

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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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-024434**Date Inspected:** 18-Jun-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:	Mike Johnson and Steve Jensen	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 West Shaft Splice #3 @Elevation 114 meters:

At West (B-C) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Salvador Sandoval continuing to perform production welding on the top half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-3. The welder was noted 3F (vertical) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using a propylene gas torch to preheat the plates to be welded 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 272 amperes and 21.7 volts with a travel speed of 100 mm per minute with equivalent heat input of 3.54 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. During the shift, fellow QA Danny Reyes took over the observation of the production welding.

At Tower North Shaft Splice #3 @Elevation 114 meters:

At North (C-D) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Xiao

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Jian Wan continuing to perform production welding on the bottom half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-3. The welder was noted 3F (vertical) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using a propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector William Sherwood 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 245 amperes and 21.7 volts with a travel speed of 85 mm per minute with equivalent heat input of 3.75 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. During the shift, fellow QA Danny Reyes took over the observation of the production welding.

While at the North Shaft, this QA performed fit up verification of the splice plate to interior corner closure plate at Northeast (B-C) corner. The lower splice plate was noted less than 2mm to 5.0mm gap while the upper splice was noted less than 2mm to more than 5.0mm gap. The bottom of the upper splice top half was having more than 5.0mm gap and that ABF personnel has installed a 3mm thick x 38mm wide x 200mm long filler plate on both side sides of the splice top half. Due to the filler plates that were placed to close the gap between the splice plate and interior closure plate, ABF QC Steve Jensen informed this QA that ABF will ask for Caltrans approval.

At Tower Base Elevation 13Meters Shear Plate Electro Slag Welding (ESW);

This QA was present at the Tower Base to observe the Electro Slag Welding of the weld number E-045 located at 'F' position per ABF weld map. The weld joint to be welded is a 60mm shear plate to Tower East Shaft skin plate (70mm) 'A', T- joint located at the corner of tower East shaft skin plates 'A' and 'E'. ABF intends to implement Caltrans approved welding procedure ABF-WPS-ESW-90T in performing the ESW.

Upon QA's arrival, ABF personnel were noted preparing to weld the shear plate T- joint by checking all the necessary electrical and water hose weld shoe cooling connections are all in place prior to commence ESW. It was noted that three weld shoes were in position at each opposing side of the joint and so with the consumable guide tube that was placed in between the joint gap which was separated by consumable ceramic insulators. Other ABF personnel that were noted assisting the preparation of the ESW include ABF Production Manager John Callaghan and Mr. Dan Danks of Oregon Institute of Technology.

The fit up alignment was jointly checked by ABF QC Jesse Cayabyab and this QA. The root gap was measured from bottom to top and the result noted was 18mm minimum and 22mm maximum which deemed in compliance to the WPS.

At 0940hours, ABF Operations Superintendent Dan Ieraci and ABF QC Mike Johnson performed the check list verification and noted it was all OK.

At 0950hours, all ABF personnel involved in the ESW converged and performed a pre-operations meeting reminding each and everyone's role in performing their job. After the meeting, each personnel went to their own respective assignment and positioned themselves and got ready for the start.

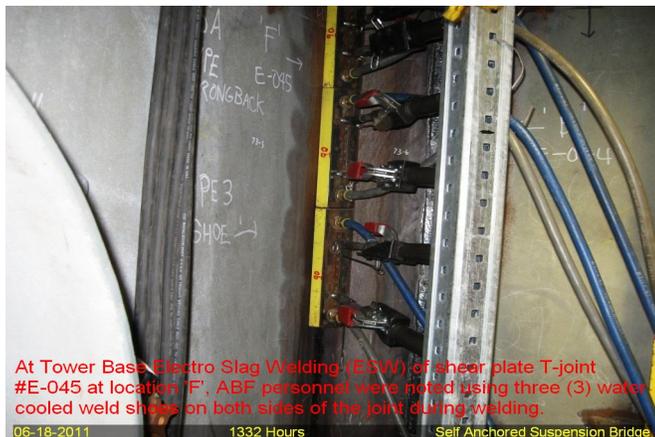
Initial firing of the ESW has started at 1005 hours and it was successful and that the welding parameters have

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stabilized and continued the operation until the completion of the joint at around 1432 hours.

At around 1220hours, the flux feeder had stopped working due to unknown reason. ABF Consultant Mr. Dan Danks replaced the malfunctioned flux feeder and it took around 30 minutes to complete. While Mr. Danks was replacing the flux feeder, ABF personnel were noted manually putting the flux into the weld joint being welded. The ESW operation was not affected during the changeover of the flux feeder.



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.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer