

**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-027571**Date Inspected:** 04-May-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:** Bernard Docena**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:** Tower**Summary of Items Observed:**

On this date, Quality Assurance Inspector (QAI) Robert A. DeArmond 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) Outer West Tower Base-Bearing Plate Assembly
- B) Tower Fit-Lugs at 9-Meter and Outer West Tower Base Bearing Plate Assembly Magnetic Particle Testing
- C) Tower-Center Cell Stiffener 13-Meter
- D) Tower Base 13 meter outer East external diaphragm

## A). Outer West Tower Base-Bearing Plate Assembly

This QAI observed that welder Jeremy Dolman was welding the Bearing Plate Assembly, Weld No. 005. This QAI observed these parameters as defined in Welding Procedure Specification (WPS) ABF-WPS-D15-3160-3. The QC inspector Bernie Lucero verified the fit up for this location and found it to be acceptable, this information was relayed to the QAI. The welder then continued pre-heat throughout the area during welding using a propane type weed burner and heat rack at 110 degrees Celsius (225 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was using the Flux Cored Arc Welding (FCAW) electrode E71T-1M/T-9M for the Partial Joint Penetration (PJP) weld in the vertical (3G) position with 1.6 mm wire. The welding parameters were verified as 244 amps, 23 volts and 1.11 k/j Heat index. The welder utilized a power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Bernie Lecero and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding

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## WELDING INSPECTION REPORT

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operations. At the time METS observation was performed. No issues were noted by the QAI.

The welder was grinding the starts and stops between weld layers to a bright metal. The location was still in process at the end of this QAI's shift.

### B). Magnetic Particle Testing (MT)

This QA inspector performed MT of approximately 15% of the area previously tested and accepted by Smith-Emery Quality Control personnel. This QA Inspector generated an MT report for this date. The member(s) is/are identified as Tower Assembly (9m) stiffener to fit lug and fit lug to diaphragm, Bottom stiffener to shear plate, bottom stiffener to diaphragm and bearing plate assembly. The weld designations reviewed are as follows:

Fit-lugs: 4, 5, 11, 12, 14, 16, and 17

Bottom Stiffener: P440-4

Outer West Tower Base Bearing Plate Assembly: 006

### C). Tower-Center Cell Stiffener 13-Meter

This QAI observed that welder Luo Xiao Hua was welding the cell stiffener seal weld, Weld No. 138-5. This QAI observed these parameters as defined in Welding Procedure Specification (WPS) ABF-WPS-D15-1170. The QC inspector Bernie Lucero verified the fit up for this location and found it to be acceptable, this information was relayed to the QAI. The welder then continued pre-heat throughout the area during welding using a propane type weed burner at 110 degrees Celsius (225 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was using the Shielded Metal Arc Welding (SMAW) electrode E7018 for the fillet seal weld in the flat (2F) position with 3.2 mm electrode with 140 amps. The welder utilized 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 METS observation was performed. No issues were noted by the QAI

The welder was grinding the starts and stops between weld layers to a bright metal. The location was still in process at the end of this QAI's shift.

### D). Tower Base 13 meter outer East external diaphragm

This QAI observed that welder James Zhen was welding the 80mm thick shear plate to 45mm thick diaphragm plate weld joint #W102. This QAI observed these parameters as defined in Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. The QC inspector Bernard Docena verified the fit up for this location and found it to be acceptable, this information was relayed to the QAI. The welder then continued pre-heat throughout the area during welding using a propane type weed burner and heat rack at 163 degrees Celsius (325 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was using the Flux Cored Arc Welding (FCAW) electrode E71T-1M for the Partial Joint Penetration (PJP) weld in the horizontal (2G) position with 1/16-inch wire. The welding parameters were verified as 231 amps, 22.7 volts and .998 k/j Heat index. The welder utilized a power grinder and power wire wheel for the inter-pass cleaning. The QC inspector for this location was Bernard Docena and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time METS observation was performed. No issues were noted by the QAI.

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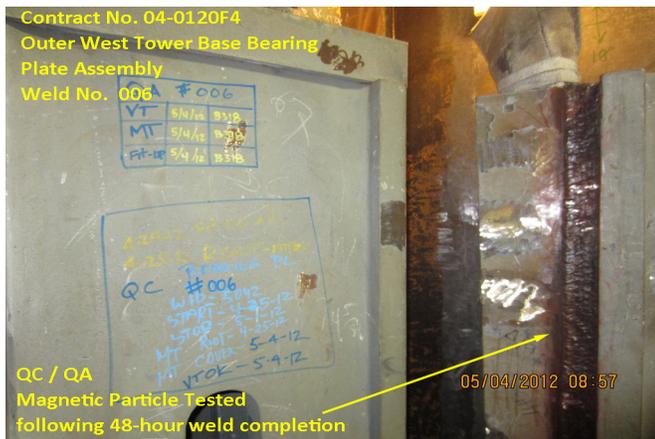
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The welder was grinding the starts and stops between weld layers to a bright metal. The location was still in process at the end of this QAI's shift.

## 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:

As mentioned above between QA and QC concerning this project

## 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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**Inspected By:** DeArmond,Robert

Quality Assurance Inspector

**Reviewed By:** Levell,Bill

QA Reviewer