

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-027078**Date Inspected:** 27-Jan-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**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
- B) Field Splice 12W-13W
- C) Field Splice 13W-14W
- D) QA NDT Verification

A). Lifting Lug Holes (SPCM)

The QAI observed that welder Mike Jimenez, was fitting up location 13W-PP119.5-W4-W2 lifting lug hole the QC inspector checked the fit up tolerance for adherence to the Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-CU which was found to be acceptable and verified by the QAI. The welder then proceeded to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was using the Shielded Metal Arc Welding (SMAW) using electrode E7018 for the Complete Joint Penetration weld with copper backing in the flat (1G) position. The electrode used for the root pass was 3.2mm diameter with welding amps verified as 154. The welder then changed

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to the 4.0mm diameter and 4.8mm diameter electrode for the intermediate and cover passes. The welding amps were verified by QC and this QAI as 293amps and 260 amps. The welder was using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. After the welder had completed lifting lug hole W1 he proceeded to hole W3 where he was preparing the area for the fit up process. 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.

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 263 amps, 23.3volts and 1.13 k/j Heat index. The area for welding was then pre-heated prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was placing the intermediate weld passes for this location 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.

C). Field Splice 13W-14W-E2 & F

The QAI observed welder Jeremy Dolman at the 13W-14W-F (Edge Plate lower portion of joint) in the vertical (3G) position. The Welding Procedure Specification (WPS) ABF-WPS-D15-3040B-3 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 232 amps, 23.1volts and Heat index of 2.17 k/j. The area for welding was then pre-heated prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was placing the root/intermediate and cover weld passes for this location. 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.

The QAI observed Welder Rory Hogan was at location 13W-14W-E2 (side Plate) in the flat (1G) position. The welder was using the semi-automated Bug O system for the FCAW process with the E71T-1M, 1.6mm electrode. The area for welding was then pre-heated prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welding parameters were verified as 233 amps, 24.4volts and Heat index of 2.21 k/j. 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.

D). QA NDT Verification

This QAI performed Magnetic Particle verification (MT) and Ultrasonic Testing (UT) on the top deck of lift 12W.

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The location for this verification was for the lifting lug holes that had been previously tested by the QC Inspector and found to be acceptable. The locations for these tests are as follows;

UT Only

12W-PP115-W4-W1~W2

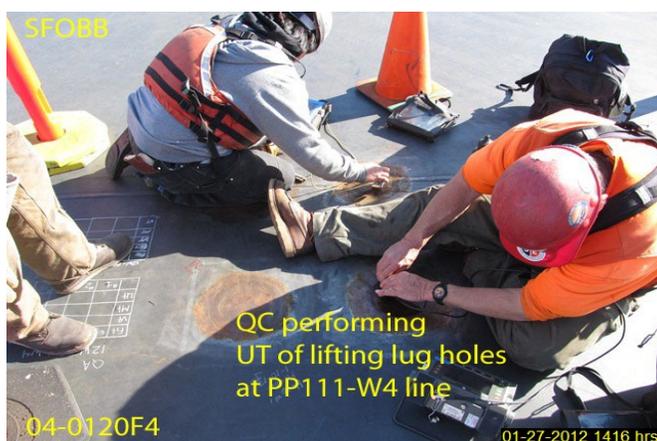
UT and MT

12W-PP115-W3-W1~W4

This QAI performed a Visual Observation (VT) and the MT and UT verification and noted that the welds appeared to be within the contract documents at the time of this observation. For further information see document TL-6028 and TL-6027 submitted on this date.

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.

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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:	Riley, Ken	Quality Assurance Inspector
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Reviewed By:	Levell, Bill	QA Reviewer
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