

**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-023880**Date Inspected:** 18-May-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** 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 #1 @Elevation 50.3meters:

At Northwest (C-D) corner, upper splice plate; this QA Inspector randomly observed ABF welding personnel Salvador Sandoval (#2202) continuing to perform 2F (horizontal) production welding on the top half of the splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed a propylene gas torch was being used to preheat areas prior to welding. This QA Inspector observed QC Inspector Steve Jensen using an 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 340 amperes and 24.0 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-2. After the completion of the 2F (horizontal) position, the welder has moved to the 3F (vertical) position of the same plate and continued fill pass fillet welding on both sides of the plate until 1700hours. The welder's welding parameters were recorded 270 amperes, 22.1 volts with travel speed of 100 mm per minutes which appear in compliance to the WPS ABF-WPS-D15-F2200-3. Before the end of the shift, the welder has stopped fillet welding and ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

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At Tower West Shaft Splice #1 @Elevation 50.3meters:

At West (B-C) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Morgan Winters continuing to perform production welding on the bottom half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed ABF personnel using a propylene gas torch on areas 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 230 amperes and 21.3 volts with a travel speed of 95 mm per minute with equivalent heat input of 3.1 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, fillet welding was still continuing and should remain tomorrow. Before the end of the shift, at around 1700hours, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower North Shaft Splice #1 @Elevation 50.3meters:

At North (C-D) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Rick Clayborn perform production welding on the bottom half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed ABF personnel using a propylene gas torch on areas 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 265 amperes and 22.0 volts with a travel speed of 95 mm per minute with equivalent heat input of 3.68 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, fillet welding was still continuing and should remain tomorrow. Before the end of the shift, at around 1700hours, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower East Shaft Splice #1 @Elevation 50.3meters:

At Tower East Shaft East (B-C) corner and Southeast (C-D) corner, ABF welder Richard Garcia was observed performing fit up of the lower and upper splice plates to interior corner closure plate. The welder has tack welded using SMAW various temporary attachments to the interior corner closure plate and used wedges to hold the lower/upper splice plates in place. The welder was also noted preheating the plate to more than 225°F prior welding. ABF QC Steve Jensen was noted at site monitoring the welder and his welding parameter. During the shift, fit up of the splice plates at location mentioned above was completed. This QA has noted ABF QC Steve Jensen perform fit up verification on the installed splice plates. During the verification, the East (B-C) corner upper splice plate top half was noted having 5.0mm gap between the splice plate and the interior corner closure plate. ABF personnel have inserted one shim plate with dimension 3mm thick x 38mm wide x 650mm long. The lower splice plate bottom half was noted having 6.0mm gap. Shim plate having a dimension of 3mm thick x 38mm wide x 610mm long was also inserted. Southeast (C-D) corner lower splice bottom half was noted having 6.0mm gap and shim plate with dimension 3mm thick x 38mm wide x 1100mm long was inserted. All the rest of the joint

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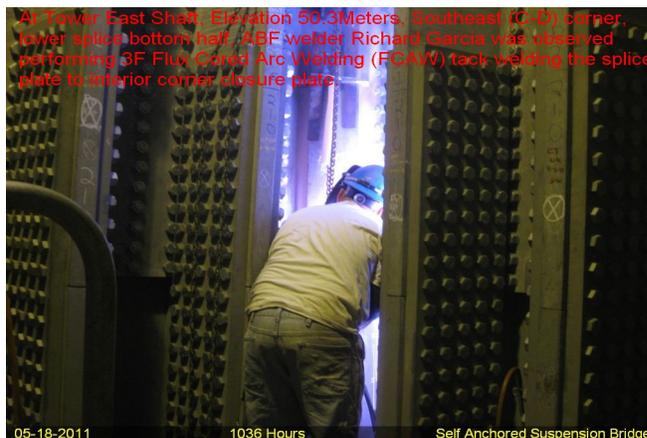
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fit up was having a reading of 2-3mm gap. According to ABF QC Steve Jensen, he will submit the gathered information to ABF and wait for the Engineer's approval for the use of shim before ABF could start production welding. After the completion of the QA and QC verification of the fit up of the splice plates, the same welder was noted tack welding the plates. The welder was noted utilizing self shielded Flux Cored Arc Welding (FCAW) implementing Caltrans approved ABF-WPS-D15-F2200-3. Tack welding of the plates was ongoing until the end of the shift.



## 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.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer