

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-026553**Date Inspected:** 20-Oct-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:** Fred Von Hoff**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:** OBG Sections**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.

Orthotropic Bridge Girder (OBG) Sections:

12W/13W weld joint C-2: This QA Inspector randomly observed ABF welding personnel Jeremy Dolman (#5042) using the Flux Cored Arc Welding (FCAW) process at this location. This QA Inspector verified the preheat temperature using an electronic temperature gauge and observed the induction heat blankets appeared to be functioning properly due to a consistent temperature slightly above the minimum preheat temperature of 200°F. This QA Inspector was informed by QC Inspector Fred Von Hoff of the following welding parameters; 230 amperes and 23.7 volts to produce a heat input value of 1.31 Kj per mm. The welding observed by this QA Inspector appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3042A-1. QC Inspector Fred Von Hoff confirmed the WPS listed above was correct. Welding was not completed at this location this date.

12W/13W weld joint A-5: This QA Inspector randomly observed ABF welding personnel Jorge Lopez (#6149) using the FCAW process at the transition area between the A-Deck and F-Side Plate. This QA Inspector observed the welding was from Y-0 to approximately Y-290. QC Inspector Fred Von Hoff informed this QA Inspector of the following parameters; 250 amperes and 23 volts at a travel speed of 318 mm per minute to produce a heat input

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

value of 1.08 Kj per mm. The welding observed at this location appeared to comply with ABF-WPS-D15-3040B-1 which was confirmed to be the correct WPS by QC Inspector Fred Von Hoff. This QA Inspector observed the welding at this location was completed this date.

12W/13W weld joint F: This QA Inspector randomly observed ABF Welding personnel Jorge Lopez (#6149) using the carbon arc process to remove the backing bar from this weld joint from inside the OBG section. This QA Inspector the fit up aids had been removed prior to starting the back gouging. This QA Inspector observed the back gouging was not completed this date.

12W/13W weld joint E-2: This QA Inspector randomly observed ABF welding personnel Rory Hogan (#3186) setting up the FCAW track system and appeared to be having difficulties with the controller for the equipment, which was confirmed by QC Inspector Fred Von Hoff. This QA Inspector observed ABF Engineer Dan Hester was present at this location assisting with setting up the welding equipment. This QA Inspector observed welding was not performed at weld joint E-2 prior to the morning break (approximately 1000 hours). This QA Inspector observed the first welding pass (root pass) was started at approximately 1030 using the FCAW track system. This QA Inspector randomly observed QC Inspector Fred Von Hoff verify the following welding parameters; 240 amperes and 24 volts at a travel speed of 140 mm per minute to produce a heat input value of 2.47 Kj per mm. QC Inspector Fred Von Hoff informed ABF welding personnel Rory Hogan (#3186) the amperage and voltage were within the range specified on the WPS but that the travel speed was too slow and to increase the travel speed on the track system. This QA Inspector observed that QC Inspector Fred Von Hoff was informed by ABF welding personnel Rory Hogan (#3186) that there was a slight gap between the backing bar and the base metal and that the root opening appeared to be towards the maximum width therefore he did not want to weld using a faster travel speed. QC Inspector Fred Von Hoff informed ABF welding personnel Rory Hogan (#3186) that he was not within the parameters of the WPS (ABF-WPS-D15-3042A-1). This QA Inspector observed QC Inspector Fred Von Hoff verify the travel speed several more times during the root pass and that the maximum speed obtained was 150 mm per minute which produced a heat input value of 2.30 Kj per mm. The maximum heat input value specified on the WPS for the range of parameters is 1.43 Kj per mm. The FCAW track welding at this location started at approximately Y-1370 and went to Y-3270. ABF welding personnel Rory Hogan (#3186) informed QC Inspector Fred Von Hoff and this QA Inspector he would increase the travel speed for the second weld pass. This QA Inspector observed QC Inspector Fred Von Hoff measure the travel speed at the start of welding the second pass and re-verify the amperage and voltage; 247 amperes and 24.4 volts at a travel speed of 203 mm per minute, which produced a heat input value of 1.78 Kj per mm. This QA Inspector observed QC Inspector Fred Von Hoff inform ABF welding personnel Rory Hogan (#3186) the travel speed was still too slow. At this time ABF Engineer Dan Hester began to question QC Inspector Fred Von Hoff regarding the heat input and the math formula used to determine the heat input. This QA Inspector observed QC Inspector Fred Von Hoff try to verifying the travel speed, but was interrupted by ABF Engineer Dan Hester. This QA Inspector observed the weld joint appeared to have been filled with approximately 8-10 mm of weld upon the completion of the second pass. This QA Inspector observed ABF Engineer Dan Hester leave the area. This QA Inspector discussed the issue above with QC Inspector Fred Von Hoff and expressed concern that the back gouging process may not remove the welding performed out of tolerance and that an Incident Report was going to be issued for the first two weld passes being performed outside the range of the WPS. This QA Inspector observed at the start of the third pass the travel speed was verified by QC Inspector Fred Von Hoff to be 304 mm per minute, with this travel speed the heat input decreased to 1.14 Kj per mm and was within the range specified on the WPS. Welding was not completed at this location this date.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

This QA Inspector verbally informed QA SPCM Lead Inspector, Daniel Reyes, of the issues noted in this report for compliance therefore for further details of issues of significance see QA SPCM Lead Inspector, Daniel Reyes, Daily Inspection Report (6031) for this date.

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 above 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.

Inspected By:	Hager,Craig	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
