

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-018596**Date Inspected:** 09-Dec-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Li Yang**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 Segments**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector, Dan Hernandez was present during the times noted above to observe the fit up, welding and related activities associated with the fabrication of the San Francisco Oakland Bay Self Anchored Suspension Bridge at Zhenhua Port Machinery Company (ZPMC) facility on Changxing Island.

OBG Trial Assembly Yard

Segment 12AE/12BE

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a Complete Joint Penetration (CJP) weld joint. The Weld joint is designated OBE12-003, Deck Plate transverse splice root pass. The welder is identified as #044473 and was observed welding in the 1G (flat) position using Welding Procedure Specification WPS-B-T-223(2)1T-ESAB using ceramic backing. Approximately 6700mm of the root pass was welded. Two (2) visual longitudinal cracks were observed in the weld measured and approximately 10mm and 6mm in length. The amps were at approximately 182 and volts approximately 26. The ceramic heating pads were not placed on the weld joint after the weld metal was deposited.

Segment 11EW

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a Complete Joint Penetration (CJP) weld joint. The Weld joint is designated CA092-001, Edge Plate to Side Plate hold back weld. The welder is

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identified as #046709 and was observed welding in the 4G (overhead) position using approved Welding Procedure Specification WPS-B-P-2214-TC-U4b-FCM-1.

### Segment 12AW

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a Complete Joint Penetration (CJP) weld joint. The Weld joint is designated SEG3004AA-002, Edge Plate to Side Plate hold back weld. The welder is identified as #046709 and was observed welding in the 4G (overhead) position using approved Welding Procedure Specification WPS-B-P-2214-TC-U4b-FCM-1.

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a fillet weld joint. The Weld joint is designated SP3046-001-017, 018, Side Plate WT stiffener hold back weld. The welder is identified as #049220 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-T-2132-ESAB.

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a fillet weld joint. The Weld joint is designated SP3037-001-101, 102, Side Plate WT stiffener hold back weld. The welder is identified as #053486 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-T-2132-ESAB.

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a fillet weld joint. The Weld joint is designated SP3035-001-159, 160, Side Plate WT stiffener hold back weld. The welder is identified as #040759 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-T-2132-ESAB.

### Segment 12BW

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a fillet weld joint. The Weld joint is designated SP3050-001-005, 006, Side Plate WT stiffener hold back weld. The welder is identified as #049220 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-T-2132-ESAB.

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a fillet weld joint. The Weld joint is designated SP3041-001-005, 006, Side Plate WT stiffener hold back weld. The welder is identified as #053486 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-T-2132-ESAB.

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a fillet weld joint. The Weld joint is designated SP3039-001-011, 012, Side Plate WT stiffener hold back weld. The welder is identified as #040759 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-T-2132-ESAB.

### Segment 12AW/12BW

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This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a Complete Joint Penetration (CJP) weld joint. The Weld joint is designated SP3049-001-062, Side Plate I-rib splice. The welder is identified as #041713 and was observed welding in the 3G (vertical) position using approved Welding Procedure Specification WPS-B-P-2213-B-U2-FCM-1.

### Segment 11EW

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a fillet weld joint. The Weld joint is designated EP142-001-010, Edge Plate I-rib stiffener hold back weld. The welder is identified as #044551 and was observed welding in the 4F (overhead) position using approved Welding Procedure Specification WPS-B-P-2114-FCM-1.

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a fillet weld joint. The Weld joint is designated EP142-001-009, Edge Plate I-rib stiffener hold back weld. The welder is identified as #044551 and was observed welding in the 2F (horizontal) position using approved Welding Procedure Specification WPS-B-P-2112-FCM-1.

### Segment 11EE

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a fillet weld joint. The Weld joint is designated DP708-001-013, 014, Deck Plate I-rib stiffener hold back weld. The welder is identified as #040320 and was observed welding in the 4F (overhead) position using approved Welding Procedure Specification WPS-B-T-4114-1.

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a fillet weld joint. The Weld joint is designated DP708-001-015, 016, Deck Plate I-rib stiffener hold back weld. The welder is identified as #050289 and was observed welding in the 4F (overhead) position using approved Welding Procedure Specification WPS-B-T-4114-1.

### Segment 12AE

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a fillet weld joint. The Weld joint is designated DP3001-001-012, 013, Deck Plate I-rib stiffener hold back weld. The welder is identified as #040320 and was observed welding in the 4F (overhead) position using approved Welding Procedure Specification WPS-B-T-4114-1.

This QA Inspector observed Shielded Metal Arc Welding (SMAW) in progress of a fillet weld joint. The Weld joint is designated DP3001-001-014, 015, Deck Plate I-rib stiffener hold back weld. The welder is identified as #050289 and was observed welding in the 4F (overhead) position using approved Welding Procedure Specification WPS-B-T-4114-1.

For the above mentioned welding activities ZPMC Quality Control (QC) Inspectors are identified as Shi Lie and Liu Hua Ji. The welding variables recorded by QC appeared to comply with the Applicable WPS.

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## Segment 11EE/12AE

This QA Inspector observed ABF personnel performing Ultrasonic Testing on the Side Plate to Bottom Plate hold back CJP weld, cross beam side.

## Segment 11EW/12AW

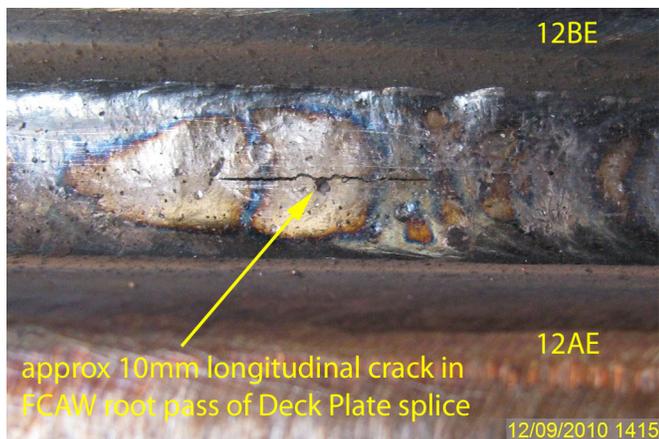
This QA Inspector observed ABF personnel performing Magnetic Particle Testing on the Bottom Plate WT stiffener hold back welds.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

12-08-10

revised to reflect correct WPS

This QA Inspector observed Flux Cored Arc Welding (FCAW) in progress of a Complete Joint Penetration (CJP) weld joint. The Weld joint is designated OBW12-001, Deck Plate transverse splice root pass. The welders are identified as #040759, # 049220 and were observed welding in the 1G (flat) position using Welding Procedure Specification WPS-B-T-223(2)1T-ESAB using ceramic backing. Multiple longitudinal cracks were visually observed throughout the full length of the weld and were confirmed by ABF personnel using Magnetic Particle Testing. Welding operations were not continued at this location.

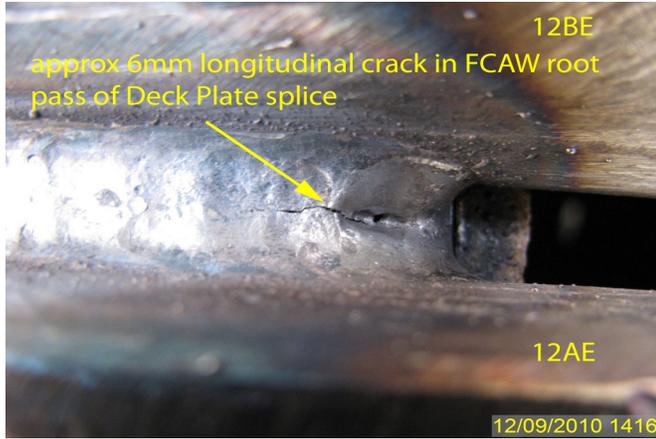


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## Summary of Conversations:

No relevant conversations.

## 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, 150-0042-2372 , who represents the Office of Structural Materials for your project.

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| <b>Inspected By:</b> | Hernandez,Dan      | Quality Assurance Inspector |
| <b>Reviewed By:</b>  | Dsouza,Christopher | QA Reviewer                 |

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