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

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-023659
Date Inspected: 14-May-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Job Site

CWI Name: Pat Swain

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ 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 #043 (1 of 2 and 2 of 2), this QA Inspector randomly observed ABF personnel Hua Qiang Hwang and Wai Kitlai continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 60mm thick shear plate 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 225°F. This QA Inspector performed a verification of the welding parameters and observed 285 amperes and 25.1 volts with a travel speed of 461 mm per minute with equivalent heat input of 0.93 Kj per mm for welder Hua Qiang Hwang while the other welder Wai Kitlai was noted having parameters of 291 amperes and 24.6 volts with a travel speed of 436mm per minute and equivalent heat input of 0.98 Kj per mm.. 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 joints plus the 10mm fillet weld on top of the PJP weld joint. 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 #042 (1 of 2), this QA Inspector randomly observed ABF personnel Songtao, Huang perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 60mm thick shear plate 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 225°F. This QA Inspector performed a verification of the welding parameters and observed 282 amperes and 24.7 volts with a travel speed of 550 mm per minute with equivalent heat input of 0. 76 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. 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.

The same welder has moved to weld joint #042 (2 of 2) and started welding the root pass which he completed. ABF QC Pat Swain was noted performing Magnetic Particle Testing (MT) on the welded root pass. The MT was also completed and the welder continued welding the fill pass to cover pass plus the 10mm fillet weld on top of the PJP weld joint which he completed at the end of the shift. 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 West Shaft Splice #1 @Elevation 50.3meters:

At Northwest (C-D) corner, upper splice plate; this QA Inspector randomly observed ABF welding personnel Salvador Sandoval (#2202) continuing to perform production 4F fillet welding at the bottom of the splice plate using the Shielded Metal Arc Welding (SMAW) process. This QA Inspector observed ABF personnel using propylene gas torch on areas prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. This QA Inspector performed a verification of the welding parameters and observed 181 amperes on 5/32" diameter E7018H4R electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. The welder continued fill pass to cover pass fillet welding which he completed at the end of the shift.

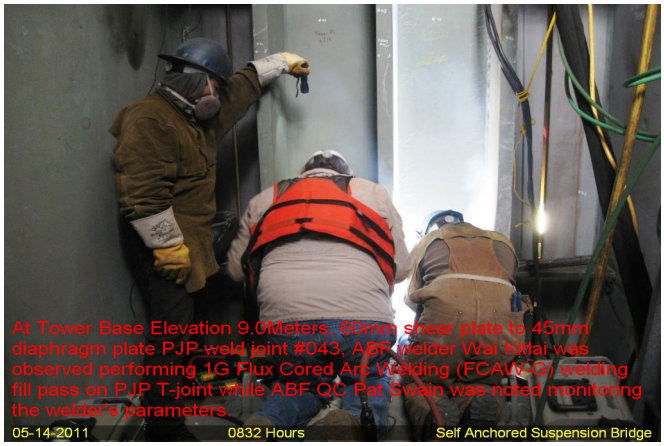
At Tower North Shaft Splice #1 @Elevation 50.3meters:

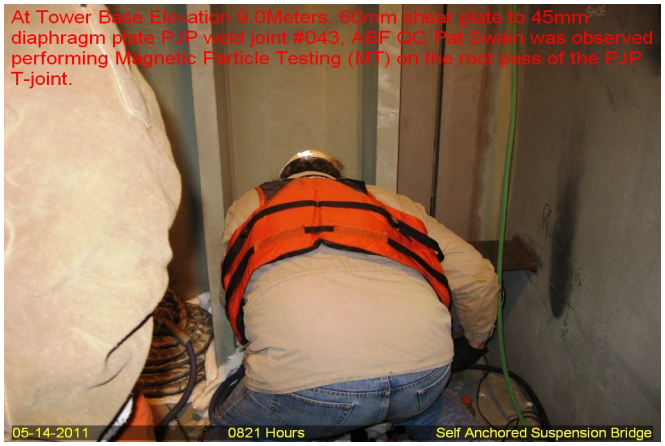
At Northeast (B-C) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Rick Clayborn perform production welding on the bottom half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed ABF personnel using a propylene gas torch on areas prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature

gauge to verify the preheat temperature of more than 300°F. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, fillet welding was still continuing and should remain tomorrow. Before the end of the shift, at around 1500hours, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°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 the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT of the fillet welding of four (4) splice plates. The QA verification was performed to verify that the welding and the VT inspection performed by the QC inspector 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. Tower South Shaft Elev. 50.3meters Southwest (B-C) corner upper splice – QA VT verified
2. Tower South Shaft Elev. 50.3meters Southwest (B-C) corner lower splice – QA VT verified
3. Tower South Shaft Elev. 50.3meters South (C-D) corner upper splice – QA VT verified
4. Tower South Shaft Elev. 50.3meters South (C-D) corner lower splice – QA VT verified





Summary of Conversations:

No significant conversation ocurred today.

WELDING INSPECTION REPORT

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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