

**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-023445**Date Inspected:** 03-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 have started 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 ABF welding personnel James Zhen (#6001), Jin Quan Huang (#9340), Xiao Jian Wan (#9677) and Wai Kitlai (#2953) moving welding equipment, induction heating equipment and ventilation equipment to facilitate the start of welding at the center section of the external diaphragm plates and shear plates a2S and a2N, QC weld joint identification #34 and #36.

This QA Inspector observed at approximately 0900 hours the induction heating tubes had been coiled inside a piece of steel channel and placed on top of the weld joint to begin preheating. This QA Inspector was informed by ABF welding Superintendent Danny Ieraci that additional induction heaters would be placed on the opposite side of the joints in order to speed up the preheating process.

This QA Inspector observed at approximately 1030 hours this date that welding had started using the Flux Cored Arc Welding (FCAW) process with shielding gas. This QA Inspector observed QC Inspector Pat Swain verify the

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# WELDING INSPECTION REPORT

( Continued Page 2 of 2 )

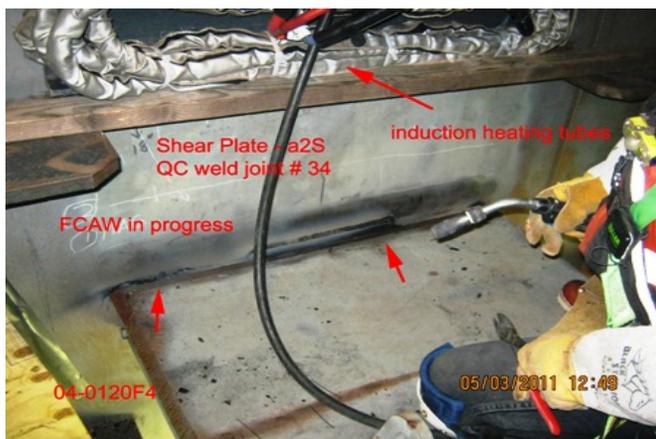
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following welding parameters: ABF welding personnel Jin Quan Huang (#9340) at weld joint # 34 using 268 amperes and 23 volts at a travel speed of 333 mm per minute to produce a heat input of 1.1 Kj per mm. ABF welding personnel Wai Kitlai (#2953) at weld joint # 36 using 269 amperes and 23 volts at a travel speed of 485 mm per minute to produce a heat input of 0.76 Kj per mm. The welding observed appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed the first 200 mm of the root pass on weld joint # 36 contained porosity which appeared to be due to the lack of shielding gas. This QA Inspector observed this area was removed by grinding and that a small strip of plywood was attached to the shear plate to act as a wind shield. This QA Inspector observed QC Inspector Pat Swain perform Magnetic Particle Testing on the root pass of each weld joint (#34 and #36). This QA Inspector had previously observed ABF-RFI-002418R00 had been approved for the partial completion of these welds as noted in the RFI. Please note the welding performed filled the Partial Joint Penetration (PJP) weld joints #34 and #36. This QA Inspector observed welding had been completed at approximately 1545 and observed that induction heating tubes had been placed over the welds to start the 325°F post heating for 3 hours. This QA Inspector was informed by QC Inspector Pat Swain that he had been instructed to monitor the 3 hour post heating and to record the temperatures as various times. The work observed this date 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

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**Reviewed By:** Levell, Bill

QA Reviewer