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-017908
Date Inspected: 09-Nov-2010

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

OSM Arrival Time: 630
OSM Departure Time: 1500
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 E7/E8
B). Field Splice E8/E9
C). Field Splice E6/E7

A). Field Splice E7/E8

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) E7-E8-C1 and C2. The Complete Joint Penetration (CJP) welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-3040B, Rev. 1. The WPS was also used by the QC inspector William Sherwood as a reference to monitor the welding and to verify the DC welding parameters which were noted and recorded by the QC as follows: 260 amps, 23.6 volts and 270 mm/m. 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 welding parameters. The CJP welding was not complete during this shift.

B). Field Splice E8/E9

The QAI observed the Submerged Arc Welding (SAW) process of the bottom plate field splice identified as Weld Number (WN): 8E-9E-D1 and D2. The welding was performed by the welding operator James Zhen ID-6001 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1 Rev. 0. The WPS was also utilized by the AB/F Quality Control (QC) Inspector William Sherwood to monitor the in process welding and to verify the Direct Current (DC) welding parameters during the Complete Joint Penetration (CJP) groove welding of the field splice. The QAI also observed the QC inspector verifying the welding parameters and were noted as follows: 560 amps, 32.5 volts and a travel speed measured at 389 mm per minute. The surface temperatures and the calculation of the heat input were also verified by the QC inspector and were noted as follows: the minimum preheat temperature of 60 degrees Celsius, the maximum interpass temperature of 230 degrees Celsius and the heat input of 2.8 kj/mm. The welding was performed in the flat (1G) position with the work placed in an approximately horizontal plane and the weld metal shall be deposited from the upper side

C). Field Splice E6/E7

The QAI observed the excavation of the unacceptable discontinuity on the deck plate field splice identified as WN: 6E-7E-F1, repair cycle # 1. The rejectable discontinuities was discovered during the Ultrasonic Testing (UT) performed by the QC technician, Jesse Cayabyab and appeared to run in the transverse direction of the longitudinal weld. The excavation was performed by welding personnel Jorge Lopez ID-6149 utilizing a high cycle grinder to remove the defects and a rotary file to bring the excavated area into compliance with the Weld Procedure Specification (WPS) ABF-WPS-D15-1001 Repair, Rev. 0. At the conclusion of the excavation the QC inspector, Tom Pasqualone, performed a visual inspection and a Magnetic Particle Test (MPT)of the areas and no rejectable indication was noted by the QC inspector. At this time the welder, Mr. Lopez, commenced the repair welding utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS which was also utilized by the QC inspector to monitor the welding and to verify the DC welding parameters. The QC inspector verified the DC welding parameters as 122 amps and the minimum preheat temperature 40 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius which appeared to comply with the contract documents. Prior to the welding the QAI verified the dimensions of the excavation and were noted and recorded as follows; Y=685 mm, L=30 mm, d=13 mm; Y=835 mm, L= 80 mm, d=14 mm and Y=1045 mm, L= 80 mm and d=15 mm. The welding and the QC inspection was not completed during this shift.

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 welding process 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.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

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.

The QAI was advised by QA Supervisor, William Levell, that the Weld Repair submitted by AB/F was approved regarding the Ultrasonic R3 cycle repairs located at the "A" deck field splice identified as WN: 7W-8W-A1 and A2.

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