

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-013952**Date Inspected:** 07-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 E3/E4

A) Field Splice W1/W2

The QAI observed the QC inspector's Tom Pasqualone and Steve McConnell perform the Magnetic Particle Testing (MPT) on the back gouged surface of the "B" face side of the longitudinal stiffener field splices identified as WN: 1W-2W-D-S7 and S11. 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 and at the conclusion of the testing no rejectable indications were noted.

At the conclusion of the MPT 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-S11. 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 Bernie Docena 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

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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: 253 amps, 21.3volts and a travel speed measured at 230mm/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-S7. 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 Bernie Docena 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: 238 amps, 21.6 volts and a travel speed measured at 250mm/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 randomly verified the CJP welding of the field splices identified as WN: 1W-2W-C and 1W-2W-E to verify that the welding and visual inspection, on the "A" face of the CJP, performed by QC meet the requirements of the contract documents. At the conclusion of the QAI verification it appears that the weld and the QC inspection is in compliance.

The QAI also observed the machining, by grinding, of the back gouged surface to a bright metal prior to the MPT on the CJP identified as 1W-2W-E. The machining was performed by ABF personnel Rory Hogan and Jeremy Dolman.

B) Field Splice E3/E4

The QAI observed the QC UT technician, Steve McConnell, perform the testing of repairs on the field splice identified as WN: 3E-4E-E. At the conclusion of the testing the QC technician noted a Class "A" indication (+9db) with a length measured at 30mm long starting from the Y coordinate 1230mm. The QAI concurs with QC technician's assessment.

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

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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

Reviewed By: Levell, Bill

QA Reviewer