

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-015546**Date Inspected:** 08-Jul-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

C). Field Splice W5/W6

A). Field Splice W1/W2

The QAI also performed a random ultrasonic verification test of the Complete Joint Penetration (CJP) groove weld identified as WN: 1W-2W-B1 and F1. A total area of approximately 10% was ultrasonically tested to verify the weld and testing by QC meet the requirements of the contract documents. An ultrasonic test report, TL6027, was generated on this date.

B). Field Splice W2/W3

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 2W-3W-B1. The welding was performed by American Bridge/Fluor Enterprise personnel Xiao Jian Wan ID-9677 utilizing the Welding Procedure Specification identified as ABF-WPS-D15-3040B-3. The QAI also observed the Quality Control (QC) Inspector Tom Pasqualone utilizing the WPS to monitor the in process welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which were noted as follows: 235 amps, 21.5

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volts with a travel speed measured as 268 mm per minute. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The CJP welding performed during this shift was completed on this date.

C). Field Splice W5/W6

The QAI observed the welder Hua Qiang Hwang ID-2930 perform the block tack welding at corner deck plate to edge plate connection identified as WN: 5W-6W-A1. The welding was performed utilizing the Flux Cored Arc Welding (FCAW-G) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-3040A-1 Rev. 0. The welding was performed in the flat (1G) position with the work positioned in an approximately horizontal plane and the weld metal deposited from the upper side of the weld joint. The WPS was also used by the QC inspector, Bonifacio Daquinag, Jr., to monitor the in process welding and verify the welding parameters. The welding parameters were verified and recorded by Mr. Daquinag as follows; 241 amps, 22.8 volts with a travel speed measured at 274 mm/minute. The minimum preheat temperature of 60 degrees Celsius and a maximum interpass temperature of 230 degrees Celsius was also verified by the QC inspector. The length of the groove joint welded was 300mm with the Y axis measured from 0mm to 300mm.

The QAI also observed the welder James Zhen ID-6001 perform the block tack welding at corner deck plate to edge plate connection identified as WN: 5W-6W-A5. The welding was performed utilizing the Flux Cored Arc Welding (FCAW-G) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-3040A-1 Rev. 0. The WPS were also used by the QC inspector, Steve McConnell, to monitor the in process welding and verify the welding parameters. The welding parameters were verified and recorded by the QC inspector as follows; 237 amps, 23.0 volts with a travel speed measured at 268 mm/minute. The QC inspector also verified the minimum preheat temperature of 60 degrees Celsius and a maximum interpass temperature of 230 degrees Celsius. The welding was performed in the flat (1G) position with the work positioned in an approximately horizontal plane and the weld metal deposited from the upper side of the weld joint. The length of the groove joint welded was 300mm with the Y axis measured from 21250 mm to 21550 mm.

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 FCAW-G 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.

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

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Summary of Conversations:

In regards to the planar alignment the QC Field Supervisor Leonard Cross informed the QAI that the verification of the alignment shall be conducted prior to the application of the continuous tack weld of the deck plate to the backing bar. This was a directive issued by the Welding Quality Control Manager (WQCM) James Bowers as discussed and agreed upon during a previous meeting.

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