

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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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-013570**Date Inspected:** 30-Apr-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 W3/W4

A) Field Splice W1/W2

The QAI also observed the continued Shielded Metal Arc Welding (SMAW) of the bottom plate longitudinal stiffener field splices identified as Weld Number (WN): 1W-W2-D-S15 and 16. The welding was performed by the welding personnel James Zhen ID-6001 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1010 Rev. 0 for the Complete Joint Penetration welding of the double-v-groove joint identified as per the AWS joint designation B-U3b. The WPS was also used by the AB/F Quality Control (QC) Inspector Bernie Docena as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding. Later in the shift the QAI observed the QC inspector verifying the welding parameters and were noted as 122 amps. 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.

The QAI also observed the welder Chun Fai Tsui ID-3426 removing the backing bars of the bottom plate

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

longitudinal stiffener field splices identified as Weld Number (WN): 1W-W2-D-S4 and S5. At the conclusion of removing the backing bars the welder commence the machining of the groove surfaces to a bright metal utilizing a 4" grinder.

B) Field Splice W3/W4

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 1W-2W-C. The welding was performed by American Bridge/Fluor Enterprise 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: 247 amps, 23.0 volts and a travel speed measured as 260mm per minute. 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 Ultrasonic Testing (UT) of the CJP transverse groove weld of the deck plate field splice identified as WN: 3W-4W-A. The testing was conducted utilizing the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 which was performed by the QC technicians Tom Pasqualone and Steve McConnell. The QC technicians performed the required longitudinal wave technique for base metal soundness and the shear wave technique for weld soundness which was performed utilizing a .75 x .75 rectangular transducer.

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 SMAW and 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 QAI also performed a Magnetic Particle Test (MPT) of the CJP transverse groove weld identified as WN: 3W-4W-A. The areas were tested 10% to verify that the welds and testing by QC meet the requirements of the contract documents. The examination was performed as per the contract documents and a TL-6028 was generated on this date.

The digital photographs on page 3 of this report illustrate the work observed during this scheduled shift.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)



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

Reviewed By: Levell, Bill

QA Reviewer