

**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-020331**Date Inspected:** 07-Feb-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**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). DAH Access Hole
- B). "A" Deck Stiffeners
- C). Pipe Welding

## A). Deck Access Hole

The QAI observed the welder Jin Pei Wang ID-7299 perform the repair welding of the areas marked as UT rejects on the Complete Joint Penetration (CJP) groove weld identified as WN: 1W-PP23.5-W2-NE, R1 cycle repair. 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-1001 Repair Rev. 0. The WPS was also used by the QC inspector, Steve McConnell, as a reference to monitor and verify the Direct Current welding parameters which were noted as 127 amps. The welding was performed in the overhead (4G) position with the work placed in an approximate horizontal plane and the weld metal deposited from the underneath side.

## B). "A" Deck Stiffeners

The QAI observed the continued Complete Joint Penetration (CJP) welding of the longitudinal stiffener field splice identified as WN: 3W-PP19.5-W5-LS-E. The welding was performed by Hua Qiang Hwang ID-2930

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utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0. The WPS was also utilized by the QC inspector Scott Allder as a reference to monitor the welding operation and verify the welding parameters. The amperage was observed by the QAI and recorded by the QC inspector as 128 amps

The QAI also observed the welder, Xiao Jian Wan ID-9677, correcting the excessive root opening on the longitudinal stiffener field splice identified as WN: 2W-3W-A-LS1. The dimensions of the root opening appeared to be 18.0 mm which was noted by the QC inspector. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector as a reference. The QAI observed the QC inspector record and verify the welding parameters as 121 amps.

At the conclusion of correcting the excessive root openings the welder commence the CJP welding of the field splice identified as WN: 2W-3W-A-LS3.

The welding was performed by the welders in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the 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. The welder completed the repair welding during this shift. At the time of the observation no issues were noted by the QAI.

## C). Pipe Welding

The QAI observed the welder, Rick Kiikvee-ID-5319, perform the Complete Joint Penetration (CJP) groove welding of the field pipe splices for the 4" compressed air service and 2.5" utility water lines located at the W2 Bent Cap of the east bound girders. 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. The QC inspector verified the welding parameters and were observed as 67 amps.

## 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.

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The digital photographs below illustrate some of 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 Sang Le (916) 764-5650, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Reyes, Danny	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell, Bill	QA Reviewer

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