

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: 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-023907**Date Inspected:** 20-May-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:** 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:** 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.

This QA Inspector observed ABF personnel working at the 9 meter level in an effort to weld the external diaphragm plates to the various shear plates and tower skin plates. This QA Inspector observed the following during the shift noted above.

This QA Inspector observed ABF personnel were in the process of setting up the induction preheating equipment at weld joints #54. At weld joint #53 the root pass had been carbon arced out and ground the previous day to remove the root pass from the center section of the weld joint due to scattered porosity the full length. This QA Inspector randomly observed QC Inspector Pat Swain perform a visual and Magnetic Particle Testing (MT) of the excavated area. See photo below. QC Inspector Pat Swain stated both inspections were accepted. This QA Inspector performed a random visual verification and the work appeared to comply with the contract requirements. ABF welding Foreman James Zhen (#6001) informed this QA Inspector welding would not be performed at this center location this date, but that welding would be performed north of the center section.

At approximately 0900 hours QC Inspector Pat Swain informed this QA Inspector the preheat temperature was slightly above the minimum of 225°F. This QA Inspector verified the preheat temperature using a temperature indicating marker.

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This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) start production welding North of the center of weld joint #53 for an approximate length of 675 mm and ABF welding personnel Jin Quan Huang (#9340) and Wai Kitlai (#2953) start production welding north of the center section of weld joint #54 for an approximate length of 1600 mm with one on each end. This QA Inspector observed the welding personnel noted above were using the Flux cored Arc Welding (FCAW) process. This QA Inspector observed as QC Inspector Pat Swain verified the following welding parameters; Xiao Jian Wan (#9677) 290 amperes and 24 volts at a travel speed of 400 mm per minute to produce a heat input of 1.04 Kj per mm, Jin Quan Huang (#9340) 285 amperes and 24.5 volts at a travel speed of 384 mm per minute to produce a heat input of 1.09 Kj per mm and Wai Kitlai (#2953) 278 amperes and 24.1 volts at travel speed of 370 mm per minute to produce a heat input of 1.09 Kj per mm. The welding observed appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1.

This QA Inspector observed QC Inspector Pat Swain perform Magnetic Particle Testing (MT) on the root pass of weld joint # 53 and #54 and informed this QA Inspector he had accepted both welds. This QA Inspector performed a random visual verification and the welding appeared to comply with the contract requirements.

This QA Inspector observed welding at joints #53 and #54 preceded until approximately 1230 hours when welding was stopped and the induction heat blankets were placed over the welding performed this date. The work observed appeared to comply with the contract requirements.

### Summary of Conversations:

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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**Inspected By:** Hager,Craig

Quality Assurance Inspector

**Reviewed By:** Levell,Bill

QA Reviewer