

**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-014780**Date Inspected:** 15-Jun-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 W1/W2
- B). Field Splice W2/W3
- C). Field Splice W3/W4
- D). Field Splice W4/W5

A). Field Splice W1/W2

The QAI observed QC/UT technician Tom Pasqualone perform Ultrasonic Testing (UT) of the R2 repairs on the longitudinal stiffener field splices identified as WN: 1W-2W-D-S1, S2, S11 and S13. The testing was performed by the QC technician utilizing the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4. The QC technician performed the required shear wave technique during the testing for weld soundness which was performed utilizing a G.E./Krautkramer USM 35 and a .63 x .75 rectangular transducer mounted on a 70 degree wedge. The ultrasonic testing of S1, S11 and S13 were noted by the QC technician as acceptable and the stiffener identified as S2 was noted as a reject which now in the R3 cycle and will require a weld repair procedure to be submitted by the contractor for approval.

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### B). Field Splice W2/W3

The QAI observed continued the Ultrasonic Testing (UT) of the Complete Joint Penetration (CJP) weld of the side plate field splice identified as WN: 2W-3W-E. The testing was performed by the QC technician Jesse Cayabyab utilizing a G.E./Krautkramer USM 35X. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .65 x .75 rectangular transducer mounted on a 70 degree wedge to perform the shear wave for weld soundness. The testing performed on the "B" face (outside) was completed and five (5) rejectable indications were noted by the QC technician. Later in the shift Mr. Cayabyab commence the UT on the "A" face (inside) of the field splice. The testing was performed as per the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4

The QAI also observed the QC inspector, Bonifacio Daquinag, Jr., perform the Visual Testing (VT) and the Magnetic Particle Testing of the field splice identified as WN: 2W-3W-C. The MPT was performed utilizing a contour probe manufactured by Parker Research Industries identified as DA-400 unit. The testing was performed as per the MT Procedure identified as SE-MT-D1.5-CT-100 Rev.4

### C). Field Splice W3/W4

The QAI observed the automatic Shielded Metal Arc Welding (SMAW) on the "A" face of the weld joint identified as Weld Number (WN) 3W-4W-C, Segment C2. The welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-1040A Rev. 0. The joint designation appeared to comply with AWS single-v-groove butt joint identified as B-U2a. The WPS was also used by the QC inspector Bernie Docena as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters which was noted and recorded by the QAI as follows: 130 amps. The welding was performed in vertical position (3G) at an approximate incline of 22 degrees. The QAI inspector also verified the minimum preheat temperature of 10 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. Later during the shift the QAI observed, at random intervals, the QC inspector monitoring the in process welding, the surface temperatures and verifying the DCEP welding parameters.

### D). Field Splice W4/W5

The QAI observed Steve McConnell perform the continued the Ultrasonic Testing (UT) of the field splice utilizing the procedure identified as SE-UT-D1.5-CT-100 Rev.4. The QC technician tested approximately 9,350mm and two (2) rejectable indications were noted by the QC technician. The testing was performed utilizing a G.E./Krautkramer USM 35X during the examination with a .63 x .75 rectangle 2.25 megahertz transducer mounted a 70 degree wedge.

### 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'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 ESAB consumables utilized for the

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SMAW 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.

Note: Upon review of past NDT reports the QAI noted on the UT report, dated on June 7, 2010, the weld identification number was inadvertently documented in error. The QAI has generated a revised UT report, TL-6027, to correct this error and will be noted as such in the comments section of the revised report.

The digital photographs, below, illustrate the work observed during this scheduled shift.



## Summary of Conversations:

There were no pertinent conversations were discussed 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

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**Reviewed By:** Levell,Bill

QA Reviewer