

**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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-023628**Date Inspected:** 13-May-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Pat Swain**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 Shear Plate to Diaphragm Plate, elevation 9 meters;

At Tower Base Shear Plate to Diaphragm Plate weld joint #47 (1 of 3), this QA Inspector randomly observed ABF personnel Hua Qiang Hwang continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 70mm thick tower skin plate 'A' (North Shaft) and 45mm thick diaphragm plate. 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-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to welding. This QA Inspector observed QC Inspector Pat Swain using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 295 amperes and 24.0 volts with a travel speed of 483 mm per minute with equivalent heat input of 0.88 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welder has completed the PJP weld joint plus the additional 10mm fillet weld on top of the PJP. Right after the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

---

---

# WELDING INSPECTION REPORT

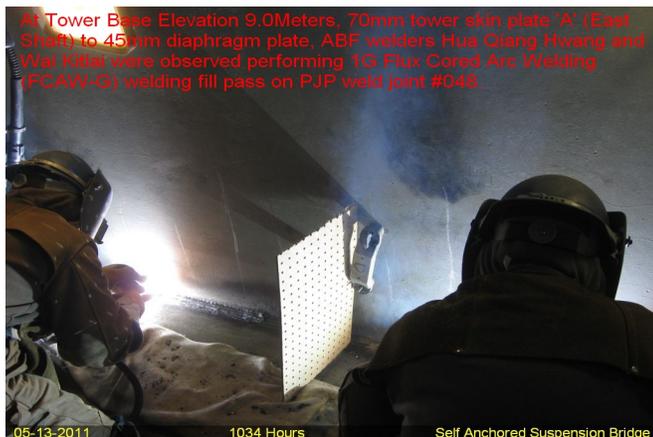
( Continued Page 2 of 3 )

---

---

At Tower Base Shear Plate to Diaphragm Plate weld joint #47 (3 of 3), this QA Inspector randomly observed ABF personnel Jin Pei Wang perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 70mm thick tower skin plate 'A' (North Shaft) and 45mm thick diaphragm plate. 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-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to welding. This QA Inspector observed QC Inspector Pat Swain using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 270 amperes and 25.2 volts with a travel speed of 435 mm per minute with equivalent heat input of 0.94 KJ per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welder has completed the PJP weld joint plus the additional 10mm fillet weld on top of the PJP. After the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower Base Shear Plate to Diaphragm Plate weld joint #48 (1 of 3 and 3 of 3), this QA Inspector randomly observed ABF personnel Wai Kitlai and Hua Qiang Hwang jointly continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 70mm thick skin plate 'A' (East Shaft) and 45mm thick diaphragm plate. The welders were 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-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to welding. This QA Inspector observed QC Inspector Pat Swain using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 285 amperes and 24.6 volts with a travel speed of 363 mm per minute with equivalent heat input of 1.15 KJ per mm for welder Wai Kitlai. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welders have completed the PJP weld joint plus the additional 10mm fillet weld on top of the PJP. After the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.



---

# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

---

At Tower Base Elevation 9.0Meters, 70mm tower skin plate 'A' (North Shaft) to 45mm diaphragm plate PJP weld joint #D47, ABF welder Jie-Pei Wang was observed performing 1G Flux Cored Arc Welding (FCAW-G) welding fill pass on PJP T-joint.



## 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.

---

<b>Inspected By:</b>	Lizardo, Joselito	Quality Assurance Inspector
----------------------	-------------------	-----------------------------

---

<b>Reviewed By:</b>	Levell, Bill	QA Reviewer
---------------------	--------------	-------------