

**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:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027075**Date Inspected:** 25-Jan-2012**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:** Salvador Merino**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:** OBG Components**Summary of Items Observed:**

On this date, Quality Assurance Inspector (QAI) Kenneth Riley was present at the San Francisco Oakland Bay Bridge job site at Yerba Buena Island to observe erection and welding activities for the San Francisco Oakland Bay Bridge (SFOBB) project. This Quality Assurance Inspector (QAI) observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A) Lifting Lug Holes and Repairs
- B) Field Splice 12W-13W
- C) Field Splice 13W-14W
- D) Submittal Review

## A). Lifting Lug Holes (SPCM)

The QAI observed that welder Mike Jimenez, was pre-heating the area prior to welding at 13W-PP118.5-W4-W4 lifting lug hole. The temperature required as outlined in the WPS is 40 degrees Celsius (125 degrees F) that was verified using a tempstik and infrared gun by the QC. The welder was using the Shielded Metal Arc Welding (SMAW) using electrode E7018 under Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-CU for the Complete Joint Penetration weld with copper backing in the flat (1G) position. The electrode used for the intermediate weld passes were 4.0mm diameter with welding amps verified as 191. The welder was using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. After the welder had completed

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lifting lug hole W4 he proceeded to hole W3 were the QC inspector verified the fit up which was found to be acceptable. This was verified by this QAI inspector. The welder then used the 3.2mm electrode to place the root pass which was ground and MT was performed by QC with acceptable results. The welder then switched to the 4.0mm electrode and continued placing the intermediate weld passes. His welding amps at this time were verified as 196 using the fluke meter. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. The QC inspector was observed onsite overseeing the operations for these locations. At the time of the observations no issues were noted by the QAI.

### B). Field Splice 12W-13W (SPCM)

The QAI observed welder Rich Garcia, at the 12W-13W-A5 location between Y= 300mm and 3500mm. The contractor had previously removed the splice plates of 5 U-ribs as agreed upon between Caltrans and the contractor to allow access to the welds in the overhead (4G) position. The Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4 for the Complete Joint Penetration weld using the Flux Cored Arc Welding (FCAW) process with the E71T-1M, 1.6mm electrode. The welding parameters were verified as 260 amps, 23.3volts and 1.62 k/j Heat index. The welder was placing the intermediate weld passes for this location when he lost his gas shielding; the welder stopped replaced his gas and then removed the weld pass due to porosity. Once the porosity was removed the QC inspector performed a Magnetic Particle test to ensure sound metal for continued welding. The test results were relayed to this QAI as acceptable. The welder then continued placing the intermediate weld passes and using a power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

### D). Field Splice 13W-14W-E1 & E2

The QAI observed welder Jeremy Dolman at the 13W-14W-E1 (Side Plate) in the flat (1G) position. The Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1 for the Complete Joint Penetration weld using the Flux Cored Arc Welding (FCAW) process with the E71T-1M, 1.6mm electrode. The welding parameters were verified as 230 amps, 23.5volts and Heat index of 1.62 k/j. The welder was placing the intermediate weld passes for this location for approximately 600mm. This area is so the bug O using the FCAW has room to tie into the weld and be completed. Welder Rory Hogan was on this same side plate at E2 where he was setting the Bug O into position and adjusting the welding parameters with QC inspector Salvador Merino. His welding parameters prior to running were set at 234 amps and 24.1 volts. The QC inspector for this location was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

### E). Submittal Review

This QAI is in process of performing submittal reviews for weekly welding reports from Watson Bowman Acme under submittal numbers ABF-SUB-002550 Rev 33. These reviews include, the Weekly Welding Report for the

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weeks ending Jan. 14, 2012 containing Inspection Checklist, Weld Maps and KTA Daily Checklists for January 9, 2012 through January 13, 2012. The submitted documents, as noted above, were reviewed to determine compliance with project specifications.

## QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding utilizing the WPS's 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 consumables utilized for the welding process stated 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. Unless noted otherwise, all work observed on this date appeared to be in general compliance with the contract documents at the time of observations.



## Summary of Conversations:

Basic conversation, fundamental to completion of the tasks at hand, occurred between this QAI and ABF QC personnel.

## 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.

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

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