

**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-016317**Date Inspected:** 17-Aug-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. Zhu Ming Jun, stencil 040609 recently used flux cored welding procedure WPS-B-T-2231T to make weld OBW10B-003. This weld joins OBG segment 10AW bottom plate to 10BW near panel point PP088. This QA Inspector observed ZPMC QC had recorded a welding current of 305 amps, 28.9 volts and Mr. Zhu Ming Jun 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. Wu Jun stencil 053486 recently used flux cored welding procedure WPS-B-T-2231T to make weld OBW10B-003. This weld joins OBG segment 10AW bottom plate to 10BW near panel point PP088. This QA Inspector observed ZPMC QC had recorded a welding current of 305 amps, 28.9 volts and Mr. Wu Jun 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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# WELDING INSPECTION REPORT

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This QA Inspector observed ZPMC welder Mr. Jiang Zhen, stencil 068917 recently used flux cored welding procedure WPS-B-T-2231T to make weld OBW10B-003. This weld joins OBG segment 10AW bottom plate to 10BW near panel point PP088. This QA Inspector observed ZPMC QC had recorded a welding current of 305 amps, 28.9 volts and Mr. Jiang Zhen 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. Cheng Chong Lang, stencil 251194 used shielded metal arc welding procedure WPS-345-SMAW-2G(22F)-Repair-1 to make weld repairs of visual rejections on OBG segments 9AE to 10AE cross beam side plate stiffener plate hold back welds. This QA Inspector observed 75 amps and Mr. Cheng Chong Lang appeared to be certified to make this weld and ZPMC appeared to have used torch to preheat the base material prior to welding. 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 and the end of the shaft at 83M (7 sections) on August 18, 2010 at around 00:30 hours following the initial pre-blast cleaning of the steel surfaces. When Caltrans QA Inspectors George Goulet, Mike Hasler and this QA Inspector arrived at the East Tower Lift 2 ABF representative Mr. Kim Xiao stated that the original notification was incorrect and that the areas which require visually inspections are from the 50 meter end of the East Tower Lift 2 to the 65M upper double diaphragm. This QA Inspector visually observed approximately 40 locations that required grinding to resolve visual weld spatter, arc strikes, shallow nicks, scrapes, and other minor surface rejections and two locations which require weld repairs. ABF and ZPMC Inspectors also performed visual inspections of the areas indicated above and a total of sixteen 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- Skin "A" / "B" corner weld porosity approx. elevation: 63 meters.
- 2- Base metal gouge approx. elevation: 51.40 meters
- 3- 53 meter bottom diaphragm base material notch near fit lug weld ESD1-TL7C/L-17
- 4- 53 meter diaphragm to fit lug weld ESD1-TL7C/L-23 has porosity
- 5- 53 meter diaphragm to skin "B" weld ESD1-TL7C/L-28 has porosity
- 6- 59 meter diaphragm to skin "B" weld ESD1-TL7D/L-66 has porosity
- 7- 59 meter diaphragm to skin "B" weld ESD1-TL7D/L-65 has porosity
- 8- 59 meter diaphragm to fit lug weld ESD1-TL7D/L-25 has porosity
- 9- Lower 56m diaphragm base material is gouged.
- 10- Lower 56m diaphragm base material is gouged.
- 11- 53 meter skin E stiffener nearest "D" / "E" corner has base material gouge adjacent to bolt hole
- 12- 59.75 meter base material gouge in skin plate "D" at weld relief cope hole of stiffener D-1
- 13- 65 meter lower diaphragm to skin E weld ESD1-TL7E/L-91 has porosity at end of weld near weld - ESD1-TL7E/L-104.
- 14- 63.5 meter skin E stiffener weld has undercut 1.5 meters below 65 meter diaphragm, 400 mm long 3rd stiff from skin D.
- 15- Porosity bottom of 65m diaphragm weld to skin "C" weld ESD1-TL7E/L-153

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# WELDING INSPECTION REPORT

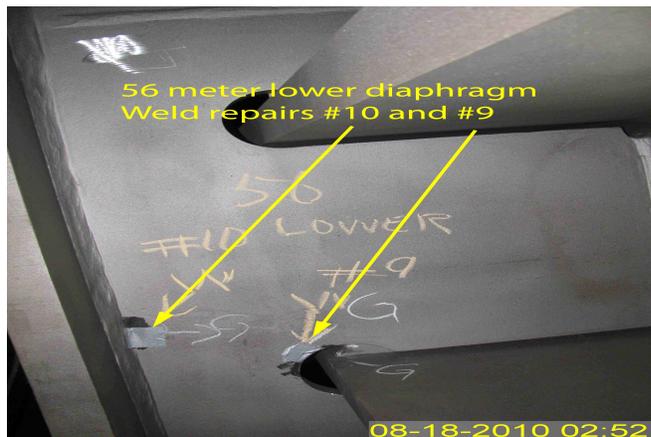
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16- Porosity bottom of 65m diaphragm weld to skin "C" weld ESD1-TL7E/L-157

For further information, please see the 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.

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**Inspected By:** Dawson,Paul

Quality Assurance Inspector

**Reviewed By:** Carreon,Albert

QA Reviewer

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