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 #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-015592
Date Inspected: 13-Jul-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 1100
OSM Departure Time: 1930
Location: Job Site

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ 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 W2/W3
B). Field Splice W5/W6

A). Field Splice W2/W3

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the edge plate field splice identified as Weld Number (WN): 2W-3W-F1. The Complete Joint Penetration (CJP) groove welding was performed by welding personnel Jin Pei Wang ID-7299 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3110-3, Rev. 0. The WPS was also used by the AB/F Quality Control (QC) Inspector Tom Pasqualone as a reference when monitoring the in process welding and performing QC verification of the Direct Current Electrode Positive (DCEP) welding parameters. The groove joint appeared to comply with the AWS joint designation identified as B-U2a-GF and the work was positioned in an approximate vertical plane with the groove approximately vertical. Later in the shift, at random intervals, the QAI observed the QC inspector verify the average welding parameters and were as follows: 220 amps, 21.4 volts and a travel speed measured at 180mm/minute. The QC inspector also monitored the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed on the "B" face of the weld joint.

Later in the shift, the QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld

Number (WN) 2W-3W-D1. The welding was performed by the welding operator Rory Hogan ID-3186 utilizing the WPS ABF-WPS-D15-3110-4, Rev. 0. The WPS was also used by the QC inspector Steve McConnell as a reference to monitor the welding and verify the welding parameters which were observed as follows: 250 amps, 24.5 volts and a travel speed measured as 190mm. 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 the horizontal plane and the weld metal deposited from the underside. The CJP welding of the "B" face of the joint was not completed during this shift.

B). Field Splice W5/W6

The QAI observed the preparation of the weld joint identified as WN: 5W-6W-A for the Submerged Arc Welding (SAW) process. The machining of the continuous tack weld profile was performed by AB/F personnel utilizing high cycle grinders. There was no welding performed on this weld joint during this shift.

The QAI also observed the Flux Cored Arc Welding (FCAW-G) of the bottom plate field splice identified as Weld Number (WN): 5W-6W-D, Segment D1. The Complete Joint Penetration (CJP) groove welding was performed by welding personnel Xiao Jian Wan ID-9677 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1 Rev. 0. The WPS was also used as a reference by the AB/F Quality Control (QC) Inspector Bonifacio Daquinag, Jr. during QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the CJP welding. The groove joint appeared to comply with the AWS joint designation identified as B-U2a-GF with the work placed in an approximately horizontal plane and the weld metal shall be deposited from the upper side. The QAI also observed the QC inspector verify the average welding parameters and were observed as follows: 243 amps, 22.9 volts and a travel speed measured at 319 mm/minute. The QC inspector also monitored the surface temperatures during the field welding and the following was observed and noted by the QAI: the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius.

C). Miscellaneous Observations

The QAI also observed the machining of the back gouged surface on the "B" face of the weld joint identified as WN: 3W-4W-F1. The machining was performed utilizing high cycle grinders to removed slag, carbon residue and to bring the U-groove into general compliance with the contract documents.

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 FCAW-G 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:

In a conversation with QC inspector Steve McConnell, the QAI informed Mr. McConnell that at the weld stations the WPS's were almost non-existence. Mr. McConnell responded that he would review this issue and resolve it ASAP. Later in the shift the QAI did observe that the appropriate WPS's were visible.

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