

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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-021328**Date Inspected:** 01-Mar-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Items Observed**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). Transverse Stiffener at Deck Access Hole
- B). Field Splice W7/W8
- C). Field Splice E10/E11
- D). Pipe Supports
- E). Miscellaneous Task

A). "A" Deck Stiffeners

The QAI observed the continued repair welding on the transverse stiffener located at Panel Point 19.5 deck access hole the weld identified as WN: 3W-PP19.5-W2-TS, R1 repair cycle. The welder Xiao Jin Wan ID-9677 performed the welding utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001Repair, Rev.0 which was also utilized by the QC inspector Gary Ehrsom as a reference to verify the amperage which was recorded as 126 amps. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 40 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes 3.

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2 mm electrode ,identified as E7018-H4R, and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI. The repair welding of the stiffener splice was completed during this shift.

Later in the shift, the QAI observed the welder Xiao Jin Wan performing a second repair on the transverse stiffener located at the Panel Point 13.5 deck access hole identified as WN: 2W-PP13.5-W5-TS, R2 repair cycle. The welder performed the welding utilizing the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001Repair, Rev.0. The WPS was also utilized by the QC inspector as a reference to verify the amperage which was recorded as 124 amps and to monitor the welding which was performed in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 40 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes 3.2 mm electrode,identified as E7018-H4R, and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI. The repair welding of the stiffener splice was completed during this shift. The dimensions of the excavation was verified by the QC inspector and recorded by the QAI as follows; Y=50 mm, L=135 mm, d=4 mm.

B). Field Splice W7/W8

The QAI observed the welder, Fred Kaddu ID-2188, perform the repair welding of the bottom plate field splice identified as WN: 7W-8W-D1 and D2, R1 repair cycle. The welder performed the welding utilizing the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001Repair, Rev.0. The WPS was also utilized by the QC inspector as a reference to verify the amperage which was recorded as 126 amps and to monitor the welding which was performed in the flat (1G) position with the work placed in an approximate horizontal plane and the filler metal deposited from above. The minimum preheat temperature of 40 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes 3.2 mm electrode ,identified as E7018-H4R, and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI. The repair welding was not completed during this shift. The dimensions of the five (5) excavations was verified and recorded by the QAI as follows; Y=3650 mm, L=220 mm, d=12 mm, Y=4120 mm, L=80 mm, d=10 mm, Y=3850 mm, L=200 mm, d=15 mm located at D2 segment and Y=970 mm, L=90 mm, d=15 mm, Y=2400 mm, L=30 mm d=12 mm located at D1 segment.

C). Field Splice E10/E11

At the request of the QC inspector William Sherwood, the QAI verified the planar alignment of the bottom plate field splice identified as WN: 10E-11E-D1 and D2. Mr. Sherwood also informed the QAI that there was a planar misalignment of 3 mm to 4 mm with a measured length of 200 mm located at the grid line E3 and a planar misalignment of 5mm to 6 mm located at the grid line E4. The QC inspector informed the QAI that an inspection report will be generated in regards to this issue and submitted to QC document control personnel and ABF/Flour Welding Quality Control Manager (WQCM) Jim Bowers. The QAI generated a incident report identified as a

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TL-015 in regards to this issue. Later in the shift, the QAI observed the continuous tack welding of the "A" deck to the backing bar. The welding was performed by the welders Wai Kitlai ID-2953 and Hua Qiang Hwang ID-2930 utilizing the Flux Cored Arc Welding (FCAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-F3200A. The average welding parameters were verified and recorded as 262 amps, 25 volts and a travel speed measured as 347 mm/m.

D). QA Ultrasonic Verification

The QAI performed an Ultrasonic Test (UT) on the deck access hole and "A" deck field splices identified as WN: 8W-PP61.5-W5-SW, 8W-PP61.5-W5-TS and 8W-PP70.5-W5-TS. The welds were tested 10% to verify the welds and testing by QC meet the requirements of the contract documents. The examination was performed as per the contract documents and a UT report, TL-6027, was generated on this date.

E). Pipe Welding

The QAI observed the welder, Rick Kiikvee-ID-5319, perform the Complete Joint Penetration (CJP) welding of the field pipe splice of the 4" compressed air line identified as 15-4-W2-W at the W2W1 pier column located at the grade elevation. The welding was performed utilizing the Weld Procedure Specification (WPS) identified as 1-12-1 which was also utilized by the QC inspector, Steve Jensen, to monitor the welding and to verify the welding parameters. The QC inspector verified the welding parameters and were observed as 67 amps.

D). Miscellaneous Task

The QAI also performed a review and update of the project progress utilizing QA field reports and NDT reports. The updated project information was documented into the various QA tracking logs.

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 inspectors 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 SMAW welding process 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.

The digital photographs on page 4 of this report illustrate some of the work observed during this scheduled shift.

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Summary of Conversations:

There were general conversations with Quality Control Inspector Jesse Cayabyab and William Sherwood at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

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 Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Reyes, Danny

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer
