

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-018195**Date Inspected:** 16-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). Ventilation Access Hole, Insert Plate
- C). Ventilation Access Hole, Longitudinal Stiffeners
- D). Pipe Supports

A). Field Splice E6/E7

The QAI 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 122 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was verified. The preheat temperature was maintained utilizing the heat induction process. The CJP welding was 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

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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). Ventilation Access Holes, Insert Plate

The QAI observed the welder Wai Katlai ID-2953 perform the welding on the CJP groove joints identified as 6E-PP37.5-E2-South on the "A" deck of the Orthotropic Box Girder (OBG) E6. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified as ABF-WPS-D15-1010, Rev. 1 which was also used by the QC inspector John Pagliero as a reference to monitor and verify the welding parameters. The welding parameters were observed and verified by the QAI as 112. The welding was performed in the overhead (4G) position with the work placed in an approximate horizontal plane and the weld metal deposited from the underside utilizing the 3.2 mm electrode. The groove joint appeared to comply with the AWS joint designation identified as B-U2a and the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector.

The QAI observed the QC inspector perform a fit-up and alignment inspection of the "A" stiffeners located at the ventilation access hole identified as 6E-PP23.5-E5. At the conclusion of the inspection of the weld joint identified as WN: 6E-PP23.5-E5-TS-South and 6E-PP23.5-E5-TS-East and West no issues were noted by the QC inspector and the QAI concurs with QC's assessment.

Later in the shift, the QAI also observed the welder Xiao Jian Wan ID-9677 perform the welding on the CJP groove joints identified as 3E-PP23.5-E5-West on the "A" deck of the Orthotropic Box Girder (OBG) E4. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified as ABF-WPS-D15-1012, Rev. 0 which was also used by the QC inspector John Pagliero as a reference to monitor and to verify the welding parameters which were observed and verified by the QAI as 124. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane with the groove approximately vertical with the weld progression up utilizing the 3.2 mm electrode. The groove joint appeared to comply with the AWS joint designation identified as B-U2a and the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector.

D). Pipe Supports

The QAI observed F.W. Spencer personnel installing and fillet welding the pipe supports identified as weld 101116-01, 101116-02, 101116-03 and 101116-04 to the embeds located at the W2 bent cap. 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 various positions utilizing a 3.2 mm electrode. The QC inspection was performed by Mike Johnson utilizing the WPS to monitor the welding and to verify the amperage. The welding and inspection of the three pipe supports was not completed during this shift. See Summary of Conversations for additional information.

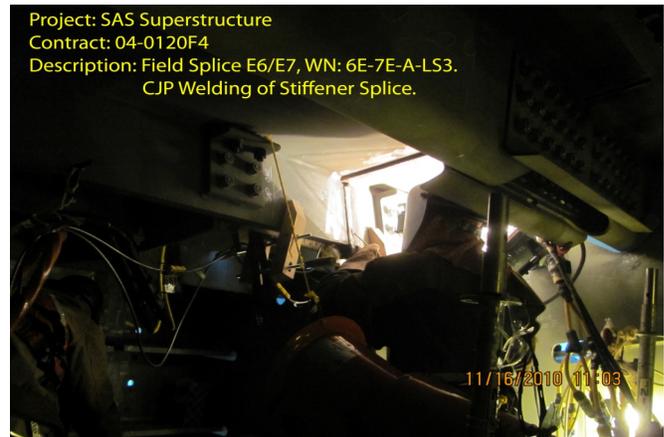
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QA Observation and Verification Summary

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

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.

In regards to the QAI verification, the QAI and QC inspector, Mike Johnson, agreed that QC would notify the QAI in a timely manner, either verbal or cell phone, to schedule weld inspection of the pipe supports. The QAI reminded Mr. Johnson that in the case the QAI had prior commitments or was involved with other inspections, that QC was to proceed with the scheduled work as not to burden the contractor's work schedule.

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.

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Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer