

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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018165**Date Inspected:** 15-Nov-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**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 E8/E9
- C). Pipe Supports

A). Field Splice E6/E7

The QAI observed the welder, Xiao Jian Wan ID-9677, perform the CJP groove welding on the "A" face of the longitudinal stiffener field splice identified as WN: 6E-7E-A-LS-4. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector John Pagliero as a reference. The amperage was recorded as 122 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified. The welding on the "A" face of the weld joint was completed during this shift.

At the conclusion of the welding of "A" face, the QAI observed Xiao Jian Wan, perform the grinding of the "B" face of the weld joint to a bright metal. Later in the shift the QC inspector, Mr. Pagliero, performed a Magnetic Particle Test on the excavation and no rejectable indications were noted. At this time the welder commenced the welding utilizing the WPS identified as ABF-WPS-D15-1012-3, Rev.0.

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The QAI also observed the welder, Hua Qiang Hwang ID-2930, performed the CJP groove welding on the "B" face of the longitudinal stiffener field splice identified as WN: 6E-7E-A-LS3. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector John Pagliero as a reference. The amperage was recorded as 124 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified. The CJP welding was not completed during this shift.

The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The welder utilized a slag hammer, pneumatic air gun with an attached chisel and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI. The welding of the CJP splices was completed during this shift.

B). Field Splice E8/E9

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the bottom plate field splice identified as Weld Number (WN): 8E-9E-D2. The Complete Joint Penetration (CJP) groove welding was performed by welding personnel Hua Qiang Hwang ID-2930, utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1 Rev. 0. The WPS was also used by the AB/F Quality Control (QC) Inspector, William Sherwood, as a reference when performing QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the CJP welding. The groove joint appeared to comply with the AWS joint designation identified as B-U2a-G. The QAI also observed the QC inspector verify the welding parameters and were observed and noted as follows: 245 amps, 23.3 volts and a travel speed measured at 315 mm/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 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding length was approximately 1250 mm located at plate "D" to plate "C" connection.

C). Pipe Supports

The QAI observed F.W. Spencer personnel installing and fillet welding of PS19 pipe supports identified as weld numbers 101112-06, 101112-06, 101115-01, 101115-02, 101115-03 and 101115004 to the embeds of the bent cap located at the W2 line. The tack welding and field welding was performed by David Garcia ID-8789 utilizing a 3.2 mm electrode as per the Welding Procedure Specification (WPS) identified as Fillet Murex. The fillet welding was performed in the overhead (4F) position with the work placed so that weld metal was deposited on the underside of the horizontal surface and against the vertical surface. The inspection was performed by Mike Johnson utilizing the WPS to monitor the welding and to verify the amperage. The welding and inspection of the six (6) pipe supports was completed during this shift and verified by the QAI.

Later in the shift, at the request of the QC inspector, the QAI verified the visual inspection performed by QC of the following; 101103-1, 101103-2, 101103-3, 101103-4, 101103-5, 101103-6, 101103-7, 101103-8, 101103-9, 101103-10, 101103-11, 101103-12, 101103-13, 101103-14, 101103-15, 101103-16 and 101105-04. At the

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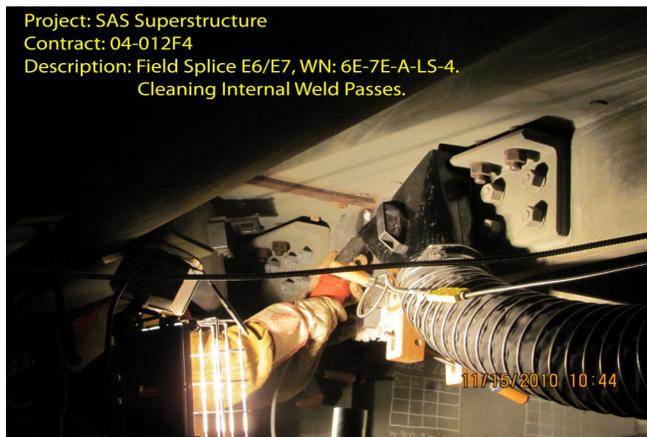
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conclusion of the visual verification no issues were noted by the QAI.

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 welding 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 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

Reviewed By: Levell, Bill

QA Reviewer
