

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027512**Date Inspected:** 27-Apr-2012**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:** jobsite**CWI Name:** Steve McConnell**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 project**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 /or monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

Self Anchored Suspension (SAS) Tower: This QA Inspector observed work and/or performed QA verifications at the locations noted below.

3-meter elevation, Bearing Plate # 007: This QA Inspector observed welding was not being performed at this location.

3-meter elevation, Bearing Plate # 008: This QA Inspector randomly observed ABF welding personnel Richard Garcia (#5892) working on fitting up and attaching various bars, plates and pipes to restrain the plate from movement during welding. Production welding was not observed during the shift.

3-meter elevation, Bearing Plate # 006: This QA Inspector observed ABF welding personnel Jeremy Dolman (#5042) fitting up additional restrains using pipe and plate material. The pipes were positioned against the face of the plate to be welded and the opposite, existing, bearing plate. This QA Inspector observed later in the shift ABF welding personnel Jeremy Dolman (#5042) had started using the Flux Cored Arc Welding (FCQW) process for the fill passes. This QA Inspector randomly observed QC Inspector Steve McConnell verify the following parameters; 240 amperes and 23.5 volts at a travel speed of 232 mm per minute to produce a heat input value of 1.

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46 kJ per mm. This QA Inspector reviewed the Welding Procedure Specification (WPS) ABF-WPS-D15-3160 Rev-0, being used by QC and observed the parameters appeared to be within the ranges specified. This QA Inspector observed the induction heating blankets were used to preheat the base metal. This QA Inspector used an electronic temperature gauge and verified the preheat temperature was above the minimum temperature for the welding heat input and material thickness specified on the WPS. The welding observed appeared to comply with the contract requirements. This QA Inspector observed the welding had been sequenced cascading from the top down. Welding appeared to be approximately 30-40 percent completed.

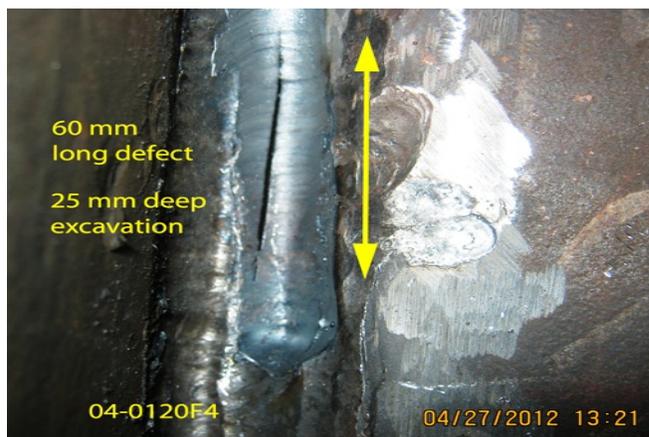
9-meter elevation: This QA Inspector observed ABF welding personnel Jin Pei Wang (#7299) using the Shielded Metal Arc Welding (SMAW) process to fillet weld the doubler plate, removed for Ultrasonic Testing (UT) the previous day, adjacent to Electro Slag Welding (ESW) weld joint C on face-A. This QA Inspector observed QC Inspector Steve McConnell verify the following welding parameters; 123 amperes using a 3.2 mm diameter E7018 electrode. The welding observed appeared to comply with ABF-WPS-D15-1200 Rev-2, being used by QC. Adjacent to the welding this QA Inspector observed QC personnel had marked next to the ESW weld joint it had passed a visual, Magnetic Particle Testing and Ultrasonic Testing for a length of approximately 600 mm.

9-meter elevation: This QA Inspector randomly observed as ABF welding personnel Rory Hogan (#3186) using the carbon arc process to excavate a UT defect located at ESW weld joint F from face A at Y-7330. This QA Inspector observed after several minutes the excavation was approximately 25 mm deep and the defect was visible. The defect was approximately 65 mm long and appeared to be approximately 2 mm wide. The weld joint was a Tee joint and the defect ran parallel to the member. This QA Inspector reviewed the UT report generated 6/27/11 by QC personnel regarding this defect and observed the following; the indication rating was +2 therefore a Class C indication for the thickness of the material and the testing angle (70°) used. It appears the only reason this indication was rejected was because it had a reported length of 100 mm, according to table 6.4 a Class C indication must have a length greater than 50 mm to be rejected. If the indication would have been a +3 (only 1db more) then it would have been a Class D indication and accepted regardless of length. See photos below noting the orientation of the defect in regards to the UT inspection angle and the standard technique being used.

Lead QA Inspectors Bill Levell and Danny Reyes were notified of the observation noted above.

## Summary of Conversations:

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



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## 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
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<b>Reviewed By:</b>	Levell,Bill	QA Reviewer
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