

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-021725**Date Inspected:** 11-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). Field Splice W10/W11
- B). Lifting Lug Hole
- C). Pipe Welding

A). Field Splice W10/W11

The QAI observed the Submerged Arc Welding (SAW) process of the deck plate field splice identified as Weld Number (WN): 10W-11W-A, Segments 3A through 5A. The welding was performed by the James Zhen ID-6001 utilizing Submerged Arc Welding (SAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1 Rev. 0. The WPS was also utilized by the Quality Control (QC) inspector, William Sherwood, to monitor the and to verify of the Direct Current Electrode Positive (DCEP) welding parameters during the Complete Joint Penetration (CJP) groove welding of the field splice. The QAI observed the QC inspector's initial verification of the welding parameters and were noted as follows: 570 amps, 32.5 volts, a travel speed measured at 405 mm per minute (mm/m) and the calculated heat input of 2.74 kJ/mm. The minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract documents.

The QAI also observed the continuous tack welding of the "A" deck plate splice identified as WN: 10W-11W-A.

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The welding of the field splice was performed approximately mid point of segment A3 through A1. 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 270 amps, 24.8 volts with a travel speed measured as 343 mm/m. The WPS was also utilized by the QC inspector, William Sherwood, as a reference to verify the amperage and to monitor the welding. The minimum preheat temperature of 20 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents.

B). Lifting Lug Hole

The QAI observed the Complete Joint Penetration (CJP) welding of the weld joint identified as WN: 7W-PP55-W3, Weld No's. 1 and 3. The welding was performed by Darcel Jackson ID-9967 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-Cu. The WPS was also utilized by the QC inspector, Gary Ehrsom, to monitor the welding operation and to verify the welding parameters. The welder utilized a 4.0 mm electrode with the welding performed in the flat (1G) position with the work approximately in a horizontal plane and the weld metal deposited from above. The welding parameters were observed by the QAI and verified by Mr. Ehrsom and recorded as 182 amps. The minimum preheat of 10 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract documents.

C). Piping

The QAI observed the welder, Rick Kiikvee-ID-5319, perform the field welding of the socket welds identified as 1-CAOP1-W2-E, 2-CAOP1-W2-E, 3-CAOP1-W2-E and 4-CAOP1-W2-E. These weld joints are branch members attached to the utility and compressed air lines at the bent cap, W2E1 pier column. 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.

Later in the shift the QAI observed the QC inspector perform a visual weld inspection of the above mentioned welds and no issues were noted by the QC inspector. The QAI concurs with the QC inspector's assessment.

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 3 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 Senior 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 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
