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

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027649
Date Inspected: 22-May-2012

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: 1730
Location: Job Site

CWI Name: Fred Von Hoff

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 13 meter outer West external diaphragm, QA randomly observed ABF/JV qualified welder Xiao Jian Wan continuing to perform Partial Joint Penetration (PJP) T-joint welding fill pass on 80mm thick shear plate to 45mm thick diaphragm plate weld joint #W110. The welder was observed manually welding in the 2G (horizontal) position utilizing a dual shield 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. The welder has stopped using the Bug-o track mounted nozzle holder and continued welding fill pass manually. The welder was also noted FCAW-G the half of the total length of the joint while another welder Jin Pei Wang was noted FCAW-G welding the remaining half. The PJP T- joint was preheated to greater than 325 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blankets located on top of the plate prior welding. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 250 amperes, 22.8 volts and 350mm travel speed. Calculated heat input was 0.98 Kjoules/mm which appears in compliance to the contract requirements. At the end of the shift, FCAW-G fill pass welding was still continuing and should remain tomorrow. The welder held the preheat using the same Miller Proheat 35 Heating System for three hours after welding as required.

At Tower Base 13 meter outer West external diaphragm, QA randomly observed ABF/JV qualified welder Jin Pei

Wang perform Partial Joint Penetration (PJP) T-joint welding fill pass on 80mm thick shear plate to 45mm thick diaphragm plate weld joint #W110. The welder was observed manually welding in the 2G (horizontal) position utilizing a dual shield 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. The welder was noted FCAW-G the remaining half of the total length of the joint helping the other welder Xiao Jian Wan finish up the weld joint. The PJP T- joint was preheated to greater than 325 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blankets located on top of the plate prior welding. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 255 amperes, 23.3 volts and 400mm travel speed. Calculated heat input was 0.89 Kjoules/mm which appears in compliance to the contract requirements. At the end of the shift, FCAW-G fill pass welding was still continuing and should remain tomorrow. The welder held the preheat using the same Miller Proheat 35 Heating System for three hours after welding as required.

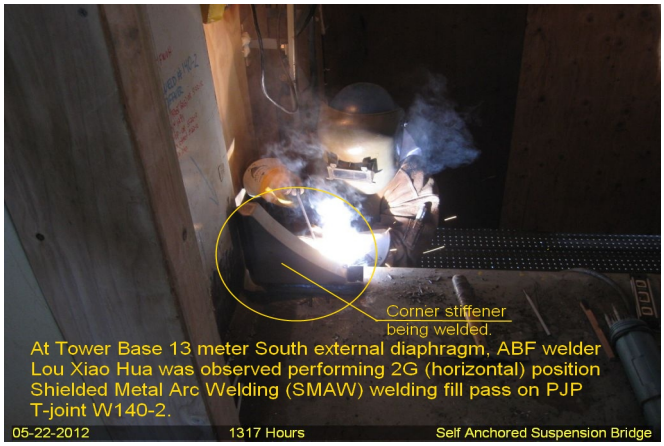
At Tower Base 13 meter North external diaphragm, QA randomly observed ABF/JV qualified welder James Zhen perform Partial Joint Penetration (PJP) T-joint welding fill pass on 60mm thick shear plate to 45mm thick diaphragm plate weld joint #W116. The welder was observed manually welding in the 2G (horizontal) position utilizing a dual shield 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. The PJP T-joint was preheated to greater than 225 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blankets located on top of the plate prior welding. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 250 amperes, 23.3 volts and 330mm travel speed. Calculated heat input was 1.06 Kjoules/mm which appears in compliance to the contract requirements. At the end of the shift, FCAW-G fill pass welding was completed. The welder held the preheat using the same Miller Proheat 35 Heating System for three hours after welding as required.

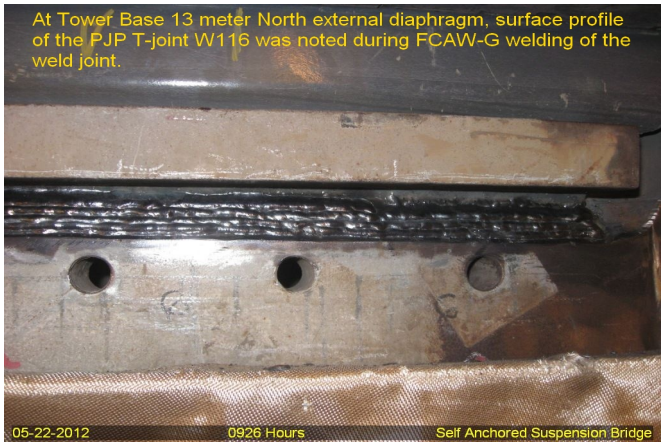
At Tower Base 13 meter diaphragm, ABF welder Xiao Jian Lou was observed performing 2G (horizontal position) Shielded Metal Arc Welding (SMAW) welding root pass to fill pass on 250mm X 250mm X 60mm thick corner stiffener plate shop marked 380 PJP T-joint W140-2. The welder was noted using SMAW with 3.2mm diameter E7018H4R electrode on the root pass and 4.0mm on the fill to cover pass implementing Caltrans approved welding procedure ABF-WPS-D15-1170. The corner stiffener has a 45 degree double bevel configured for a Partial Joint Penetration (PJP) per detail drawing FWT28 of FWDT-2 Field Welding Schedule drawing. The stiffener plate is being welded to the 45mm diaphragm plate on one side and to the tower skin plate on the other side. The welder was noted welding alternately from one side to the other to avoid distortion. Prior welding, the plates were preheated to more than 150°F using propylene gas torch. This QA Inspector observed QC Inspector Fred Von Hoff 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 130Amperes on 3.2mm and 170 amperes on the 4.0mm diameter electrode. At the end of the shift, the 2G (horizontal position) PJP T-joint SMAW welding was completed at 'R' location of South external diaphragm plate.

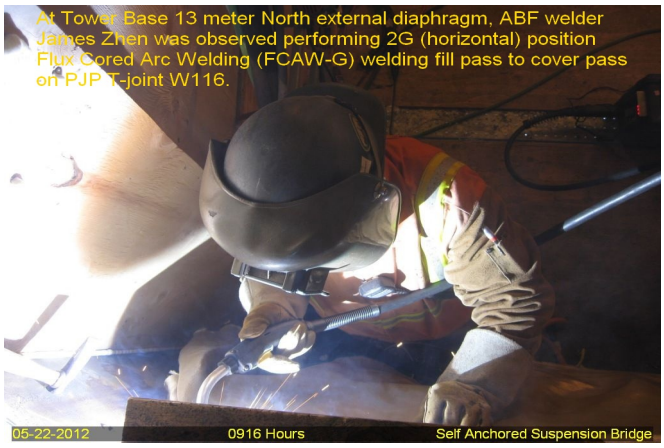
At Tower Base 13 meter outer West external diaphragm, this QA together with ABF QC Fred Von Hoff performed a joint fit up survey of the Partial Joint Penetration T-joint W111 between the 45mm thick diaphragm plate and 60mm shear plate. During the survey, the beveled portion of the shear plate was measured 45 degrees while the root opening was measured at every 6 inches and noted 6mm from Y=152mm to Y=1650mm which were observed not in compliance to the contract requirements.

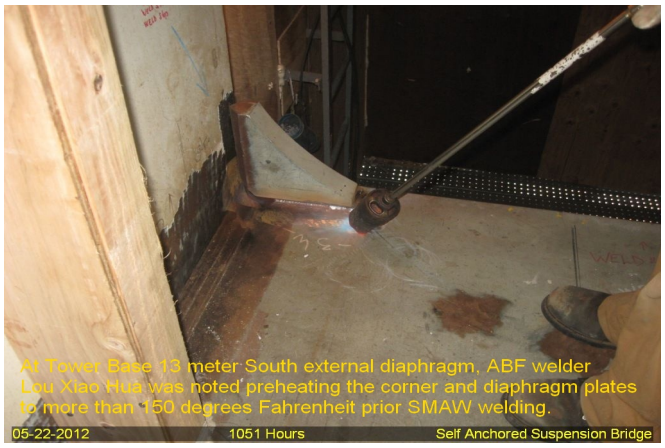
After the root gap survey on PJP T-joint W111, ABF QC Fred Von Hoff has informed this QA that he forwarded the out of tolerance root opening measurements to ABF Lead QC Bonifacio Daquinag. Also according to QC Fred Von Hoff, Mr. Daquinag has sent the root gap survey QC report to ABF QC Manager Jim Bowers and awaiting response from him.

This QA has initiated an Incident Report concerning the out of tolerance on the fit up root opening of the PJP T-joint mentioned above.









Summary of Conversations:

No significant conversation ocurred 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

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Reviewed By: Levell,Bill QA Reviewer