

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-012995**Date Inspected:** 07-Apr-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**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 Inside Splice 2E/3E E-1 FCAW
2. OBG Inside Field Splice 3E/4E C-2, D-2 FCAW and SMAW

Field Splice 2E/3E Face E-1 (First side-inside)

The QA inspector periodically observed the in process Flux Cored Arc Welding (FCAW-G) being performed by ABF welding personnel Mitch Sittinger and Song Tao Huang between Y locations designated 1000mm – 2400mm.

QC inspector Bernard Docena 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-D1.5-3042A-1 and supporting Procedure Qualification Records (PQR). Prior to initiating the welding the welder and helper increased the root opening by grinding in order to comply with the WPS requirements in areas identified by the QC inspector.

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 within the heat input for the established WPS for the root pass. The welder was noted to be performing proper cleaning between the weld pass and the progressed to place an additional weld pass in this location prior to the morning break. The work progressed throughout the shift, was not completed by the end of the QA inspectors shift and appeared to be progressing in general conformance with the contract documents.

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Field Splice 3E/4E E2 (First side-inside)

The QA inspector periodically observed ABF welding personnel James Zhen performing FCAW at weld number designated E2 in close proximity to the longitudinal diaphragm for minor areas identified by the QC inspector to need additional weld metal. QC inspector Bernard Docena was noted to be present in order to monitor the progress and the adherence to the WPS noted as ABF-WPS-D1.5-3042A-1. The welding parameters were verified to be 230 amps, 23.5 volts with a measured travel speed of 230 mm/min and the preheat and interpass temperature was within the established guidelines. The work was completed and accepted by the QC inspector and appeared to be in general conformance with the contract documents.

Field Splice 3E/4E C2 (First side-inside)

The QA inspector noted ABF welding personnel Chun Fai Tsui setting up to perform Flux Cored Arc Welding (FCAW) at weld number designated D2 for approximately 600mm in close proximity to the longitudinal diaphragm. Upon initial review by the QA inspector it was verified no pre heat or interpass temperature was present. The temperature was verified by temperature indicating markers and noted to be less than 38° C and utilizing the QC inspector's temperature gun it was noted to be 20° C. This information was brought to the attention of the QC inspector as this weld joint requires an elevated preheat of 93° C due to the thickness of the weld joint and which filler metal the contractor utilizes. QC inspector Bernard Docena agreed that the pre heat was nonexistent and relayed to the QA inspector it was up to production to remedy the situation. The QA inspector inquired when the root pass was performed in this area as it was ground to bright metal and the QC inspector relayed it was welded the previous day late in the shift and the QA inspector inquired again about holding the pre heat once the welding was initiated. After approximately 10 minutes with no further action performed by the QC inspector the QA inspector informed welding foreman Dan Ieraci of the issue in which Mr. Ieraci requested the QA inspector review the drawings for the thickness of this plate together in which it was confirmed that the elevated pre heat requirements would be necessary for this location. Mr. Ieraci relayed to the QA inspector he would relocate the welder and once additional heating coils became available he would attach them to this location and then proceed further. This information was relayed to lead QA inspector Bill Levell by phone and the QA inspector attempted to relay this issue to lead QC inspector Leonard Cross via phone and a voice message was left. After an hour elapsed, the QA inspector had not received a call from the QC lead and informed WQCM Jim Bowers of the issue and he relayed he would look into the situation.

QC inspector Mike Johnson confronted the QA inspector and insisted the weld in this location was completed the previous day. The QA inspector inquired from the QC inspector if he was trying to discuss the same area and the QA inspector suggested both individuals should review the area together in which Mr. Johnson agreed. Upon arrival at the location the QC inspector again insisted it was completed the previous day and the post weld heat was completed for this area. The QA inspector inquired if the QC inspector was speaking about the first 200mm (approximately) which was adjacent to the longitudinal diaphragm which was completed in lieu of the 400mm (approximate) area which had a root pass. See digital photo below for clarification.

The QC inspector responded with "I don't consider that a root pass" and the QA inspector inquired if both sides of the bevel was tied into a weld pass and the QC inspector confirmed it was. The QC inspector asked the QA inspector if informing the foreman and the welding quality control manager was QA's normal procedure. The QA inspector relayed to Mr. Johnson the scenario which took place, the attempt by QA to inform the QC inspector assigned to this area and after no remedial action relayed the issue to the aforementioned individuals. At this time the QC and QA inspectors returned to their normal duty areas. Later in the shift lead QC inspector Leonard Cross

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returned the QA inspectors phone call and the QA inspector relayed this information and Mr. Cross informed the QA inspector he would look into the issue and discuss it with Mr. Bowers. An incident report will be generated for this item for this date after discussion with the lead QA inspector.



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.

Inspected By:	Foerder, Mike	Quality Assurance Inspector
Reviewed By:	Levell, Bill	QA Reviewer
