

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-012928**Date Inspected:** 06-Apr-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 E1/E2 E2/E3, W1/W2 and W2/W3 field splices:

- A). Welding of the Field Splice E1 to E2.
- B). Welding of Field Splice W1 to W2
- C). Fit-up of W2 to W3
- D). Removal of Backing Bar.
- E). MPT & UT of Field Splice E2 to E3

A) Field Splice E1/E2, WN: 1E/2E-E

The QAI observed Flux Cored Arc Welding (FCAW-G) on the "B" Side of the Complete Joint Penetration (CJP) performed by AB/F welding personnel Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3042A Rev. 0. The WPS was also used by the Quality Control (QC) inspector Mike Johnson as a reference to verify the Direct Current Electrode Positive (DCEP) welding parameters and were verified by the QAI accordingly: 239 amps and 23.0 volts and a travel speed measured at 218 mm/minute. The minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified by the QAI and appeared to comply with the contract documents. The CJP welding was completed during this scheduled shift.

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# WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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## B) Welding of Field Splice W1/W2

The QAI observed the Submerged Arc Welding (SAW) process of the deck plate field splice identified as Weld Number (WN): 1W-2W-A, Weld Segments A1-A5. The welding was performed by AB/F welding operators Jordan Hazelaar ID-2135 and Bryce Howell ID-5591 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1 Rev. 0. The WPS was also used by the AB/F Quality Control (QC) Inspector's Tom Pasqualone and Bonifacio Daquinag as a reference to perform QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding of the deck plate field splice. Later in the shift the QAI observed the QC inspector's verifying the welding parameters during the SAW and were noted as follows: 561 amps, 32.8 volts and a travel speed measured at 390 mm/minute for the welder Mr. Howell and 560 amps, 32.5 volts with the travel speed measured at 381 mm/minute. The QC inspector's 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.

## C) Welding of Fitting Gear at OBG Splice W2/W3

The QAI also observed the fillet welding of the fitting gear to the bottom plate field splice identified as WN: 2W-3W-D2. The welding was performed by Rick Clayborn ID-2773 utilizing the SMAW process as per the WPS ABF-WPS-D15-F1200A Rev. 1. The WPS was also used by the QC inspector James Cunningham as a reference to verify the DCEP welding parameters and were noted as follows: 126 amps. Later in the shift the QAI observed the QC inspector verify the surface temperatures and appeared to comply with the contract documents were noted as follows: 10 degrees Celsius (preheat temperature) and the maximum interpass temperature of 230 degrees Celsius.

## D) Removal of Backing Bar at Field Splice E2/E3

The QAI inspector observed the removal of the backing bar at the side plate field splice identified as 2E-3E-C, Segments C1 and C2. The removing of the backing bar was performed by AB/F personnel Salvador Sandavol utilizing the plasma arc cutting process.

## E) QC/UT of Field Splice E2/E3

The QAI also observed the Ultrasonic Testing (UT) of the CJP groove weld of the bottom plate field splice identified as WN: 2E-3E-D. The testing was performed by the technician Jesse Cayabyab utilizing a USM 35, a product manufactured by Krautkramer and the UT Procedure indentified as SE-UT-D1.5-CT-100 Rev.4. The UT technician performed the required longitudinal and shear wave scanning techniques during the testing which was performed utilizing a 1" diameter transducer for base metal soundness and a .75 x .75 rectangular transducer used to perform the angle beam technique for weld soundness. The testing was not completed during this scheduled shift.

## 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,

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# WELDING INSPECTION REPORT

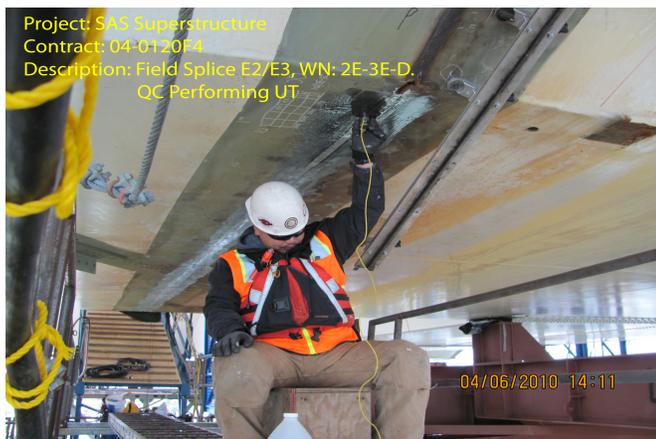
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which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector's and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized for the SMAW, FCAW-G and SAW processes appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift was not completed and 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, illustrates the work observed during this scheduled shift.



### Summary of Conversations:

There were no pertinent conversations discussed in regards to the project except as noted above.

### 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