

**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-013437**Date Inspected:** 26-Apr-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**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 (OBG)**Summary of Items Observed:**

Quality Assurance inspector (QA) Michael Foerder was at the American Bridge/Flour (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

1. OBG Field Splice 2E/3E C2 Repairs (First Side-Inside)
2. OBG Field Splice 2E/3E Face B/C Transition Areas (First Side-Inside)
3. OBG Field Splice 2E/3E Face E (Second Side-Outside)
4. OBG Field Splice 3E/4E Face E (Second Side-Outside)
5. OBG Field Splice 2W/3W Face A QA UT Verification

**Field Splice 2E/3E Face C (First side-Inside)**

The QA inspector periodically observed ABF welding personnel Rick Clayborn and two helpers performing grinding operations in order to excavate and remove the rejectable indications previously identified by QC utilizing Ultrasonic Testing (UT). Several areas were noted to be marked for repair between welds C1 and C2. QC inspector Jessie Cayabyab was present in order to monitor the progress and adherence to the contract documents. During the initial review by QA the QC inspector and Mr. Clayborn relayed to the QA inspector additional areas which exhibited fusion type discontinuities (slag) were discovered as the grinding progressed in which the area measured approximately 1 Meter in length at this time. See digital photo included in the body of this report for general information. The work progressed throughout the QA inspector's shift, was not completed and appeared to be in general conformance with the contract documents.

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### Field Splice 2E/3E Face B/C

The QA inspector noted ABF welding personnel James Zhen performing grinding/blending operations at the side plate/edge plate transition for areas identified by the QC department for minor repair. QC inspector Barry Drake was noted to be present in order to monitor the progress and adherence to the contract documents. The QA inspector was informed of pending UT for OBG field splice designated 2W/3W and relocated to this area in order to perform the QA verification.

### Field Splice 2E/3E Face E

The QA inspector noted a crew of two ABF personnel performing grinding operations for this weld location. No other item of work was noted to be performed at this location during the QA inspectors shift and the item appeared to be progressing in general conformance with the contract documents.

### Field Splice 3E/4E Face E (Second side-Outside)

The QA inspector periodically observed ABF welding operators Rory Hogan and Jerney Dolan performing grinding, blending and Shielded Metal Arc Welding (SMAW) at the junction between the bottom and side plates in order to level areas identified prior to utilizing the semi automatic welding equipment ("bug-o"). QC inspector Jim Cunningham was noted to be present in order to monitor the progress and ensure the welding was within the established Welding Procedure Specification (WPS). The preheat and interpass temperature was verified by the QC and QA inspector to be greater than 65° Celsius (C) and the parameters were verified to be 130 amps. The welding personnel were also noted to be adjusting and servicing the semi-automated welding equipment in order to proceed with the FCAW at a later time. The work progressed throughout the balance of the QA inspector's shift with no Semi-automatic welding performed at this location at the times of review.

### Field Splice 2W/3W Face A (QA-UT Verification)

The QA inspector was informed the contractor had completed the weld repairs for the top deck field splice identified as A1-A5. The QA inspector spoke with QC inspector Steve McConnell in which Mr. McConnell relayed he was in the process of performing the UT for the repairs on this date in order to satisfy the contract required hold time after completion of the repairs. The QC inspector was responsible for the review of several areas including the UT and welding locations and as such was unable to complete the UT review for the repaired areas on at this time due to issues discovered in another area. The QA inspector performed a UT review of the non-repair areas on this date with the understanding another UT review for a portion of the repair welds will be performed at a later time. The QA inspector performed the UT review utilizing a zero degree transducer in order to check for laminar reflectors and a 70 degree transducer and wedge combination for the shear wave examination. The areas reviewed were located in welds designated A1, A3, A4 and A5 with Y locations designated 0-200, 15, 200-18,000 and 24,500-26,000mm respectively with no rejectable indications discovered at the time of review for A1, A4 or A5. The QA inspector discovered an indication with no appreciable length which exhibited a db rating just inside of a class A indication. The QA inspector reviewed this area with QC inspector Steve McConnell in which Mr. McConnell verified the indication; however there was a 2 db difference between the inspectors UT equipment and calibration variables and the area was classified as acceptable. This information was relayed to lead QA inspector Bill Levell and a TL-6027 will be generated for this item for this date.

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## Summary of Conversations:

As noted above in items observed.

## 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> | Foerder, Mike | Quality Assurance Inspector |
| <b>Reviewed By:</b>  | Levell, Bill  | QA Reviewer                 |

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