

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 #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027439**Date Inspected:** 11-Apr-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Steve Mc Connell**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:** SAS Tower**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 9 meter South external diaphragm, this QA Inspector randomly observed ABF personnel Jin Pei Wang perform 2F (horizontal position) fillet production welding on the 1" thick fit lug to the 45mm thick diaphragm plate on one side and to the 60mm thick vertical stiffener plate on the other side. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Steve Mc Connell using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 270 amperes and 24.5 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. During the shift, the welder has completed the fillet welding on two sides of the six (6) fit lugs marked W092-23 to W092-28. The welder performed the post weld heat treatment (PWHT) on the fit lugs using the same preheat temperature and machine and held for three (3) hours as required.

After the completion of the above mentioned fit lugs, the welder has moved to another fit lug location with fillet weld joint numbers W093-7 to W093-12. The fit lugs being welded are located on the same 9 meter south external diaphragm. The welder was noted using the same welding process and preheating of the joints to be welded. At the

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end of the shift, FCAW-G fillet welding of the fit lug was still continuing and should remain tomorrow.

At Tower Base 13 meter outer East external diaphragm, this QA Inspector randomly observed ABF personnel Xiao Jian Wan continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W130-2. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the FW3 drawing. The welder was using the 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Steve Mc Connell using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 125 amperes on the 3.2mm diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was still continuing and should remain tomorrow.

At Tower Base 13 meter outer East external diaphragm, this QA Inspector randomly observed ABF personnel Luo Xiao Hua continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W131-2. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the FW3 drawing. The welder was using the 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Steve Mc Connell using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 128 amperes on the 3.2 diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was still continuing and should remain tomorrow.

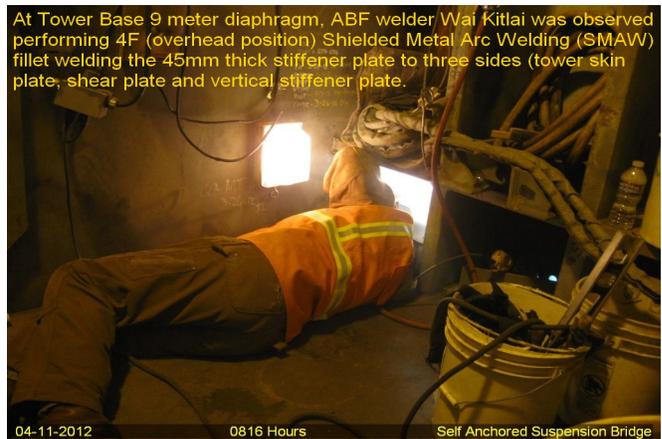
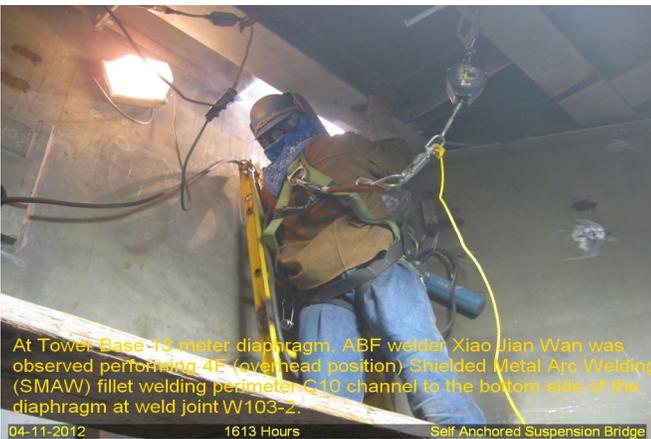
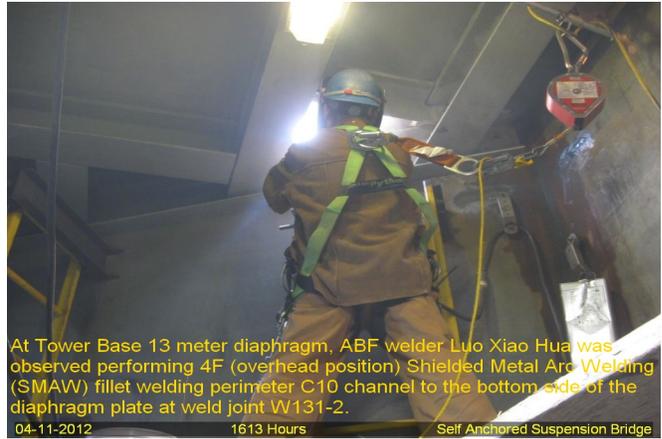
At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Partial Joint Penetration (PJP) T-joints, butt joints and fillet weld joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector at 9 meter North external diaphragm meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection complied with the contract documents.

1. W099-3 and W099-4 perimeter C10 channel to diaphragm fillet weld joints – weld cover QA verified
2. W093-1 to W093-6 – fit lug to diaphragm and vertical stiffener fillet weld joints - weld cover QA verified
3. W092-23 to W092-28 - fit lug to diaphragm and vertical stiffener fillet weld joints - weld cover QA verified
4. W043 and W044, W055 and W056 – diaphragm to tower skin/shear plate PJP T-joints - weld cover QA verified
5. W083-1 & 2, W085-1 & 2 – drop in plate PJP T-joints - weld cover QA verified
6. W088-1 & 2, W090-1 & 2 – drop in plate PJP T-joints - weld cover QA verified
7. W084-1 & W086-1 – drop in plate PJP butt joints - weld cover QA verified
8. W088-1 & W090-1 – drop in plate PJP butt joints - weld cover QA verified

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At Tower Base 9 meter diaphragm, ABF welder Jin Pei Wang was observed performing 2F (horizontal position) fillet welding fit lug to 45mm diaphragm plate on one side and to 60mm thick vertical stiffener plate on the other side. The designated weld joints were W092-23 to W092-28.



Summary of Conversations:

No significant conversation occurred today.

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 SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer