

**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-012812**Date Inspected:** 29-Mar-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1200**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2030**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 and E3/E4 field splices:

- A). Alignment Survey of Field Splice.
- B). QC UT of the Field Splice E3 to E4
- C). Welding of the Field Splice E2 to E3

## A) Survey of Alignment of Field Splices

The Quality Assurance Inspector (QAI) assisted Rick Bettencourt and Joselito Lizardo verifying the alignment of the as built deck plate transverse splices identified as WN: 1E-2E-A, 2E-3E-A and 3E-4E-A. At the conclusion of the dimensional verification there appeared to be a misalignment of the field splices and are as follows (the percentage of the misalignment of the overall length is given): 1E-2E-A (16.4%), 2E-3E-A (1.3%) and 3E-4E-A (8.6%).

## B) QC/UT Field Splice E3/E4, WN: 3E-4E-A

The QAI also observed the Ultrasonic Testing (UT) performed by the technicians Tom Pasqualone and Jesse Cayabyab of the transverse deck plate field splice identified as WN: 3E-4E-A, Weld Segment A2 and A3. The UT technicians performed the required longitudinal and shear wave scanning techniques during the testing which was

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performed utilizing a USM 35 and a US-52L, a product manufactured by Krautkramer, a 1" diameter used to perform base metal soundness and a .75 x .75 rectangular transducers used to perform the angle beam technique for weld soundness. At the conclusion of the testing there were no rejectable discontinuities noted by the QC technicians and the testing was performed utilizing the longitudinal and transverse axis as per the UT Procedure indentified as SE-UT-D1.5-CT-100 Rev.4. C). Field Splice E2/E3, WN: 2E-3E-A.

## C) Field Splice E2/E3, WN: 2E-3E-C

The QAI observed the automated FCAW-G welding process during the CJP welding of the side plate field splice performed by Mitch Sittinger ID-0315. The Mr. Sittinger utilized the FCAW-G welding process as per the WPS ABF-WPS-D15-3042A-4 Rev. 0 which was also used as a reference by the Quality Control (QC) inspector Bernie Docena to verify the welding parameters and the surface temperatures during the welding operation. The DCEP welding parameters were verified and noted by the QC inspector and were noted as follows: 260 amps, 24.3 volts and a travel speed measured at 280 mm/minute. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were maintained.

## 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 consumable identified as ESAB Dual Shield 70 Ultra Plus appeared to comply with the AWS Specification A5.20 and AWS Classification E71T-1M. 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, a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

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



## Summary of Conversations:

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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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<b>Inspected By:</b>	Reyes,Danny	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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