DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-016388
Date Inspected: 19-Aug-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
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 Inspectors: Mr. Liu Hua Jie, Mr. Sun Zi Wang

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. Xu Zichuan, stencil 205098 used shielded metal arc welding procedure WPS-345-SMAW-3G(3F)-Repair to complete weld repairs of UT rejections in weld SEG051C-043. This weld was located between counterweight side longitudinal diaphragm and the floor beam at OBG segment 9BW panel point PP076. This QA Inspector made this observation from OBG segment point PP82 where ZPMC QC Inspector Mr. Wang Zhu was monitoring other welders. This QA Inspector asked Mr. Wang Zhu who was performing the welding at PP076 and Mr. Wang Zhu informed this QA Inspector that he was not aware of anyone welding in this location. When this QA Inspector arrived at PP076 there was a welding hood, gloves and other welding equipment sitting on the longitudinal diaphragm and no welder was observed near that location. This QA Inspector observed weld SEG051C-043 appears to have been ultrasonically rejected and weld SEG051C-043 had been gouged and ground to a depth of approximately 8 millimeters and the weld groove was only partially welded. ZPMC QC Inspector Mr. Wang Zhu informed this QA Inspector he has located weld repair document B-WR14517 which documents this weld repair. Mr. Xu Zichuan then returned to PP076 and he removed his

welding equipment and he appeared to be finished welding. This QA Inspector observed Mr. Xu Zichuan appeared to be certified to perform this welding. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhang Qiu Jun stencil 057333 used shielded metal arc welding procedure specification WPS-345-SMAW-4G(4F)-FCM-Repair-1 to complete weld repairs per weld repair document B-WR14632. This weld repair document was issued to perform repairs of ultrasonic rejections in OBG segment weld OBW9A-008. The weld joins OBG segments 9DW and 9EW top deck plates. This QA Inspector observed a welding current of approximately 160 amps, Mr. Zhang Qiu Jun appeared to be certified to make this weld and the base materials appeared to have been preheated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Xiaomin, stencil 046709 used shielded metal arc welding procedure specification WPS-345-SMAW-4G(4F)-FCM-Repair-1 to complete weld repairs per weld repair document B-WR14607. This weld repair document was issued to perform repairs of ultrasonic rejections in OBG segment 9DW corner assembly weld CA065-002. This QA Inspector observed, Mr. Wang Xiaomin appeared to be certified to make this weld and the base materials appeared to have been preheated with electric heaters. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welders Mr. Xue Yuan stencil 202316 and Mr. Cao Hu stencil 62935 used shielded metal arc welding process to complete repairs of visual rejections in welds OBW10L-001 through 012. These welds were located on the counterweight side edge plate on OBG segments 10AW and 10BW. Both welders appeared to be certified to make these welds. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhang Qian, stencil 220191 used shielded metal arc welding process to tack weld a weld temporary alignment plate to the underside of OGB segments 10AW and 10BWon the counterweight side of the bottom plates. This QA Inspector measured a welding current of approximately 145 amps and the base material adjacent to this weld appeared to have been preheated with a torch. Items observed on this date appeared to generally comply with applicable contract documents.

Blast Shop 1

ZPMC requested Caltrans personnel to perform visual inspections of East Tower Lift 2 between the 65M upper double diaphragm to 83 meter elevation on August 20, 2010 at around 00:30 hours following the initial pre-blast cleaning of the steel surfaces. Caltrans QA Inspectors Ken Riley, Mike Hasler and this QA Inspector performed random visual inspections of these areas. This QA Inspector visually observed approximately 30 locations that required grinding to resolve visual weld spatter, arc strikes, shallow nicks, scrapes, and other minor surface rejections and three locations which require weld repairs. ABF and ZPMC Inspectors also performed visual inspections of the areas indicated above and a total of thirteen areas were identified as needing weld repairs. A “Blast Inspection” incident report has been issued to document these repairs and below is a total list of the weld repairs that were observed by all Inspectors.

1- 65 meter diaphragm weld ESD1-TL7F/L-18 to skin “B” has porosity.

WELDING INSPECTION REPORT

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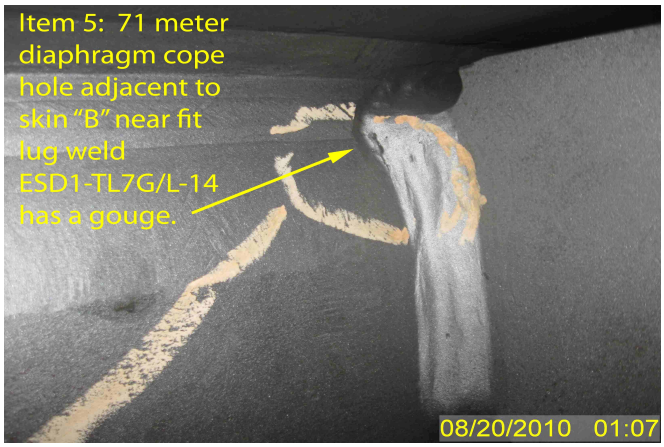
2- 68 meter diaphragm fit lug weld ESD1-TL7F/L-146 to diaphragm plate has porosity.
3- 68 meter diaphragm fit lug weld ESD1-TL7F/L-147 to diaphragm plate has porosity.
4- 71 meter diaphragm cope hole has weld overlap opposite of fit lug weld ESD1-TL7G/L-18.
5- 71 meter diaphragm cope hole adjacent to skin “B” near fit lug weld ESD1-TL7G/L-14 has a gouge.
6- 77 meter bottom diaphragm has a base metal gouge at weld ESD1-TL7H/L-19.
7- 77 meter top diaphragm fit lug weld ESD1-TL7H/L-169 has porosity.
8- 77 meter top diaphragm fit lug weld ESD1-TL7H/L-174 has porosity.
9- 77 meter top diaphragm fit lug weld ESD1-TL7H/L-179 has porosity.
10- 77 meter top diaphragm has underfill at fit lug weld ESD1-TL7H/L-110.
11- Skin “D” has a gouge in the base material 1800 mm above 80.75 meter diaphragm, (400 mm from shaft top end).
12- 80.75 meter diaphragm to skin plate “E” weld ESD1-TL7H/L-36 has porosity.
13- Skin “A” to skin plate “B” corner weld has porosity 190 mm from the 83 meter top end of the shaft.
For further information, please see the attached photographs below.



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