

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-018434**Date Inspected:** 29-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 E7/E8
- B). Ventilation Access Hole-LS
- C). Ultrasonic Test Verification
- E). Pipe Supports

A). Field Splice E7/E8

The QAI observed the welder, Hua Qiang Hwang ID-2930, performed the CJP groove welding on the "A" face of the longitudinal stiffener field splice identified as WN: 7E-8E-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 the WPS was also utilized by the QC inspector John Pagliero as a reference to monitor the welding and to verify the welding parameters. The amperage was recorded as 129 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 of the "A" face was not completed during this shift.

The welding of the longitudinal stiffener field splice 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

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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. The CJP welding was completed during this shift.

### B). Ventilation Access Hole-Longitudinal Stiffener

The welder, Xiao Jian Wan ID-9677, performed the CJP groove welding on the longitudinal stiffener field splice located at the panel point 37.5 and identified as WN: 6E-PP37.5-E2-West. 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 to verify the welding parameters and monitor the welding. 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 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.

### C). Ultrasonic Test Verification

The QAI performed a random ultrasonic verification test of the Complete Joint Penetration (CJP) groove weld identified as WN: 1E-PP10.5-E2-TS. A total area of approximately 10% was ultrasonically tested to verify the weld and testing by QC meet the requirements of the contract documents. At the conclusion of the testing, the QAI noted and recorded one (1) rejectable indication. The QAI informed the QC Field Supervisor, Bonifacio Daquinag of this issue. The examination CJP was performed in the first and second leg and an ultrasonic test report TL-6027, was generated on this date.

### D). Pipe Supports

The QAI observed the fillet welding of the pipe supports located along the pier column at W2-W1, which 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 vertical (3F) position 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 pipe supports was not completed during this shift.

### E). QC Inspection Request

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, the QAI randomly verified the visual appearance of the overhead (4G) Complete Joint Penetration (CJP) welding of the erection access hole (insert plate) identified as WN: 3E-PP20-E4-LS-W1,W2 and W3. The QAI verification was performed to verify that the

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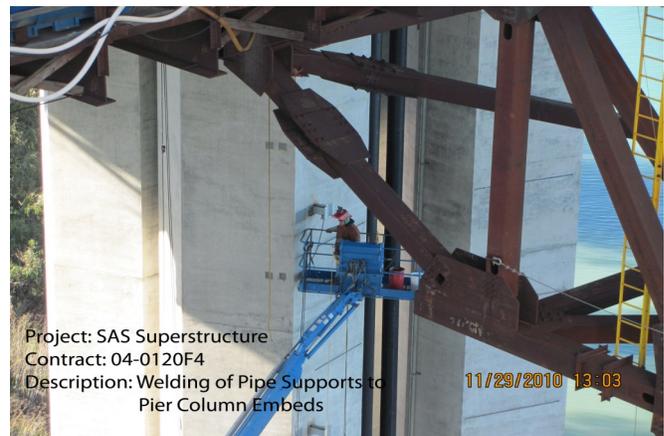
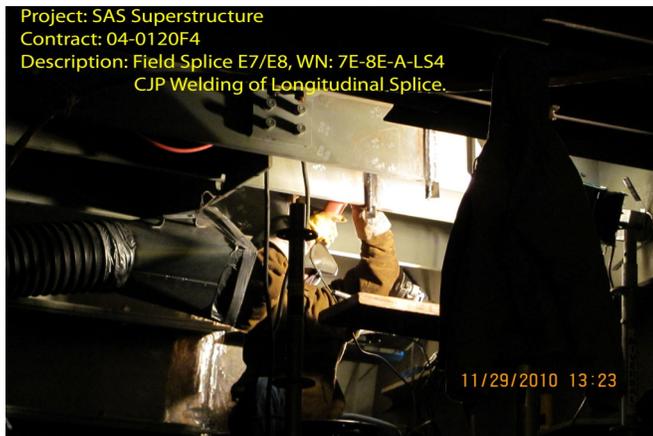
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welding and visual inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QAI verification it appeared that the weld and the QC inspection is in compliance.

## 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 Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Reyes, Danny

Quality Assurance Inspector

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**Reviewed By:**      Levell,Bill

QA Reviewer