

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-027329**Date Inspected:** 13-Mar-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

<b>CWI Name:</b>	Bernie Docena		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	Yes	No	N/A

**Bridge No:** 34-0006**Component:** SAS Tower**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 9 meter external diaphragm, this QA Inspector randomly observed ABF personnel Jin Pei Wang perform 2F (horizontal position) fillet production welding on the 1" thick fit lug to the 45mm thick outer West 9-meter diaphragm plate on one side and to the 65mm thick vertical stiffener plate on the other side. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 293 amperes and 25.5 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. During the shift, the welder has completed the 22mm fillet weld on two sides of the fit lugs marked W91-3 and W91-2. Due to the preheat of more than 325°F that was used during the fillet welding of the fit lugs, this QA had raised the issue to ABF QC Bernie Docena whether post weld heat treatment (PWHT) will be implemented after welding as required by Caltrans Special Provisions. QC responded informing this QA that the PWHT of the fit lug is still under discussion between ABF and Caltrans.

At Tower Base 9 meter external diaphragm, this QA Inspector randomly observed ABF personnel Wai Kitlai perform 2F (horizontal position) fillet production welding on the 1" thick fit lug to the 45mm thick outer West

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## WELDING INSPECTION REPORT

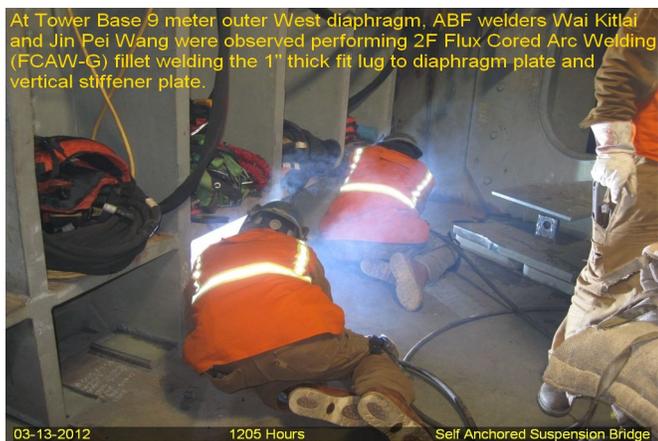
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9-meter diaphragm plate on one side and to the 65mm thick vertical stiffener plate on the other side. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 300 amperes and 25.0 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F3200-2. During the shift, the welder has completed the 22mm fillet weld on two sides of the fit lugs marked W91-10, W91-7 and W91-6. Same PWHT issue was raised to the QC during fillet welding of mentioned fit lugs. Remaining fit lugs at above mentioned location will be fillet welded tomorrow.

At center external 9 meter diaphragm, ABF QC Jesse Cayabyab and John Pagliero were observed performing Magnetic Particle Testing (MT) on welded Partial Joint Penetration (PJP) T-joints and butt joints. The QC Inspectors were noted performing 100% MT at PJP T-joints of center diaphragm plate marked WD1-A7 to four (4) various shear plates and four (4) drop in plates all marked WD1-A49 also welded to 4 shear plates. At the end of the test, QC informed this QA that they found no significant indications.

At outer East external diaphragm below drop in plate WD1-A46, ABF welder Luo Xioa Hua and Xiao Jian Wan were observed performing fit up/tack welding on the 45mm thick stiffener plate below the 9meter diaphragm plate. The welder was noted using Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode. During the shift, fit up/tack welding of the stiffener plate was completed.



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## Summary of Conversations:

This QA was informed by my Task Leader Bill Levell together with Sr. QA Robert Mertz that there was an agreement by ABF through ABF QC Manager Jim Bowers that the PWHT of the fit lugs will be implemented as the Caltrans Special Provisions require. ABF personnel at site also informed this QA that the five (5) fit lugs mentioned above that were welded but were not PWHT'd will be included in the PWHT of the remaining fit lugs at the same weld location.

## 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 SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer