

**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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018848**Date Inspected:** 23-Dec-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. Bao Qian

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.

OBG Bay 14

Segments 13E and 14E

This QA Inspector observed ZPMC welder Mr. Sun Lingling, stencil 048047 used shielded metal arc welding process to complete repairs of visual and MT rejections in various welds between OBG segment 13CE longitudinal diaphragms and deck plate DP3106-001. This QA Inspector measured a welding current of approximately 110 amps and Mr. Sun Lingling 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. Kuai Wenshan, stencil 054013 used shielded metal arc welding process to complete repairs of visual and MT rejections in various welds between OBG segment 13CE longitudinal diaphragms and deck plate DP3106-001. This QA Inspector measured a welding current of approximately 180 amps and Mr. Kuai Wenshan appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

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This QA Inspector observed ZPMC welder Mr. Yuan Wensong, stencil 055491 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE welds SEG3007Q-151 through 156. This QA Inspector observed ZPMC QC has recorded a welding current of 258 amps, 25.3 volts and a travel speed of 138mm per minute. This QA Inspector measured a welding current of approximately 173 amps, 22 volts, a travel speed of 120 mm per minute and that Mr. Yuan Wensong appeared to be certified to make these welds. This QA Inspector observed that the minimum welding parameters listed in the welding procedure specification are 222.8 amps and 23.9 volts and that Mr. Ye Bing had a welding current that was approximately 49 amps below the minimum limit and a welding voltage that was approximately 2 volts below the minimum limit. No ZPMC QC or ABF representatives appeared to be at this location and this QA Inspector showed ZPMC welder Mr. Yuan Wensong the welding current meter and the WPS and Mr. Yuan Wensong adjusted his welding machine to approximately 240 amps and 25 volts. Later in the shift this QA Inspector showed ABF CWI Mr. Bao Qian a photograph of the welding current meter and Mr. Bao Qian said he had previously measured Mr. Yuan Wensong to have acceptable welding current and voltage. Following adjustment of the welding machine, items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wu Wanyong stencil 050242 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE weld SEG3007Q-140. ZPMC QC had recorded a welding current of 258 amps, 26.5 volts and a welding travel speed of 142 mm per minute. This QA Inspector measured a welding current of approximately 240 amps and 27.0 volts. Mr. Wu Wanyong 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. Zhu Jibo, stencil 055564 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE weld SEG3007M-211. ZPMC QC had recorded a welding current of 248 amps, 26.5 volts and a welding travel speed of 139 mm per minute. This QA Inspector measured a welding current of approximately 270 amps, 25.0 volts and Mr. Zhu Jibo 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. Yang Yunfeng, stencil 215553 used shielded metal arc welding procedure WPS-345-SMAW-1G(1F)-Repair to make a weld repair of ultrasonic rejections to OBG segment 13AE weld SEG3007T-215. ZPMC QC presented this QA Inspector with weld repair document B-WR-19428 that documents a welding current of 151 amps, 25.3 volts and a travel speed of 118mm per minute. This QA Inspector observed Mr. Yang Yunfeng 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. Hong Liang, stencil 200113 used shielded metal arc welding procedure specification WPS-345-SMAW-1G(1F)-Repair to make repairs of OBG segment 13AE weld SEG3007U-232. This weld had been ultrasonically rejected and was repaired in accordance with weld repair document B-WR19256. This QA Inspector observed ZPMC QC recorded the depth of the repair was 7mm, Mr. Hong Liang had a welding current of 153 amps, 25.3 volts and a travel speed of 115mm per minute. This QA Inspector observed Mr. Hong Liang 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. Wang Zhengbin, stencil 216086 used shielded metal arc welding

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procedure WPS-345-SMAW-1G(1F)-FCM-Repair to make a weld repair of ultrasonic rejections to OBG segment 13AE weld SEG3007H-122. ZPMC has issued weld repair document B-WR-19129 that documents the repair of this weld. QC Inspectors have recorded the depth of this repair was 7mm, a welding current of 154 amps, 25.3 volts and a welding travels peed of 112mm per minute. This QA Inspector measured a welding current o approximately 160 amps observed Mr. Wang Zhengbin 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. Zhao Guanglin, stencil 044779 used shielded metal arc welding procedure specification WPS-B-P-2221-B-U2 to make OBG segment 13AE weld SEG3007P-027. This QA Inspector observed ZPMC has recorded a welding current of 168 amps, 25.3 volts and a welding travels speed of 112mm per minute. This QA Inspector observed Mr. Zhao Guanglin 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. Hu Den Jiang, stencil 067877 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 13AE welds SEG3007E-024 trough 029. ZPMC QC had recorded a welding current of 257 amps, 25.9 volts and a welding travel speed of 146 mm per minute. This QA Inspector measured a welding current of approximately 260 amps, 24.5 volts and Mr. Hu Den Jiang 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. Ge Tao, stencil 067765 used shielded metal arc welding procedure specification WPS-B-P-2214-TC-U4B to make OBG segment 13AE weld SEG3009C-216. This QA Inspector observed ZPMC has recorded a welding current of 152 amps, 25.3 volts and a welding travel speed of 117mm per minute. This QA Inspector observed Mr. Ge Tao 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. Jian Zhou, stencil 067571 used shielded metal arc welding procedure specification WPS-B-P-2214-TC-U4B to make OBG segment 13AE weld SEG3009J-222. This QA Inspector observed ZPMC has recorded a welding current of 149 amps, 25.4 volts and a welding travel speed of 117mm per minute. This QA Inspector observed Mr. Jian Zhou 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 stencil 068097 used shielded metal arc welding procedure specification WPS-B-P-2214-TC-U4B to make OBG segment 13AE weld SEG3009E-203. This QA Inspector observed ZPMC has recorded a welding current of 153 amps, 25.1 volts and a welding travel speed of 109mm per minute. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder stencil 067103 used flux cored welding procedure WPS-B-T-2132-ESAB to make OBG segment 13CE welds SEG3011M-023 and 024. ZPMC QC had recorded a welding current of 292 amps, 25.3 volts and a welding travel speed of 303 mm per minute. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Ye Bing stencil 066733 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 14E weld SEG3019K-1-002. This QA Inspector observed ZPMC QC has recorded a welding current of 257 amps, 26.1 volts and a welding travel speed of 135mm per minute. This

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QA Inspector measured a welding current of approximately 225 amps, 27.0 volts and Mr. Ye Bing 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. Han Lin stencil 062782 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 14E weld SEG3019E-1-178 and 179. This QA Inspector observed ZPMC QC had recorded a welding current of 253 amps, 25.7 volts and a travel speed of 139mm per minute. This QA Inspector observed Mr. Han Lin 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. Liu Kaige, stencil 044830 used flux cored welding procedure WPS-B-T-2233-ESAB to make OBG segment 14E weld SEG3019Q-1-048. This QA Inspector observed ZPMC QC had recorded a welding current of 257 amps, 25.8 volts and a travel speed of 138mm per minute. This QA Inspector observed Mr. Liu Kaige 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. Wang Hai Yang, stencil 068994 used flux cored welding procedure WPS-B-T-2232-ESAB to make OBG segment 14E weld SEG3019V-029. ZPMC QC had recorded a welding current of 251 amps, 25.3 volts and a welding travel speed of 1320mm per minute. Mr. Wang Hai Yang 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 Ms. Gao Yuling stencil 217805 used flux cored welding procedure WPS-B-T-2133-ESAB to make OBG segment 14E weld SEG3019S-252. This QA Inspector observed ZPMC QC had recorded a welding current of 252 amps, 25.6 volts and a welding travel speed of 135mm per minute. This QA Inspector observed Ms. Gao Yuling 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. Zhang Mingwu, stencil 066283 used flux cored welding procedure WPS-B-T-2133-ESAB to make OBG segment 14E welds SEG3019J-270 through 278. This QA Inspector observed ZPMC QC had recorded a welding current of 254 amps, 25.8 volts and a welding travel speed of 140mm per minute. This QA Inspector observed Mr. Zhang Mingwu 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. Wang Li, stencil 044772 used shielded metal arc procedure specification WPS-B-P-2212-TC-U4B to make OBG segment 13AE weld SEG3019Y-056. This QA Inspector observed ZPMC has recorded a welding current of 169 amps, 25.3 volts and a welding travel speed of 112mm per minute. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Jin Rong, stencil 066471 used flux cored welding procedure WPS-B-T-2232-ESAB to make OBG segment 14E weld SEG3019AA-025. ZPMC QC had recorded a welding current of 289 amps, 25.3 volts and a welding travel speed of 297mm per minute. This QA Inspector measured a welding current of approximately 275 amps, 28.1 volts and a welding travel speed of approximately 300mm per minute. This QA Inspector observed that the maximum welding voltage listed in the welding procedure

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specification is 26.6 volts and that Mr. Jin Rong had a welding voltage that was approximately 1.5 volts above the maximum limit. This QA Inspector showed the welding voltage meter to ABF CWI Mr. Bao Qian and he asked Mr. Jin Rong to adjust the welding machine voltage. This QA Inspector then measured a welding voltage of approximately 26.0 volts. Following adjustment of the welding machine, items observed on this date appeared to generally comply with applicable contract documents. See the photograph below for additional information



## 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 James Devey +8615000026784, 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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