

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-016929**Date Inspected:** 23-Sep-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**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). Field Splice E6/E7
- B). Field Splice W5/W6
- C). Counterweight Field Connections

A). Field Splice E6/E7

The QAI observed the repair welding of the areas marked as UT rejects on the Complete Joint Penetration (CJP) groove weld identified as WN: 6E-7E-A5. The excavations and welding of the repairs was performed by the welder Fred Kaddu ID-2188 utilizing the Shielded Metal Arc Welding (SMAW) process and 4.0 mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 1. The WPS was also used by the QC inspector, Tom Pasqualone as a reference to monitor and verify the Direct Current welding parameters. The welder utilized a 3.2mm electrode for the application of the first weld layer and a 4.0mm for the fill and cover passes. The welding parameters were verified by the QC inspector and observed by the QAI as 119 amps for the 3.2mm electrode and 185 amps for the 4.0mm electrode. The welding was performed in the flat position (1G) with the work positioned placed in an approximately horizontal plane and the weld metal deposited from the upper side.

Also at the conclusion of the excavations the QC inspector, Mr. Pasqualone, performed the Magnetic Particle Test (MPT) of the excavated areas and no rejectable indications were noted. The application and evaluation of the

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1.5-101 Rev. 4.

Later in the shift, the QAI observed the automatic Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 6E-7E-C1 and C2. The welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-3042B-1 Rev. 0. The joint designation appeared to comply with AWS single-v-groove butt joint identified as B-U2a-G and the WPS was also used by the QC inspector John Pagliero as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters which was verified by the QC inspector and observed by the QAI as follows: 245 amps, 23.5 volts and a travel speed measured as 240 mm per minute. The welding was performed in vertical position (3G) at approximate incline of 22 degrees. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. Later during the shift the QAI observed, at random intervals, the QC inspector monitoring the in process welding, the surface temperatures and verifying the DCEP welding parameters.

B). Field Splice W5/W6

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 5W-6W-D1 and D2s. The welding was performed by the welder /operator Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the WPS ABF-WPS-D15-3110-4, Rev. 0. The WPS was also used by the QC inspector Mike Johnson as a reference when monitoring the welding and verifying the welding parameters which were observed as follows: 238 amps, 23.7 volts and a travel speed measured as 183mm per minute. The QC inspector also verified the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the overhead (4G) position with the work placed in an approximate horizontal plane and the weld metal deposited from the underside. The CJP welding on the "B" face of the joint was completed during this shift.

C). Counterweight Field Connections

The QAI observed the field fit-up and the Complete Joint Penetration (CJP) groove welding of the upper counterweight connection plate to the edge face of the "A" deck plate on the Orthotropic Box Girder (OBG) identified as W3. The fit-up and welding was performed by the welder Eric Sparks ID-3040 utilizing the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1050A, Rev. 0. The WPS was also used by the QC inspector, Mike Johnson, as a reference to monitor the welding and verify the welding parameters which were observed and recorded by the QAI as 135 amps. The QAI randomly observed the QC inspector perform a Magnetic Particle Test (MPT) on the root pass prior to the welding of subsequent weld layers. No rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1.5-101 Rev. 4.

QA Observation and Verification Summary

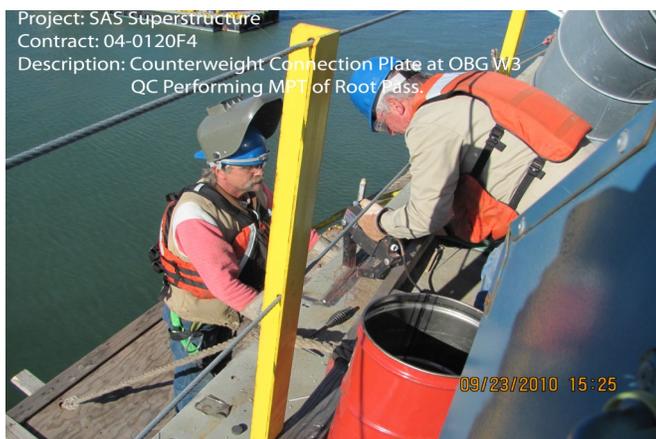
The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical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

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

SMAW and the FCAW-G welding processes appeared to comply with the AWS Specification and AWS Classification. 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
