

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-019454**Date Inspected:** 18-Jan-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2130**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Fred Von Hoff and Pat Swain**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:** Orthotropic Box Girder**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 OBG 9W/10W bottom plate 'D1' (0mm to 700mm) and 'D2' (2650mm to 4250mm) inside, QA randomly observed ABF/JV qualified welder Xiao Jian Wan perform 1G fill pass to cover pass welding on bottom plate Complete Joint Penetration (CJP) splice butt joint. The welder was 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-D15-3040A-1. The joint has a single V-groove butt joint design with backing bar. The plate with the backing bar was preheated to greater than 150 degrees Fahrenheit using propane gas torch prior welding. During the shift, ABF QC Fred Von Hoff was noted monitoring the welder. The welder was noted manually welding the two ends (north side, 700mm and south side, 1600mm) of the splice wherein the SAW track mounted feeder has a limited access. Cover pass welding at the north side end was completed while the south end side was still ongoing at the end of the shift.

At OBG 8W/9W side plate 'C1' (0mm to 1000mm) inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 continuing to perform CJP groove (splice) welding fill pass to cover pass on the splice butt joint. The welder was observed perform automatic welding in the 3G (vertical) 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-D15-3042B-1. The joint being welded has a single V-groove butt joint with backing bar with limited access to the Bug-o track mounted nozzle holder. The splice

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joint was preheated and maintained to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. Before the end of the shift, cover pass welding was completed and the welder was noted moving the welding equipment and track mounted welder nozzle holder at 'C2' of the same OBG. ABF personnel were also noted removing the WT stiffener temporary connection plates to have welding access at this location.

Flush grinding/grinding cut orientation and smooth finish verification on the bottom of welded lifting lug restoration at the following locations were verified by this QA;

1. 3W-PP20-W3-#2 & #4
2. 2W-PP17-W4-#1 & #3

At OBG 3W-PP20-W3# 2 & #4 lifting lug access hole inside - ABF welder Darcel Jackson was observed 4G SMAW back welding fill pass to cover pass on the infill plate to top deck plate butt joint. The welder was noted using 1/8" diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1110A. During welding, ABF QC Gary Ersham was noted monitoring the welder's welding parameters. At the end of the shift, cover pass welding was still continuing and should remain tomorrow.

At OBG 8E/9E top deck plate 'A5' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP repair welding. The welder was noted welding in 1G (Flat) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repairs. The welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC Pat Swain was noted monitoring the welder and his welding parameters. The locations of the repairs were noted below;

Location	Y-dimension	Length	Width	Depth	Remarks
1. A5	4130mm	210mm	20mm	20mm	Excavated
2. A5	4600mm	240mm	25mm	20mm	Completed

Jacking Frame to Saddle fillet welding. Upon arrival at the welding area, fillet welding on one side of the saddle to the jacking frame has been completed. ABF Mike Johnson inform this QA that he has accepted the fillet weld joint after performing visual inspection on the profile and measurement on the size of the fillet weld. QA performed verification by doing the same visual inspection and random measurement of the fillet weld using the 25mm fillet gauge. The fillet weld profile was noted satisfactory and the size was deemed adequate.

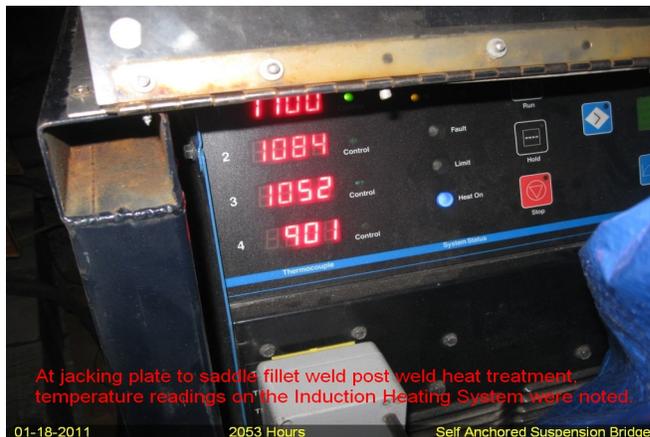
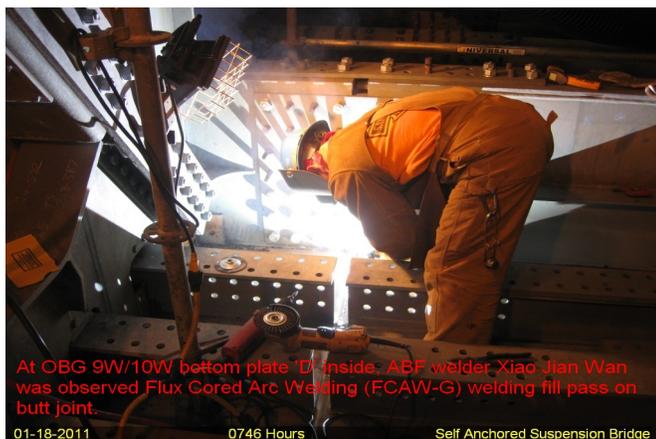
After the ABF QC inspection and QA verification was completed, ABF personnel were noted prepping the fillet weld joint to be post weld heat treated (PWHT). ABF personnel have changed the Miller Proheat 35 Induction Heating System regular heater blankets that were used to preheat the plates during welding to water cooled heater blankets for the PWHT. It took almost two hours before the PWHT set up was completed.

Less than one hour after the post weld temperature was rising, the electric power supply for the Induction Heating System broke down. The power breakdown lasted for approximately 40minutes (1830hours to 1910 hours) before the power was restored. The minimum temperature noted on all the four Induction Heating System machines after the power restored was more than 600 degrees Fahrenheit.

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The four machines started to heat up again and noted that three machines have reached the required post weld temperature of 1100 degrees F before 2000hours while the fourth machine was still registering 1000 degrees F. At this time, fellow QA Joe Lanz came to relieve this QA and monitored the continuation and completion of the PWHT.



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