

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-016864**Date Inspected:** 22-Sep-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 E6/E7
- B). Field Splice W6/W7
- C). Ventilation Access Hole Insert Plate

A). Field Splice E6/E7

The QAI also observed the continued Ultrasonic Testing (UT) of the Complete Joint Penetration (CJP) groove weld on the deck plate field splice identified as WN: 6E-7E-A, Segments A1 through A5. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. The examination of the groove weld was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the contract documents. The technicians performed the required longitudinal wave technique, utilizing a 25.4mm diameter transducer, to perform the examination for base metal soundness and the shear wave technique for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer.

The QAI also observed the repair welding of the areas marked as UT rejects on the Complete Joint Penetration (CJP) groove weld identified as WN: 6E-7E-A. The excavations and welding of the repairs was performed by the welder Fred Kaddu ID-2188 utilizing the Shielded Metal Arc Welding (SMAW) process and 4.0 mm electrode as

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per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 1. The WPS was also used by the QC inspector, Tom Pasqualone as a reference to monitor and verify the Direct Current welding parameters and were noted as 185 amps. The welding was performed in the flat position (1G) with the work positioned placed in an approximately horizontal plane and the weld metal deposited from the upper side.

Also at the conclusion of the excavations the QC inspector, Mr. Pasqualone, performed the 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.

B). Field Splice W6/W7

The QAI observed the Complete Joint Penetration (CJP) at the ends of the deck plate field splice identified as WN: 6W-7W-A. The welding was performed by Xiao Jian Wan ID-9677 and Hua Qiang Hwang ID-2930 utilizing the Flux Cored Arc Welding (FCAW-G) as per the Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1. The WPS was also utilized by the QC inspector, William Sherwood, to monitor the welding and verify the DC welding parameters. The welding parameters were verified by Mr. Sherwood and were observed by the QAI as follows; 223 amps, 22.9 volts and a travel speed measured at 260mm/m. The Y coordinates were as follows; 0mm to 800mm at Segment A1 and 26480mm to 27280 at Segment A5.

At the conclusion of the CJP welding the QAI observed the continuous tack/seal welding of the backing bar to the deck plate identified as WN: 6W-7W-A. The welding was performed by Xiao Jian Wan ID-9677 and Hua Qiang Hwang ID-2930 utilizing the FCAW-G as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-F3200A Rev. 1 which was also used by the QC inspector, William Sherwood, to monitor the CJP welding and verify the welding parameters. The welding was performed in the horizontal position (2F) with the work placed so that the fillet weld metal appeared to be deposited on the upper side of the horizontal surface and against the vertical surface. The welding parameters were verified and recorded by the QC inspector as 230 amps, 23.0 volts with the travel speed measured at 260mm/m for the welder Mr. Wan and 227 amps, 23.4 volts and a travel speed measured as 252mm/m for the welder Mr. Hwang. The minimum preheat temperature of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were also verified and recorded by the QC inspector.

C). Ventilation Access Hole, Insert Plate

The QAI observed the welder, Wai Kitlai ID-2953 perform the Complete Joint Penetration (CJP) welding on the ventilation access hole, insert plate identified as WN: 3E-PP19-L3E-NW. The welder utilized the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1030, Rev.0. The WPS was also utilized by the QC inspector Tom Pasqualone as a reference to monitor the welding and verify the welding parameters which observed as 185 amps. The minimum preheat of 20 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract documents.

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,

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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 and the FCAW-G welding processes 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 below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. 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 Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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