

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-026671**Date Inspected:** 08-Nov-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:** 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:** 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:

13W/14W – weld joint D-2: According to the documents being used by QC personnel this weld joint is designated as having continuous preheat including a 3 hour post weld heat. This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) setting up to start using the Flux Cored Arc Welding (FCAW) process at the North end of this weld joint from Y-0 to approximately Y-430 to tie into where the Submerged Arc Welding (SAW) had ended due to the lack of space. This QA Inspector verified the preheat temperature was greater than 200°F using an electronic temperature gauge. This QA Inspector randomly observed as QC Inspector Pat Swain verified the following parameters; 263 amperes and 23.8 volts at a travel speed of 360 mm per minute to produce a heat input value of 1.04 KJ per mm. This QA Inspector performed a random visual verification on one of the weld passes and observed an area containing porosity, see photo below. This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) was aware of the porosity and observed as a small electric grinder was used to remove the defect. QC Inspector Pat Swain performed an in process visual inspection and confirmed the porosity had been removed. The welding observed appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1 being used by the QC Inspector. This QA Inspector observed welding at this location was completed at approximately 1130 hours this shift. This QA Inspector observed ABF welding personnel Xiao

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Jian Wan (#9677) move the equipment to the South end of the weld joint, approximately Y-8100 to Y-8500, which would completed the welding of D-2. This QA Inspector verified the preheat temperature was greater than 200°F using an electronic temperature gauge. This QA Inspector also observed QC Inspector Pat Swain verify the weld parameters after moving were basically the unchanged. This QA observed ABF personnel were in the area bolting up the angled stiffeners as soon as welding was completed. This QA Inspector was present when QC Inspector Pat Swain requested several minutes for the weld to cool to perform a preliminary visual inspection of the FCAW at the North end before the stiffeners were bolted into place. See photo below of ABF personnel bolting in the angled longitudinal stiffeners while welding was in process on the South end of this weld. This QA Inspector observed 5 ABF personnel working on bolting in the various stiffeners. This QA Inspector observed welding was completed at this location this date at approximately 1500 hours and that the induction heating equipment appeared to be left on to start the 3 hour post heating. QC Inspector Pat Swain informed this QA Inspector the induction heating would remain on overnight due to the time the welding was completed in relationship to the end of the work shift.

13W/14W – weld joint A-2.2 to A-2 – Y- 3580 (full height vertical stiffener): This QA Inspector observed ABF welding personnel Jeremy Dolman (#5042) and ABF personnel Jeff Stone setting up the plasma arc back gouging equipment to start the removal of the backing strap and then back gouging of the weld at this location. This QA Inspector made several trips to this location during the shift and observed at multiple times there appeared to be issues with the equipment and/or technique regarding removing the backing strap. The work at this location was still in progress at this end of the shift this date.

13E/14E LS-4 and LS-5: This QA Inspector observed ABF welding personnel Fred Kaddu (#2188) performing Shielded Metal Arc Welding (SMAW) at this location. This QA Inspector was informed by QC Inspector John Pagliero the induction heating appeared to have been continuous thru the night and that the base metal temperature was greater than 200°F prior to the start of welding. QC Inspector John Pagliero informed this QA Inspector of the following welding parameters; 125 amperes. This QA Inspector observed a 3.2 mm diameter E9018H4R electrode was being used. The welding observed appeared to comply with ABF-WPS-D15-1012-3, being used by the QC Inspector. This QA Inspector observed welding was completed at approximately 0800 hours and that the induction heating blankets remained on the weld joint to start the 3 hour post heating. This QA Inspector observed QC Inspector John Pagliero perform a preliminary visual inspection of the weld to include the required transition due to an offset of the stiffener plates. This QA Inspector observed ABF welding personnel Fred Kaddu (#2188) started grinding on LS-4 in preparation of the fit up. Later this shift this QA Inspector observed the 3 hour post heat had been completed and informed by QC Inspector John Pagliero he had verified the temperature several times during the 3 hours.

13E/14E LS-4 and LS-4: This QA Inspector observed ABF welding personnel Fred Kaddu (#2188) started grinding on LS-4 in preparation of the fit up. This QA Inspector observed QC Inspector John Pagliero perform and accept the fit up of this weld joint. This QA Inspector performed a random visual verification and the work appeared to comply with the contract requirements. This QA Inspector observed the induction heat blankets had been moved from LS-5 to LS-4 for preheating and that the temperature was above the minimum preheat temperature by using an electronic temperature gauge. This QA Inspector observed QC Inspector John Pagliero verify the following welding parameters; 133 amperes. This QA Inspector observed a 3.2 mm diameter E9018H4R electrode was being used to weld the root pass. The welding observed appeared to comply with ABF-WPS-D15-1012-3, being used by the QC Inspector. This QA Inspector observed QC Inspector John Pagliero

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perform a visual and Magnetic Particle Testing (MT) on the back gouged section of this weld joint. QC Inspector John Pagliero stated additional grinding and/or carbon arcing need to be performed due to a MT indication the full length of the weld joint. This QA Inspector performed a random visual verification and the work observed appeared to comply with the contract requirements. This QA Inspector was informed at the end of the shift this date by QC Inspector John Pagliero that he had performed several additional visual and MT inspections prior to accepting the back gouged weld joint this shift.

Flux Oven at 13W: This QA Inspector and QC Inspector Tony Sherwood confirmed at approximately 1300 hours this date the temperature of the flux oven for baking new flux had reached a temperature of 630°F. This QA Inspector and QC Inspector Tony Sherwood confirmed approximately 3 hours later the flux oven appeared to have maintained a temperature greater than the minimum baking temperature of 550°F.

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