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-027626
Date Inspected: 19-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:	Bernie Docena and John Pagliero			**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 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 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 using a track mounted welder holder assembly that was remotely controlled. 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) Bernie Docena was noted monitoring the welding parameters of the welder. Measured welding parameters during welding were 250 amperes, 23.0 volts and 330mm travel speed. Calculated heat input was 1.045 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 Electro Slag Weld (ESW), QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP groove welding repair. The welder was observed welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode implementing welding

procedure ABF-WPS-D15-1000-Repairs. The repair excavation was preheated to more than 300 degree Fahrenheit using propylene gas torch prior welding. The ESW repair being welded was located at ESW 'G' face B with Y=4315mm was approved per Request for Welding Repair (RWR) #201205-011. During the shift, ABF QC John Pagliero was noted monitoring the welder. During the shift, the welder has completed the ESW weld repair mentioned above and has moved to another ESW location 'J' face B. The welder performed 3G cover repair that has less than 5mm deep and does not require RWR. The welder was noted using the same process and procedure mentioned above. At the end of the shift, the cover repair at ESW 'J' was also completed. The first time repair was noted being welded during the shift;

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. ESW 'G'	S-045	4315mm	150mm	28mm	22mm	Completed

At Tower Base 13 meter diaphragm, ABF welder Jin Pei Wang was observed performing 2G (horizontal position) Shielded Metal Arc Welding (SMAW) welding root pass to fill pass on corner stiffener plate shop marked 381. The welder was noted using SMAW with 4.0mm diameter E7018H4R electrode on the root pass and fill pass implementing Caltrans approved welding procedure ABF-WPS-D15-1160. The corner stiffener has a 45 degree double bevel configured for a Partial Joint Penetration (PJP) per detail drawing FWT30 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 225°F using propylene gas torch. This QA Inspector observed QC Inspector Bernie Docena 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 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 'P' location of outer East diaphragm plate. The welder held the same preheat of more than 225°F for three hours using propylene gas torch after welding as required.

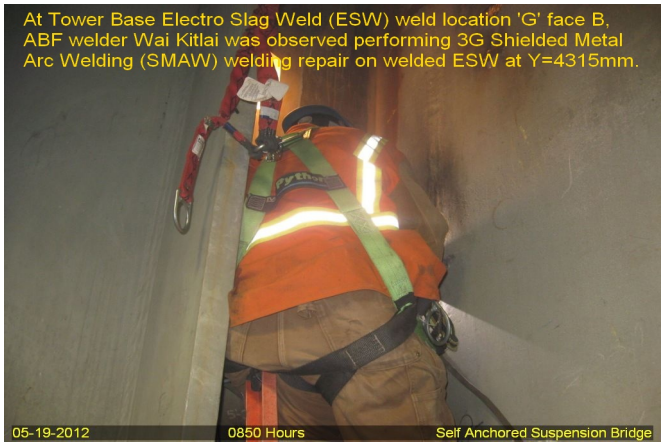
At Tower Base ED1-A29 Base Shear plate Assembly, ABF welder Richard Garcia was observed tack welding the 60mm thick bearing plate stiffener weld joint W007. The welder was noted using Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode. The welder was also noted tack welding numerous strong back to keep the stiffener from distortion. After the completion of the tack welding of the stiffener and strong back, the welder was noted welding the root pass using the same SMAW process implementing Caltrans approved welding procedure ABF-WPS-D15-1160. Prior tack welding and root welding, the welder was noted preheating the plates to more than 150°F using propylene gas torch. ABF QC John Pagliero was noted on site to monitor the welder and its parameter. During the shift, the root pass was completed and QC John Pagliero was observed performing Magnetic Particle Testing (MT) on the welded root. QC has found no relevant indication during the test. This QA performed the test verification and noted same result. After the completion of MT on the root pass, the welder resumed welding the fill pass until the end of the shift.

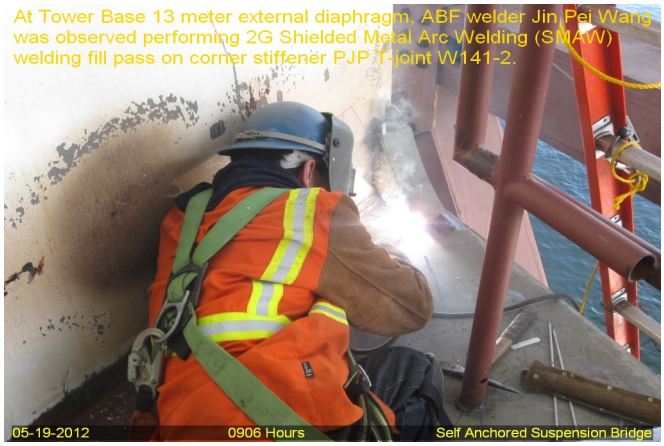
At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the root pass and cover pass weld joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection complied with the contract documents.

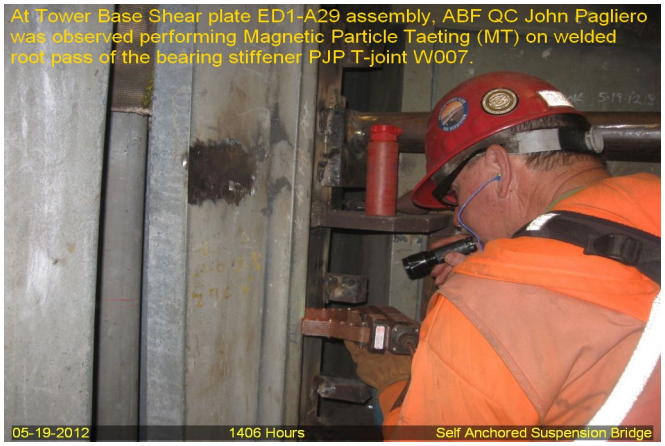
WELDING INSPECTION REPORT

(Continued Page 3 of 3)

1. W007 bearing plate stiffener PJP T-joint – weld root pass QA verified
2. W122 13 meter diaphragm plate PJP T-joint – weld cover pass QA verified







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