

**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-013195**Date Inspected:** 19-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 1E/2E C1-C2 Repairs (Second Side-Outside)
2. OBG Field Splice 2E/3E C1-C2 UT (Second Side-Outside)
3. OBG Field Splice 2E/3E E1 SMAW/FCAW (Second Side-Outside)
4. OBG Field Splice 3E/4E B1 FCAW (First Side-Outside)
5. OBG Field Splice 3E/4E C-2 and C-1 FCAW (First Side-Inside)
6. OBG Field Splice 3E/4E F-1 Backgouge (Second Side-Inside)

Field Splice 1E/2E Face C (Second side-Outside)

The QA inspector periodically observed ABF welding personnel Rick Clayborn performing Shielded Metal Arc Welding (SMAW) at various locations on this face for minor base metal repairs which were previously identified and discussed. QC inspectors Bonafacio Daquinag and Jessie Cayabyab were noted to be present monitoring the work and adherence to ABF-WPS-D1.5-1000 Repair, performing Magnetic Particle Testing and Ultrasonic Testing (UT), respectively. Mr. Clayborn also performed SMAW for several repairs located at C1 and C2 which were identified by QC inspector Cayabyab utilizing UT. The excavations were performed utilizing grinding in lieu of carbon gouging and the areas exhibited a boat shape and were ground to bright metal. The welder was observed performing pre heating of the areas in accordance with the contract documents. The work progressed throughout the shift, was completed at these locations and appeared to be in general compliance with the contract documents.

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## Field Splice 2E/3E Face C1 and C2 (Second side-Outside)

The QA inspector periodically observed QC inspectors Steve McConnell and Jessie Cayabyab performing ultrasonic testing (UT) on this date for this location. The QC inspectors were noted to be utilizing a zero degree transducer for lamination examination and a 70 degree transducer and wedge combination for shear wave examination. Several areas have been marked for further evaluation and preliminary scanning has determined multiple rejectable indications are present which will require repair. The work progressed throughout the QA inspectors shift, was not completed and appeared to be progressing in general compliance with the contract documents.

## Field Splice 2E/3E Face E1 (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 3E/4E Face B (First side-Outside)

The QA inspector periodically observed the in process Flux Cored Arc Welding (FCAW-G) being performed by ABF welding personnel Huang Jin Quang in the vertical position. QC inspector Mike Johnson was noted to be present in order to monitor the progress and ensure the welding was within the established Welding Procedure Specification (WPS) noted as ABF-WPS-D1.5-3040B-3. 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 220 amps, 23.1 volts and a measured travel speed of 150mm/min. The welder is in the process of placing the fill passes at this time. The work progressed throughout the morning shift, was not quite completed and appeared to be in general conformance with the contract documents.

## Field Splice 3E/4E Face C-2 and C-1 (First side-Inside)

The QA inspector periodically observed the in process Flux Cored Arc Welding (FCAW-G) being performed by ABF welding personnel Song Tao Huang for the remaining 150mm for C-1 as the use of the semi-automated equipment is not feasible for the remaining area due to access. QC inspector Tony Sherwood was noted to be present in order to monitor the progress and ensure the welding was within the established Welding Procedure Specification (WPS) noted as ABF-WPS-D1.5-3042B-1 and supporting Procedure Qualification Records (PQR). The preheat and interpass temperature was verified by the QC and QA inspector to be greater than 93° Celsius (C) and the parameters were verified to be 240 amps, 23.5 volts with a measured travel speed of 240mm/min. The area was completed during this shift and the welders relocated the equipment and commenced the welding operation for C-1 between Y locations designated 400-2300mm with Song Tao Huang and Mitch Sittinger alternating the welding duties. The same QC inspector was observed monitoring the work and adherence to the same welding procedure and pre heat requirements with the welding parameters measured to be 240 amps, 24.1 volts and a measured travel speed of 260mm/min. The work progressed throughout the shift, was not completed by the end of

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the QA inspectors shift and appeared to be progressing in general conformance with the contract documents.

Field Splice 3E/4E Face F-1 (Second side-Inside)

The QA inspector noted ABF welding personnel Chun Fai Tsui performing backgouging operations and the removal of the backing bar utilizing the plasma process. QC inspector Tony Sherwood was noted to be present periodically to observe the progress of the work. The work progressed throughout the QA inspector shift, was not completed and appeared to be progressing in general conformance with the contract documents.

**Summary of Conversations:**

General conversations held on this date regarding the progression of the UT being performed.

**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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