

**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:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-012443**Date Inspected:** 05-Mar-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2130**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 (AB/F) personnel at the E1/E2 and E2/E3 field splice:

- A). Field Splice E1 to E2.
- B). Field Splice E2 to E3.

The QAI observed the Submerged Arc Welding (SAW) process of the deck plate field splice identified as Weld Number (WN): 1E-2E-A, Segments A1 through A5. The welding was performed by the welding operators Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1 Rev. 0. The WPS was also used by the AB/F Enterprises Quality Control (QC) Inspector's Tom Pasqualone and James Cunningham to perform QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding of the transverse field splice. The QAI observed the QC inspector's verifying the welding parameters and were noted as follows: 560 amps, 32.6 volts and a travel speed measured at 381mm per minute for the submerged arc machine operated by Mr. Hogan and 562 amps, 32.4 volts with the travel speed measured at 381mm per minute for the submerged arc machine operated by Mr. Dolman. The surface temperatures and the calculation of the heat input were also verified by the QC inspector and were noted as follows: the minimum preheat temperature of 60 degrees Celsius, the maximum interpass temperature of 230 degrees Celsius and the heat input of 2.8 kJ/mm.

Later in the shift the QAI observed the QC inspector Jesse Cayabyab perform the inspection of the assembly fit-up of the side plate field splices identified as WN: 1E-2E-C, Segments C1 and C2 and WN: 1E-2E-E, Segments E1

---

---

## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

---

---

and E2. At the conclusion of the QC inspection no rejectable areas were noted and the QAI concurs with the QC assessment. Note: Removal of rust from backing bar is required prior to welding.

The QC inspector also performed the assembly fit-up of the E2/E3 bottom plate field splice identified as WN: 2E-3E-D, Segments D1 and D2. At the conclusion of the inspection there were no rejected areas noted and the QAI concurs with the QC inspector's assessment. The inspection of the assembly fit-up performed at the E1/E2 and E2/E3 locations was completed during this shift.

The QAI also observed the initial fit-up of the 12mm x 38mm backing bar at the E2/E3 deck plate field splice identified as WN: 2E-3E-A. AB/F personnel Rick Clayborn performed this and utilized temporary steel wedges to secure the backing bar to the deck plate. The fit-up of the backing bar was not completed on this date during this shift.

The QAI also observed the AB/F personnel performing the initial installation of the temporary bolts of the longitudinal U-Ribs located at the E2 to E3 deck plate field splice. It appeared the connections were brought into alignment by utilizing drift pins and High Strength Bolts (HSB's) through the various plies of splice plates to bring the bolt holes into their proper alignment. Later in the shift the four (4) man crew appeared to commence the tightening of the HSB to achieve a snug tight condition. The work performed on the date, regarding the HSB connections was not completed during this shift.

### Observation and Verification Summary

The QA inspector observed the SAW of the E1/E2 field splice utilizing the WPS's as noted above which appeared to be posted at the weld station. The welding parameters and preheat temperatures were verified and noted 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 during the SAW appeared to be an ESAB manufactured product identified as ESAB Spoolarc 81 with an electrode size of 3.2mm which appeared to comply with the AWS Electrode Specification AWS A5.17 and the AWS Classification F7A4-Em12K-H8. The welding and QC inspection performed on this shift was not completed except as noted and appeared to be in general compliance with the contract documents. The QAI randomly verified the QC inspection, the welding parameters and surface temperatures utilizing various inspection equipment and gages, a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

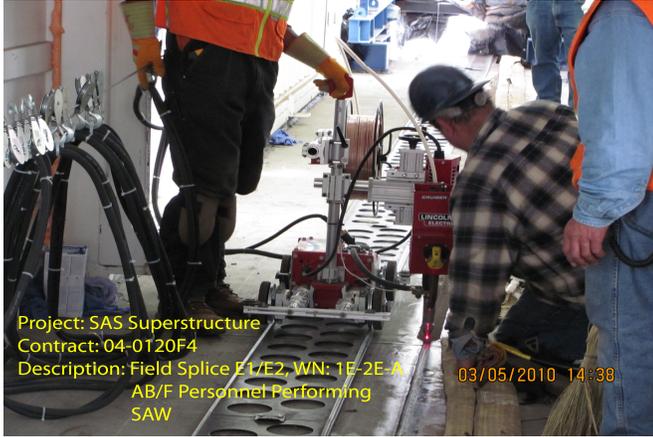
See digital photographs located on Page 3 of this report in regards to the work observed during this shift.

---

# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

---



## 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.

---

**Inspected By:** Reyes, Danny

Quality Assurance Inspector

---

**Reviewed By:** Levell, Bill

QA Reviewer