

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-016164**Date Inspected:** 12-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**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 locations noted below:

- A). Field Splice E1/E2
- B). Field Splice W1/W2
- C). Field Splice W2/W3

A). Field Splice E1/E2

The QAI observed the Xiao Jian Wan, ID-9677 perform the excavation and repair welding on the field splice identified as 1E-2E-A-S4, R1 utilizing the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1032-3, Rev.0 testing of the excavation was performed by Steve McConnell utilizing the Magnetic Particle method and at the conclusion of the testing no rejectable indications were noted. The WPS was also used by the Quality Control (QC) Inspector John Pagliero to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which verified and recorded as 125 amps by the QAI. The repair welding was completed on this scheduled shift.

The QAI also observed the welder James Zhen performing the CJP on the double-v-groove joint identified as 1E-2E-A-S2 utilizing the Shielded Metal Arc Welding (SMAW) as per the WPS identified as ABF-WPS-D15-1012-3, Rev.0. The in process weld inspection was performed by Mr. Pagliero utilizing the WPS to perform the weld inspection and verify the welding parameters which were observed and recorded by the QAI

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as 131 amps. The CJP welding was completed during this shift. The welders performed welding in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical.

The minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was monitored and maintained by the QC inspector during the CJP and repair welding. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents.

B). Field Splice W1/W2

At approximately 1130 the QAI was informed by Tom Pasqualone that QC had completed and accepted the UT and was requesting QAI to perform a UT verification on the weld identified as WN: 1W-2W-D1 and D2. At approximately 1140, the QAI performed a random ultrasonic verification test of the Complete Joint Penetration (CJP) groove weld identified as WN: 1W-2W-D1 and D2. A total area of approximately 10% was ultrasonically tested to verify the weld and testing by QC meet the requirements of the contract documents. The examination was performed in the first and second leg and a ultrasonic test report TL-6027, was generated on this date. For additional information see Summary of Conversations.

C). Field Splice W2/W3

The QAI observed the continued excavation of the unacceptable discontinuities discovered during the Ultrasonic Testing (UT) of bottom plate field splice identified as 1W-2W-D1 and D2. The excavations were performed by Ken Chappell utilizing a high cycle grinder to excavate and remove the defects and the repair welding was performed by Fred Kaddu ID-2188. At the conclusion of the excavations the QC technician William Sherwood performed a Magnetic Particle Test (MPT) of the excavated areas and no rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1. 5-101 Rev. 4. The repair welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and the 3.2mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 2. The WPS was also used by the QC inspector, Mr. Sherwood, as a reference to monitor and verify the Direct Current welding parameters which were noted as 142 amps. The welding was performed in the flat (1G) position with the work approximately in the horizontal plane and the weld metal deposited from the upper side. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was monitored and maintained by the QC inspector during the repair welding. The repair welding was completed at the end of the scheduled shift.

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 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 ESAB consumables utilized for the SMAW 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

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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 below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were general conversations with Quality Control Inspector Tom Pasqualone and John Pagliero at the start of the shift regarding the location of American Bridge/Fluor welding personnel and inspection/ N.D.E. testing scheduled for this shift.

At 1135, the QAI contacted QC Supervisor, Leonard Cross, via cell phone and informed Mr. Cross of the request. Mr. Cross confirmed the request and inquired the QAI to commence the UT verification.

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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| Inspected By: | Reyes,Danny | Quality Assurance Inspector |
| Reviewed By: | Levell,Bill | QA Reviewer |
