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

Report No: WIR-027652
Date Inspected: 25-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: 1530
Location: Job Site

CWI Name: Andrew Keach

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 diaphragm, ABF welder Xiao Jian Lou was observed continuing to perform 3G (vertical position) Shielded Metal Arc Welding (SMAW) welding fill pass on 250mm X 250mm X 60mm thick corner stiffener plate shop marked 308 PJP T-joint W139-2. The welder was noted using SMAW with 4.0mm diameter E7018H4R electrode 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 Andrew Keach 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 working current of 170 amperes on the 4.0mm diameter electrode. At the end of the shift, the 3G (vertical position) PJP T-joint SMAW welding was completed at ‘N’ location of North external diaphragm plate.

At Tower Base 13 meter outer West external diaphragm, QA randomly observed ABF/JV qualified welder Jin Pei Wang continuing to perform Partial Joint Penetration (PJP) T-joint welding fill pass on 60mm thick shear plate to 45mm thick diaphragm plate weld joint #W111. 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 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 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) Andrew Keach was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 245 amperes, 23.0 volts and 330mm travel speed. Calculated heat input was 1.02 Kjoules/mm which appears in compliance to the contract requirements. At the end of the shift, FCAW-G cover pass welding was completed. The welder held the preheat using the same Miller Proheat 35 Heating System for three hours after welding as required.

After the completion of the diaphragm to shear plate PJP T-joint mentioned above, the welder has moved to the corner stiffener shop marked 380 at location ‘S’ weld joint W139-1 and performed 2G SMAW welding root pass to cover pass on the joint. The welder was noted using SMAW with 4.0mm diameter E7018H4R electrode 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 Andrew Keach 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 working current of 170 amperes on the 4.0mm diameter electrode. At the end of the shift, the 2G (vertical position) PJP T-joint SMAW welding was completed at ‘S’ location of North external diaphragm plate.

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 60mm thick shear plate to 45mm thick diaphragm plate weld joint #W111. 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 Jin Pei Wang finish up the weld joint. 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) Andrew Keach was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 255 amperes, 23.3 volts and 330mm travel speed. Calculated heat input was 1.08 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.

WELDING INSPECTION REPORT

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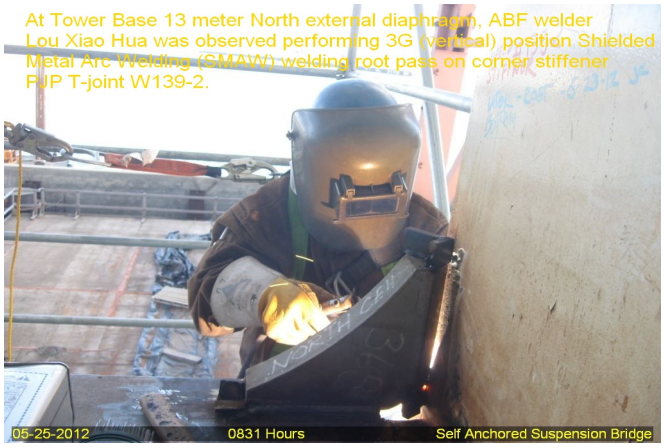

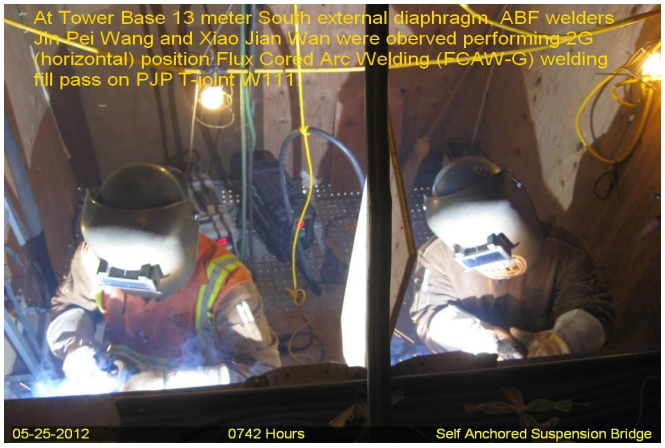

Summary of Conversations:

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
Reviewed By:	Levell,Bill	QA Reviewer