

**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-022767**Date Inspected:** 14-Apr-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:** Tower**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above. This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

**Tower Splice – 83 Meter elevation, South Tower leg:** This QA Inspector randomly observed the status of the upper and lower Interior Corner Closure Splice Plates located at the B- C corner and C-D corner. During this shift the following was observed.

**B-C corner, lower plate:** This QA Inspector randomly observed ABF welding personnel Salvador Sandoval (#2202) performing production welding on the top half of the splice plate using the Flux Cored Arc Welding (FCAW) process. This QA Inspector observed an induction heat blanket was being used to start preheating the splice plate and then a hand held gas torch was used to bring the plate up to the minimum preheat temperature. This QA Inspector observed QC Inspector Steve Jensen using an electronic temperature gauge to verify the preheat temperature. This QA Inspector observed QC Inspector Steve Jensen verify the following welding parameters; 240 amperes and 21 volts with a travel speed of 100 mm per minute which produced a heat input of 3.02 KJ per mm. This QA Inspector verified the filler metal as Innershield NR-232, E71T-8-H16 and 1.8 mm diameter. The welding parameters, preheat and filler metal appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. This QA Inspector observed the vertical fillet welds on the top half appeared to be completed and ABF welding personnel Salvador Sandoval (#2202) start welding the top fillet weld (2F) using the FCAW process. This QA Inspector observed QC Inspector Steve Jensen verify the following

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welding parameters; 317 amperes and 23.5 volts at a travel speed of 220 mm per minute to provide a heat input of 2.03 Kj per mm. The welding parameters, preheat and filler metal appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-2. This QA Inspector observed QC Inspector Steve Jensen monitoring the preheat and interpass temperatures, welding parameters and work in general at various times throughout the shift at this location. This QA Inspector observed ABF welding personnel Salvador Sandoval (#2202) appeared to have completed welding at this location at approximately 1400 hours and observed ABF welding personnel place an induction heat blanket over the area where welding was performed.

C-D corner, lower plate: This QA Inspector randomly observed ABF welding personnel Richard Garcia (#5892) using the Flux Cored Arc Welding (FCAW) process for production welding on the bottom half of the splice plate. The welding was to increase the size of the existing fillet welds at the bottom section of the plate. This QA Inspector observed QC Inspector Steve Jensen verify the following welding parameters; 265 amperes and 20.4 volts with a travel speed of 96 mm per minute which produced a heat input of 3.38 Kj per mm. This QA Inspector verified the filler metal as Innershield NR-232, E71T-8-H16 and 1.8 mm diameter. The welding observed appeared to comply with ABF-WPS-D15-F2200-2. This QA Inspector randomly observed the welding appeared to be completed at approximately 1215 at this location and ABF welding personnel placing an induction heat blanket of the areas welded. This QA Inspector later checked the temperature of the fillet weld with a temperature indicating marker and observed the fillet weld was below 300°F (the minimum preheat temperature) and notified QC Inspector Steve Jensen of the observation. This QA Inspector observed ABF welding personnel checking the electrical connections and thermocouple locations on the heat blanket. Later in the shift this QA Inspector checked the fillet weld temperature with a temperature indicating marking and observed the fillet weld and base metal was greater than 300°F.

Tower Splice – 83 Meter elevation, West Tower leg: This QA Inspector randomly observed the status of the upper and lower Interior Corner Closure Splice Plates located at the B- C corner and C-D corner. During this shift the following was observed.

This QA Inspector observed ABF welding personnel moving welding and ventilation equipment from the South tower to the West tower this afternoon.

B-C corner, lower plate: This QA Inspector randomly observed ABF welding personnel Salvador Sandoval (#2202) using the FCAW process to tack weld the lower splice plate.

Tower Base – 3 to 13 Meter elevation; This QA Inspector randomly observed ABF welding personnel Morgan Winters (#3305) fitting up and using the FCAW process to perform production welding on the various pates used as temporary attachments for the Electro Slag Welding (ESW) process at the East side of the tower, outside the tower. The welding observed by this QA Inspector appeared to comply with ABF-WPS-D15-2160-1. This QA Inspector randomly observed QC Inspector Pat Swain monitoring the welding at this location at various times throughout the shift.

Tower Elevation – 146: This QA Inspector observed the shim plates under the grillage have not been put into position as of this date.

### **Summary of Conversations:**

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This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted below there were no notable conversations.

### 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 Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Hager,Craig	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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