

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 #: 04-0120F4Cty: 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-017346**Date Inspected:** 07-Oct-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 E7/E8
- C). Ventilation Access Hole, Insert Plate
- D). Erection Access Hole, Insert Plate

A). Field Splice E6/E7

Later in the shift, the QAI observed the 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 the welder/operators Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the WPS ABF-WPS-D15-3042B-1, Rev. 0. The WPS was also used by the QC inspector William Sherwood as a reference during the monitoring of the welding and verifying the welding parameters which were observed as follows: 248 amps, 23.8 volts and a travel speed measured as 193 mm. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the overhead position (4G) with the work at an approximate incline of 22 degrees and the weld metal deposited from the underneath side. The welding of this weld joint was completed on this date.

B). Field Splice E7/E8

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

The QAI observed the Complete Joint Penetration (CJP) welding of the edge plate field splice identified as Weld Number (WN): 6E-7E-B1. The welding was performed by the welder Hua Qiang Hwang ID-2930 utilizing the Shielded Metal Arc Welding (SMAW) process and the 3.2 mm electrode as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1040A-1, Rev. 0. The WPS was also used by the Quality Control (QC) Inspector William Sherwood 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 136 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 and the work placed in an approximately vertical plane with the groove approximately vertical. The welding of the "A" face of this weld joint was completed on this date.

C). Ventilation Access Hole, Insert Plate

The QAI observed the Complete Joint Penetration (CJP) welding of the ventilation access hole, insert plate, identified as WN: 2E-PP10.5-E2-L2E-SW. The welding was performed by, Wai Kitlai ID-2953, utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1010, Rev. 0. The WPS was also utilized by the QC inspector Patrick Swain as a reference to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which was recorded as 166 amps by the QC inspector. The 4.0 mm electrode was utilized with the welding performed in the flat (1G) position with the work in an approximately horizontal plane and the weld metal deposited from the upper side. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The CJP welding was completed on this date.

The QAI also observed the Ultrasonic Testing (UT) of the R1 repairs on the Ventilation Access Hole, Insert plate identified as WN: 1E-PP10.5-E2-L1E-S. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. The examination of the CJP was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the applicable contract documents. The QC technician performed the required longitudinal wave technique, utilizing a 25.4mm diameter transducer, to perform the examination for base metal soundness and the shear wave technique for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. At the conclusion of the testing no rejectable discontinuities were noted.

Prior to the UT testing, the QAI observed the QC inspector Patrick Swain perform the Magnetic Particle Testing (MPT) of the R1 repairs and no rejectable indications were noted by the QC inspector. Mr. Swain utilized a Parker Contour Probe, DA-400, to perform the MPT and the procedure identified as SE-MT-D1.5-CT-100 Rev.4.

D). Erection Access Hole, Insert Plate

The QAI observed the welding of the unacceptable discontinuities discovered during the Ultrasonic Testing (UT) performed by QC/UT technicians. The repair welding was performed on the erection access hole insert plate identified as Weld Number (WN): 1E-PP11-W1, W2, W3 and W4 Repair cycle R1. The welder, Darcel Jackson ID-9967, performed the welding utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001 Repair, Rev. 0. The WPS was also utilized by the QC inspectors Patrick Swain as a reference to monitor the welding and verify the Direct Current Electrode Positive

WELDING INSPECTION REPORT

(Continued Page 3 of 4)

(DCEP) welding parameters which was recorded as 194 amps by the QC inspector. The 4.0 mm electrode was utilized with the welding performed in the flat (1G) position and the work in an approximate horizontal plane with the weld metal deposited from the upper side. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector.

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 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

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Reviewed By: Levell,Bill

QA Reviewer