

**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-016160**Date Inspected:** 11-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**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 E1/E2
- B). Field Splice W1/W2
- C). Field Splice W2/W3

A). Field Splice E1/E2

The QAI observed the back gouging of the CJP from the "B" face side identified as 1E-2E-A-S6 and at the conclusion of the back gouging and machining of the weld joint surface, the QC technician James Cunningham, performed a Magnetic Particle Test (MPT) and no rejectable indications were noted. The testing was conducted utilizing the inspection procedure identified as SE-MT-CT-D1.5-101 Rev. 4. At this time the welder, Xiao Jian Wan, ID-9677, commence the CJP welding from the "B" face of the weld joint. The welder utilized the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 which was also used by the Quality Control (QC) Inspector John Pagliero to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which were verified and recorded as 125 amps by the QAI.

The welder James Zhen completed the correcting of the excessive root opening of the CJP double-v-groove joint identified as 1E-2E-A-S2 and at this time the QC inspector performed the joint inspection of the assembly fit-up and no discrepancies were noted and the root opening and planar alignment appeared to comply with the contract

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documents. At the conclusion of the QC inspection the welder commence the CJP welding of the "A" face of the weld joint utilizing the WPS identified as ABF-WPS-D15-1012-3, Rev.0. which was also used by the Quality Control (QC) Inspector to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which were verified and recorded as 125 amps by the QAI.

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.

### B). Field Splice W1/W2

The QAI observed the continued excavation of the unacceptable discontinuities discovered during the Ultrasonic Testing (UT) of bottom plate field splice identified as 1W-2W-D1 and D2. The excavations were performed by Ken Chappell utilizing a high cycle grinder to excavate and remove the defects and the repair welding was performed by Fred Kaddu ID-2188. At the conclusion of the excavations the QC technician Tom Pasqualone performed a Magnetic Particle Test (MPT) of the excavated areas and no rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1.5-101 Rev. 4. The repair welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and the 3.2mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 2. The WPS was also used by the QC inspector, Mr. Pasqualone, as a reference to monitor and verify the Direct Current welding parameters which were noted as 138 amps. The welding was performed in the flat (1G) position with the work approximately in the horizontal plane and the weld metal deposited from the upper side. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was monitored and maintained by the QC inspector during the repair welding. The repair welding was completed at the end of the scheduled shift.

### C). Field Splice W2/W3

The QAI observed the excavation of the unacceptable discontinuities discovered during the Ultrasonic Testing (UT) of bottom plate field splice identified as 2W-3W-D1 and D2. The excavations were performed by Ken Chappell utilizing a high cycle grinder to excavate and remove the defects and the repair welding was performed by Fred Kaddu ID-2188. At the conclusion of the excavations the QC technician Tom Pasqualone performed a Magnetic Particle Test (MPT) of the excavated areas and no rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1.5-101 Rev. 4. The repair welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and the 3.2mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 2. The WPS was also used by the QC inspector, Mr. Pasqualone, as a reference to monitor and verify the Direct Current welding parameters which were noted as 141 amps. The welding was performed in the flat (1G) position with the work approximately in the horizontal plane and the weld metal deposited from the upper side. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was monitored and maintained by the QC inspector during the repair welding. The repair welding was not completed at the end of the scheduled shift.

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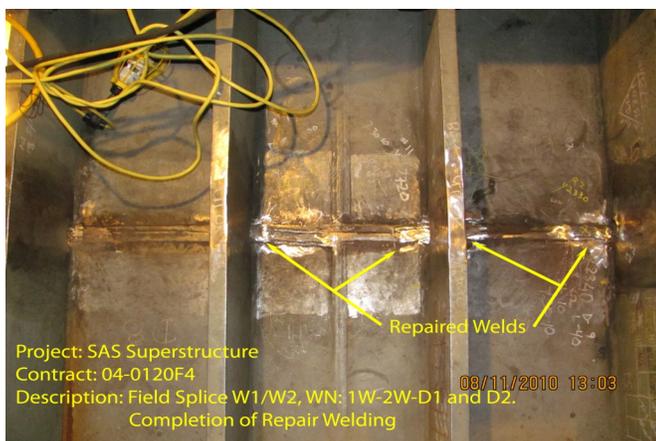
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## QA Observation and Verification Summary

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 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 Tom Pasqualone and John Pagliero at the start of the shift regarding the location of American Bridge/Fluor welding personnel and inspection/ N.D.E. testing 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.

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**Inspected By:** Reyes,Danny

Quality Assurance Inspector

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**Reviewed By:** Levell,Bill

QA Reviewer