

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-012368**Date Inspected:** 04-Mar-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2130**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** J. Cunningham/T. Pasqualone**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 (AB/F) personnel at the E1/E2 field splice:

A). Field Splice E1 to E2.

The QAI observed the Submerged Arc Welding (SAW) process of the deck plate field splice identified as Weld Number (WN): 1E-2E-A, Segments 1A through 5A. The welding was performed by the welding operators Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1 Rev. 0. The WPS was also used by the AB/F Enterprises Quality Control (QC) Inspector's Tom Pasqualone and James Cunningham for QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding of the transverse field splice. The QAI observed the QC inspector's verifying the welding parameters and were noted as follows: 560 amps, 32.6 volts and a travel speed measured at 381mm per minute for the submerged arc machine operated by Mr. Hogan and 562 amps, 32.4 volts with the travel speed measured at 381mm per minute for the submerged arc machine operated by Mr. Dolman. The surface temperatures and the calculation of the heat input were also verified by the QC inspector and were noted as follows: the minimum preheat temperature of 60 degrees Celsius, the maximum interpass temperature of 230 degrees Celsius and the heat input of 2.8 kj/mm.

At approximately 1400 hours regarding the base metal repair, this QAI was informed by QAI Rick Bettencourt that the AB/F Enterprises Request for Repair was verbally approved. The QAI observed the repair welding of the base metal performed by the welding personnel Mitch Sittinger ID-0315 utilizing the Shielded Metal Arc Welding

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(SMAW) process as per the WPS identified as ABF-WPS-D15-1000-Repair as referenced per the Weld Repair Report No.: 201003-001. The welding parameters were verified by the QC inspector Mr. Cunningham and noted as 130 amps with the surface temperatures meeting the required minimum preheat temperature of 40 degrees Celsius and the maximum interpass temperature measured at 230 degrees Celsius. Prior to the repair welding the QAI observed the Magnetic Particle Testing (MPT) of the excavated area of 350mm in length performed by Mr. Cunningham. No rejectable indications were noted by the QC inspector. Later in the shift the QC inspector performed an MPT at the conclusion of welding the first SAW pass located at the base metal repair area and the additional weld metal measured from the run-off edge traveling 914.4 mm in the south direction of the field splice. No rejectable indications were noted. The base metal repair was completed during this shift.

The QA inspector performed verification MPT on the excavated area of the base metal repair on the deck plate field splice identified as WN: 1E-2E-A, Weld Segment A5 . A total length of 350mm was tested by the QAI and no rejectable indications were noted. The testing was conducted to verify that the repaired area and testing by QC comply with the contract documents. The MPT utilized the DC and AC modes with an approximate prod spacing of 4 to 6 inches and was performed in the longitudinal and transverse axis. A magnetic particle testing report, TL-6028 was generated on this date.

QA Observation and Verification Summary

The QA inspector observed the SAW of the field splice utilizing the WPS's as noted above which were also posted at the welding station. The welding parameters and preheat temperatures were verified and noted 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 consumables utilized during the SAW appeared to be an ESAB manufactured product identified as ESAB Spoolarc 81 with an electrode size of 3.2mm which appeared to comply with the AWS Electrode Specification AWS A5.17 and the AWS Classification F7A4-Em12K-H8. The consumable utilized during the base metal repair appeared to comply with the AWS Electrode Specification A5.1-04 and the AWS Classification E7018-1HR4. The welding and QC inspection performed on this shift was not completed except as noted and appeared to be in general compliance with the contract documents. The QAI randomly verified the QC inspection, the welding parameters and surface temperatures utilizing various inspection equipment and gages, a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

See digital photographs below in regards to the work observed during this shift.



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Summary of Conversations:

There were no pertinent conversations discussed in regards to the project except as noted above.

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
