

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-016709**Date Inspected:** 10-Sep-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1200**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**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:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). OBG W1, Counterweight
- B). Field Splice W5/W6
- C). Field Splice W2/W3, "A" Deck Stiffeners
- D). Field Splice W4/W5

A). OBG W1, Counterweight

The QAI observed the Complete Joint Penetration (CJP) of the horizontal counterweight attachment lugs located to the north side of the W1 Orthotropic Box Girder (OBG) at a measured distance of approximately 260mm east of PP-12. The field fit-up and CJP welding was performed by Rick Clayborn ID-2773 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1000, Rev. 1. The WPS was also used by the QC inspector Mike Johnson as a reference to monitor the welding operation and verify the Direct Current (DC) welding parameters which observed as 135 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. This work is conducted are located at the areas where portions of the shop fabrication components were removed or not installed due to seafastening interference.

B). Field Splice W5/W6

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The QAI observed the installation of the 19.1mm x 157mm Nelson studs. The installation and fillet welding was performed by the welder Darcel Jackson ID-9967 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A, Rev. 1. The WPS was also used by the QC inspector Mike Johnson as a reference to monitor the welding operation and verify the Direct Current (DC) welding parameters which observed as 130 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. This work is conducted are located at the areas where portions of the shop fabrication components were removed or not installed due to seafastening interference.

C). Field Splice W2/W3, "A" Deck Stiffeners

The QAI observed the welder, Yao Xin Liang ID-7238, continue the Complete Joint Penetration (CJP) groove welding on the longitudinal stiffener field splice identified as WN: 2W-3W-A-LS6. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector Tom Pasqualone as a reference. The amperage was recorded as 127 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified.

The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The welder utilized a slag hammer, pneumatic air gun with an attached chisel and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. The welder completed the correcting of the root opening and the QAI observed the QC inspector perform a dimensional survey of the root opening and the included angle prior to the CJP welding. At the time of the observation no issues were noted by the QAI.

D). Field Splice W4/W5

The QAI observed the semi-automatic FCAW-G welding process during the Complete Joint Penetration (CJP) welding of the bottom plate field splice identified as WN: 4W-5W-D1 and D2 performed by Rory Hogan ID-3186 and Jeremy Dolman ID-5042. The welders utilized the FCAW-G welding process as per the WPS ABF-WPS-D15-3042A-4 Rev. 0 which was also used as a reference by the Quality Control (QC) inspector James Cunningham to verify the welding parameters and the surface temperatures during the welding operation. The DCEP welding parameters were verified and noted by the QC inspector and were noted as follows: 245 amps, 23.8 volts and a travel speed measured at 190 mm/minute. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was maintained.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW and the FCAW-G processes appeared to comply with the AWS Specification and AWS Classification.

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The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

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 Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By: Reyes, Danny

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer