

**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-015638**Date Inspected:** 15-Jul-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 locations noted below:

- A). Field Splice W3/W4
- B). Field Splice W5/W6
- C). Miscellaneous Observations

A). Field Splice W3/W4

The QAI observed the repair welding of the unacceptable discontinuities on the side plate field splice identified as WN: 3W-4W-C2. The discontinuities were discovered during the Ultrasonic Testing (UT) performed by the QC Technician, Jesse Cayabyab. The repair welding was performed by welding personnel Rick Clayborn ID-2773 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1000-Repair Rev. 2. The WPS was also used by the QC inspector William Sherwood as a reference to monitor the welding and to verify the DCEP welding parameters. The QAI also observed the QC inspector recording the welding parameters which was verified by the QAI as 132 amps. The minimum preheat of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified by the QAI. The welding parameters and the surface temperatures appeared to comply with the contract documents. The repair welding was completed on this scheduled shift.

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## B). Field Splice W5/W6

The QAI observed the Submerged Arc Welding (SAW) of the deck plate field splice identified as Weld Number (WN): 5W-6W-A1 through A5. The welding was performed by the welding operator's Mike Maday ID-3391 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 Quality Control (QC) Inspector Jesse Cayabyab as a reference to monitor the in process welding and to verify 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 verifying the welding parameters and were noted as follows: 562 amps, 31.5 volts and a travel speed measured at 381mm/ minute. The heat input was calculated at 2.78 kj/mm.

The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was also verified by the QC inspector. The welding of the deck plate field splice was completed during this shift.

## C). Miscellaneous Observations

The QAI observed the machining of the weld profile surface on the "B" face of the bottom plate field splice identified as WN: 2W-3W-D. The machining was performed utilizing high cycle grinders to bring the weld surface into general compliance with the contract documents.

The QAI also observed the removal of the backing bar at the bottom plate field splice identified as WN: 3W-4W-D. At conclusion of removing the backing bar the operator Rory Hogan commence the back gouging process utilizing the plasma arc cutting process. Mr. Hogan was assisted by Jeremy Dolman during the performance of this task.

The QAI observed the machining of the weld profile surface on the "B" face of the bottom plate field splice identified as WN: 3W-4W-F1. The machining was performed utilizing high cycle grinders to bring the weld surface into general compliance with the contract documents.

## 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 and the SAW processes 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 on page 3 of this report illustrate the work observed during this scheduled shift.

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## Summary of Conversations:

No pertinent conversations were discussed during this scheduled shift in regards to the project.

## 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