repairs of visual rejections on OBG bikepath cantilever beam weld BK001-PP81-007. This QA Inspector observed the weld and base material were preheated with a torch prior to welding and Mr. Wei Dashuai appeared to be certified to make these welds. This QA Inspector observed a welding current of approximately 270 amps and 24.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Xin Meng, stencil 053742 used flux cored welding procedure WPS-B-T-2232-TC-U4B-F to make hold back weld 9DE-PP82-128. This stiffener plate hold back weld is located adjacent to the lower west side of OBG cross beam 11. This QA Inspector measured a welding current of approximately 270 amps, 27.0 volts, Mr. Xin Meng appears to be certified to make this weld and the base material appears to have been heated with a torch. Items observed on this date appeared to generally comply with

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applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhang Han Ming, stencil 220066 used flux cored welding procedure WPS-345-FCAW-2G(2F)-Repair to perform weld repairs to OBG segment 9DE, panel point 82 weld SEG058B-049. This longitudinal diaphragm weld had an ultrasonic rejection and weld repair document B-WR14139 was issued to complete this repair. This QA Inspector measured a welding current of approximately 300 amps, 31.0 volts and Mr. Zhang Han Ming 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. Chen Zheng Hua, stencil 220067 was using flux cored welding procedure WPS-B-T-2232-TC-U4b-F to make hold back weld SSD16-PP080-170 between the side plate and deck plate of OBG cross beam CB11. This QA Inspector measured a welding current of approximately 310 amps, 29.0 volts and Mr. Chen Zheng Hua appeared to be certified to make this weld. This QA Inspector observed Mr. Chen Zheng Hua used a torch to maintain the base material interpass temperature. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Li Guimin stencil 220069 had recently used flux cored welding procedure WPS-B-T-2232-TC-U4b-F to make hold back weld SSD16-PP082-169 between a side plate and deck plate of OBG cross beam CB11. This QA Inspector observed ZPMC QC Inspector Mr. Zhou Peng had recorded a welding current of 247 amps and 25.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Li Guimin stencil 220063 had recently used flux cored welding procedure WPS-B-T-2232-TC-U4b-F to make hold back weld SSD12A-PP082-169 between a side plate and deck plate of OBG cross beam CB11. This QA Inspector observed ZPMC QC Inspector Mr. Zhou Peng had recorded a welding current of 242 amps and 27.0 volts. Items observed on this date appeared to generally comply with applicable contract documents.

ABF issued "Inspection Notification Sheet" number 07272010-2 item #1 informing QA that on 07-28-2010 at 14:00 hours ABF Inspectors will perform ultrasonic (UT) inspections of repaired weld OBE9C-003. These weld repairs are located on the bottom plate between OBG segments 9CE and 9DE in the trial assembly area. This QA Inspector observed ABF/Sense UT Inspectors appear to have identified and marked an ultrasonic rejection at Y=5755. 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 seven repaired areas and one UT rejection was noted at location Y=5755 at approximately the same depth as was identified by ABF personnel and the remainder of the areas that were randomly inspected appear to comply with project specifications. Note: These inspections were documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

This QA Inspector observed ZPMC welders Mr. Chen Ren Zhi, stencil 058087, Mr. Wang Zhenbing, stencil 216086, and Mr. Zhao Guang Lin, stencil 044779 were using shielded metal welding process to make various OBG SEG repair welds in SEG035E-044 inside cross beam CB7. This weld repair is being documented on B-WR12520 to correct misaligned stiffener plates between panel points 56 and 58. This QA Inspector observed Mr. Chen Ren Zhi appears to be certified to make this weld ZPMC CWI Mr. Li Yang has documented a welding

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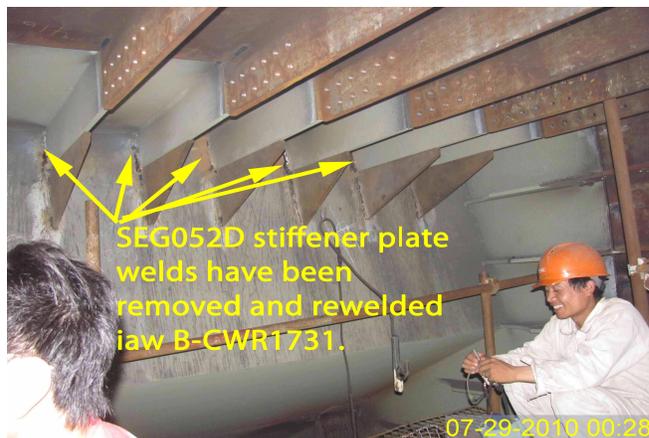
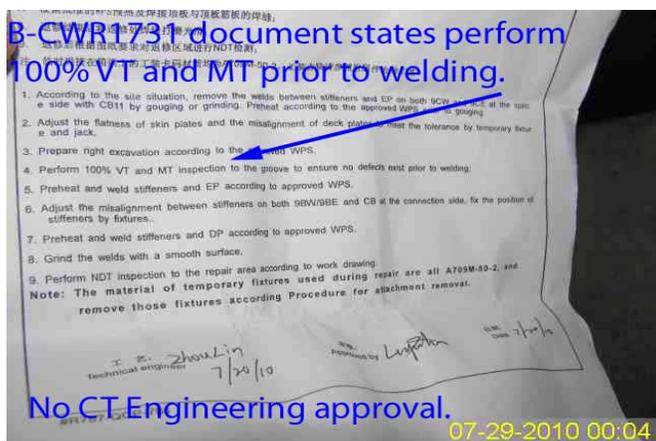
current of 148 amps. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector performed random in process observations of the trial assembly of OBG cross beam 11 and this Quality Assurance (QA) Inspector discovered the following issues:

- ZPMC personnel have removed deck panel stiffener component SEG052D and E Stiffener plate welds in a manner inconsistent with the repair procedure QC presented to this QA Inspector.
- The repair procedure is a Critical Weld Repair (CWR) procedure identified as B-CWR1731. This procedure has not been approved by the Engineer.
- ZPMC personnel have used acetylene/oxygen torches to remove OBG deck panel stiffeners from the edge panel of segment 9BW. CWR B-CWR1731 states the welds will be removed using Gouging or Grinding methods.
- ZPMC did not actually remove the welds, instead, they cut the end of the stiffeners approximately 10mm to 15mm away from the weld attaching it to the edge panel. This method of removal creates the need for a CJP weld adjacent to and parallel to the original weld. This additional weld joint is not detailed on the approved shop drawings.
- The stiffeners are identified as X8E.
- Additionally, ZPMC performed welding over the flame cut surfaces prior to grinding the joint preparation to a smooth, bright surface as specified in AWS D1.5 2002.
- ZPMC has not documented completion of visual or magnetic particle inspections of the weld grooves prior to welding as required by CWR B-CWR1731.

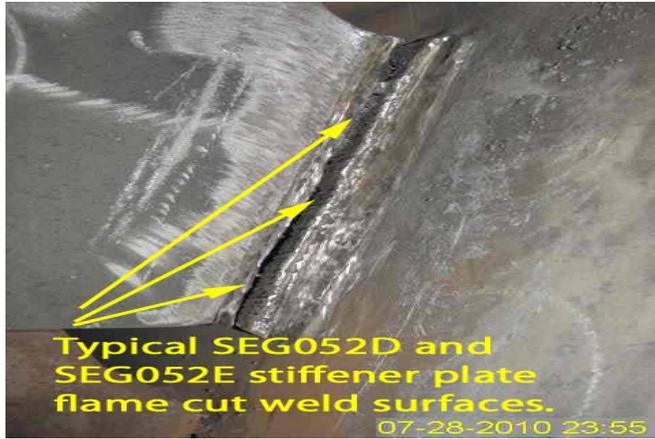
See the photographs below for additional information.

This QA Inspector informed ZPMC CWI Mr. Liu Hua Jie and ABF representative Mr. Kelvin Cheung that an incident report was being issued.



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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
Reviewed By:	Carreon,Albert	QA Reviewer
