

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:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-013951**Date Inspected:** 10-May-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1100**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**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 W1/W2
- B). Field Splice W2/W3

A) Field Splice W1/W2

The QAI observed the QC inspector's Tom Pasqualone and Steve McConnell perform the Magnetic Particle Testing (MPT) of the CJP groove weld on the "A" face side of the field splice identified as WN: 1W-2W-E, Segments E1 and E2. The testing was conducted by the QC technicians utilizing the MPT procedure identified as SE-MT-CT-D1.5-101 Rev.4. The testing was performed utilizing the longitudinal and transverse axis. At the conclusion of the testing no rejectable indications were noted.

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the bottom plate longitudinal stiffener field splices identified as Weld Number (WN): 1W-W2-D-S14. The welding was performed by the welding personnel James Zhen ID-6001 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3011-3 Rev. 1 during the Complete Joint Penetration (CJP) welding of the double-v-groove joint identified as B-U3-GF per the AWS joint designation. The WPS was also used by the AB/F Quality Control (QC) Inspector Bonifacio Daquinag as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters during the CJP groove welding. The welding was performed in the vertical (3G) position with the work placed in the vertical

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

plain. Later in the shift the QAI observed the QC inspector verifying the welding parameters and were noted as follows: 252 amps, 21.0 volts and a travel speed measured at 200mm/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 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius.

The QAI also observed the Flux Cored Arc Welding (FCAW-G) of the bottom plate longitudinal stiffener field splices identified as Weld Number (WN): 1W-W2-D-S10. The welding was performed by the welding personnel Chun Fai Tsui ID-3426 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3011-3 Rev. 1 during the Complete Joint Penetration (CJP) welding of the double-v-groove joint identified as B-U3-GF per the AWS joint designation. The WPS was also used by the AB/F Quality Control (QC) Inspector Bonifacio Daquinag as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters during the CJP groove welding. The welding was performed in the vertical (3G) position with the work placed in the vertical plain. Later in the shift the QAI observed the QC inspector verifying the welding parameters and were noted as follows: 244 amps, 20.7 volts and a travel speed measured at 195mm/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 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius.

Later in the shift, the QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 1W-2W-E. The welding was performed by the welder /operator Rory Hogan ID-3186 utilizing the WPS ABF-WPS-D15-3042A Rev. 1. The WPS was also used by the QC inspector William Sherwood as a reference when monitoring the welding and verifying the welding parameters which were observed as follows: 220 amps, 23 volts and a travel speed measured as 180mm. 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 position (4G) with the work at an approximate incline of 22 degrees.

B) Field Splice W2/W3

The QAI observed the automatic Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 2W-3W-E. The welding was performed by welding personnel Songtao Huang, ID-3794 utilizing the WPS ABF-D15-3042A-1 Rev. 0. The joint designation appeared to comply with AWS single-v-groove butt joint identified as B-U2a-G. The WPS was also used by the QC inspector Bernie Docena as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters which noted and recorded by the QAI as follows: 245 amps, 23.0 volts and a travel speed measured as 220mm per minute. The welding was performed in vertical position (3G) at an approximate incline of 22 degrees. The QAI inspector also verified the minimum preheat temperature of 60 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.

The QAI also observed the fillet welding of the fitting gear to the side plate field splice to be utilized during the alignment process of the field splices. The work was performed on the weld joint identified as WN: 2W-3W-C. The welding and the assembly fit-up was performed by Rick Clayborn ID-2773 utilizing the SMAW process during the welding as per the WPS ABF-WPS-D15-F1200A Rev. 1. The WPS was also used by the QC inspector Jessie Cayabyab as a reference to verify the DCEP welding parameters and were noted as follows: 144 amps.

WELDING INSPECTION REPORT

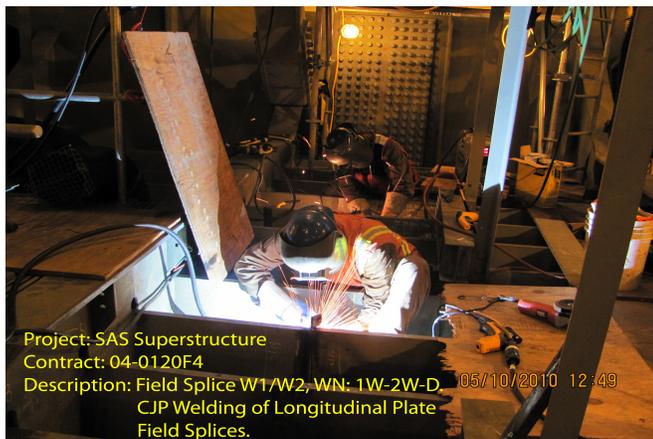
(Continued Page 3 of 4)

Later in the shift the QAI observed the QC inspector verify the surface temperatures which appeared to comply with the contract documents and were noted as follows: 20 degrees Celsius (preheat temperature) and the maximum interpass temperature of 230 degrees Celsius. At the conclusion of the work the QC inspector noted and recorded one (1) area, located at the edge plate "B" to the side plate "C" connection, a misalignment of 3.5 millimeters. QC informed the QAI of the misalignment and that the fit-up is unacceptable at this time.

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's 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 process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift was not completed 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 no pertinent conversations discussed in regards to the project except as noted above.

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