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: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-016862
Date Inspected: 20-Sep-2010

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

OSM Arrival Time: 1000
OSM Departure Time: 1830
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). OBG E1, Erection Access Hole Insert Plates
C). Ventilation Access Hole Insert Plate

A). Field Splice E6/E7

The QAI observed the Shielded Metal Arc Welding (SMAW) process of the edge plate field splice identified as Weld Number (WN): 6E-7E-B1. The welding was performed by James Zhen ID-6001utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1110A, Rev. 1. The WPS was also used by the Quality Control (QC) Inspector Tom Pasqualone to verify the Direct Current Electrode Positive (DCEP) welding parameters and to monitor the Complete Joint Penetration (CJP) welding. The QAI observed the QC inspector verifying the welding parameters and were noted as 141 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with contract documents. The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane with the groove approximately vertical.

The QAI also observed the welder Xiao Jian Wan ID-9677 welding the field splice identified as WN: 6E-7E-F1 utilizing the Shielded Metal Arc Welding (SMAW) process. The welding was performed utilizing the WPS

identified as ABF-WPS-D15-1110-A, Rev. 1 which was also used by the QC inspector as a reference. The QAI observed the the QC inspector verify the welding parameters which were noted as 140 amps utilizing the 3.2 welding consumable. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract documents.

Later in the shift The QAI observed the Flux Cored Arc Welding (FCAW-G) process of the bottom plate field splice identified as Weld Number (WN): 6E-7E-E2. The welding was performed by Song Tao Huang ID-3794 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3042A-1, Rev. 0. The WPS was also used by the QC inspector to verify the Direct Current Electrode Positive (DCEP) welding parameters and to monitor the Complete Joint Penetration (CJP) welding. The QAI observed the QC inspector verifying the welding parameters were observed as follows; 265 amps, 24.0 volts and a travel speed measured at 300 mm/m. The minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with contract documents. The welding was performed in the vertical (3G) position with the work in an approximate 22 degree incline. The welding was performed between the Y dimensions of 4540mm-5277mm. This area was not welded during the semi-automatic FCAW-G welding discipline due to the machine configuration and field conditions would not allow accessibility to the weld joint.

B). OBG E1, Erection Access Hole Insert Plate

The QAI observed the Shielded Metal Arc Welding (SMAW) of the erection access hole insert plate identified as Weld Number (WN): 1E-PP8.5-E4-W1 on the "A" deck of the Orthotropic Box Girder (OBG) E1. The welding was performed by Jin Pei Wang ID-7299 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1110-B, Rev. 1. The welding was performed in the overhead (OH) position on the "B" side of the Complete Joint Penetration (CJP) groove joint. The WPS was also utilized by the QC inspector John Pagliero as a reference to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which was recorded as 130 amps by the QC inspector. The 3.2 mm Lincoln electrode was utilized with the welding performed in the overhead (4G) position with the work placed in an approximately horizontal plane and the weld metal deposited from the bottom side. The groove joint appeared to comply with the AWS joint designation identified as B-U4a. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The O.H. welding was completed during this shift.

Later in the shift the QAI observed the CJP welding of the weld joint identified as WN: 1E-PP9.5-E4-W4. The welder utilized the SMAW process as per the WPS. The QC inspector utilized the WPS to monitor the welding and to verify the DC welding parameters which were noted as 132 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified by the QC inspector and appeared to comply with the contract documents.

The QAI also observed the CJP welding of the WN: 1E-PP9.5-E4-W4 which was performed by the welder Hua Qiang Hwang ID-2930 utilizing the WPS identified as ABF-WPS-D15-1110-B, Rev. 1. The QC inspector utilized the WPS to monitor the welding and to verify the DC welding parameters which were noted as 130 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified by the QC inspector and appeared to comply with the contract documents.

C). Ventilation Access Hole Insert Plate

The QAI observed the field fit-up and tack welding of the insert plate identified as PP19-E5-L3E-NW. The tack welding was performed by welding personnel Yao Xin Liang ID-7238 utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified as ABF-WPS-D15-1030 Rev. 1. The WPS was also used by the QC inspector John Pagliero to monitor the tack welding and verify the parameters which were observed as 130 amps. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified by the QC inspector and appeared to comply 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 SMAW and 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 on page 3 of this report 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.

WELDING INSPECTION REPORT

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Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer