DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-012478
Date Inspected: 10-Mar-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 1300
OSM Departure Time: 2130
Location: Job Site

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ 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 E1/E2 field splice:

A). Field Splice E1 to E2.

B). QC UT and QAI verification of Field Splice E1 to E2.

The QAI observed the Flux Cored Arc Welding (FCAW-G) process of the side plate field splice identified as Weld Number (WN): 1E-2E-C, Weld Segment C2. The vertical up (3G) welding was performed by the welding operators Rory Hogan ID-3186 and Jeremy Dolman ID-5042 utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-3042A-1 Rev. 0. The WPS was also used by the AB/F Quality Control (QC) Inspector James Cunningham to perform QC verification of the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding of the side plate field splice. The QAI also observed the QC inspector verifying the welding parameters and were noted as follows: 242 amps, 24.1 volts and a travel speed measured at 236 mm per minute with the calculated Heat Input (HI) noted as 1.5 kj/mm. The QC inspector also monitored the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius during the field welding. The QAI also observed the QC inspector Bernie Docena performing a visual weld inspection on the longitudinal stiffener plate field splices identified as D-6S through D-18S. The QC inspector marked various areas on the stiffeners that will require additional grinding of the weld profile prior to performing the Non-Destructive Testing (NDT) methods of Magnetic Particle Testing (MPT) and Ultrasonic Testing (UT). At the request of the QC inspector Jesse Cayabyab, the QAI inspector verified the assembly fit-up

of the edge plate field splice identified as 1E-2E-B and 1E-2E-F. At the conclusion of the QAI verification the assembly fit-up appeared to comply with the contract documents.

At approximately 1315 hours, the QAI observed the Ultrasonic Testing (UT) performed by the technicians Steve McConnell and Tom Pasqualone on the transverse deck plate field splice identified as WN: 1E-2E-A, Weld Segment A1. The QAI observed the UT technicians perform the required longitudinal and shear wave scanning technique during the testing which was performed utilizing a USM 35 and a US52L, manufactured by Krautkramer, a 1" diameter used to perform base metal soundness and a .75 x .75 rectangular transducers used to perform the angle beam technique for weld soundness. At the conclusion of the testing there were no rejectable discontinuities noted by the QC technicians. The technicians performed the testing utilizing the longitudinal and transverse axis as per the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4. The UT was completed during this shift at approximately 1645 hours. See QA Observation and Verification Summary regarding QAI UT verification.

QA Observation and Verification Summary

The QA inspector observed the FCAW-G of the E1/E2 field splice utilizing the WPS's as noted above which appeared to be posted at the weld 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 groove welding appeared to be an ESAB manufactured product identified as ESAB Dual Shield 70 Ultra Plus with a diameter size of 1.4mm which appeared to comply with the AWS Electrode Specification AWS A5.20 and the AWS Classification E71T-1M. The welding, QC inspection and UT performed on this shift was not completed on this date except as noted above 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.

The QAI also performed a random ultrasonic verification test of the Complete Joint Penetration (CJP)groove weld identified as WN: 1E-2E-A, Weld Segment A1. 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 QAI performed UT verification between the linear dimensions 4,000mm and 5,000mm as noted on the steel deck. The examination was performed in the first and second leg. An ultrasonic test report, TL6027, was generated for this date.

See digital photographs located on Page 3 of this report in regards to the work observed during this shift.

WELDING INSPECTION REPORT

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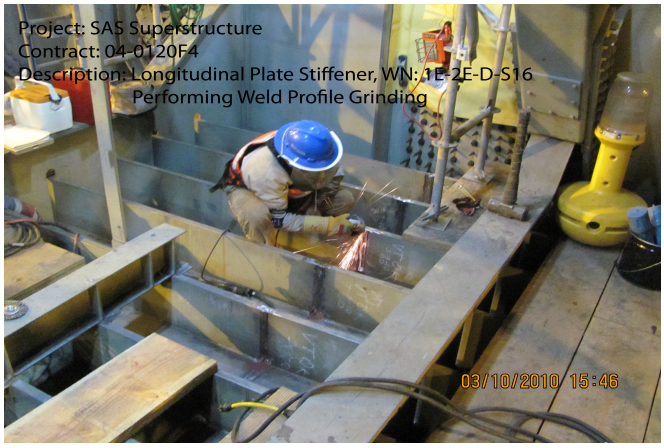

Summary of Conversations:

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