

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-019476**Date Inspected:** 25-Jan-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2230**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	William Sherwood, Fred Von Hoff			<b>CWI Present:</b>	Yes	No	
<b>Inspected CWI report:</b>	Yes	No	N/A	<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A	<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A	<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A	<b>Approved WPS:</b>	Yes	No	N/A
				<b>Delayed / Cancelled:</b>	Yes	No	N/A
<b>Bridge No:</b>	34-0006			<b>Component:</b>	OBG and Jacking frame saddle		

**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.

QA randomly observed ABF/JV qualified welders Rory Hogan (ID #3186) and Jeremy Dolman perform Complete Joint Penetration (CJP) groove splice welding cover pass on Orthotropic Box Girder (OBG) 8E/9E bottom plate 'D' outside. The welder was observed welding in the 4G (overhead) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4. The welder was using a track mounted welder holder assembly that was remotely controlled. The joint being welded has the backing bar gouged using the Esab Plasma Arc machine and was ground smooth. The splice joint was preheated to greater than 150 degrees Fahrenheit prior welding and the vicinity was properly protected from wind. During welding, ABF Quality Control (QC) Steve Jensen was noted monitoring the welding parameters of the welder. At the end of the shift, cover pass was completed.

At OBG 9E/10E edge plate 'B' outside, QA randomly observed ABF/JV qualified welder Xiao Jian Wan perform cover pass welding on the CJP splice butt joint. The welder was observed manually welding in the 3G (vertical) position utilizing a Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040B. The joint being welded has a single V-groove butt joint with backing bar. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. QA randomly monitored the welding parameter

---

## WELDING INSPECTION REPORT

( Continued Page 2 of 4 )

---

with reading of 130 amperes which appears in conformance to the contract requirements. At the end of the shift, SMAW cover pass welding was completed.

At OBG 9W/10W edge plate 'B' outside, QA randomly observed ABF/JV qualified welder Jorge Lopez continuing to perform fill pass welding on the CJP splice butt joint. The welder was observed manually welding in the 3G (vertical) position utilizing a SMAW with 1/8" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040B. The joint being welded has a single V-groove butt joint with backing bar. During welding, ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. QA randomly monitored the welding parameter with reading of 135 amperes which appears in conformance to the contract requirements. At the end of the shift, SMAW fill pass welding was still continuing and should remain tomorrow.

At OBG 1W-PP10.5-W5-LS-E longitudinal stiffener inside, QA randomly observed ABF welder Hua Qiang Hwang continuing to perform 3G (vertical) SMAW welding fill pass to cover pass on the stiffener splice butt joint. The stiffener plates being welded are made of high strength plate material HPS 485W and has a thickness of 30mm. The joint has a double V joint preparation that was welded from one side and after the completion from one side it was back gouged and Non Destructive Testing (NDT) tested using Magnetic Particle Testing (MT) and back welded to the other side. The welder was noted using E9018H4R with 1/8" diameter electrode implementing Caltrans approved welding procedure specification (WPS) ABF-WPS-D1.5-1012-3. The joint being welded was root welded using a ceramic backing. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blanket located at the opposite side of the plate prior/during welding. The QA Inspector noted the ABF QC Gary Ersham was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. At the end of the shift, fill pass welding on the other side was still continuing and should remain tomorrow.

At Jacking Frame to Saddle fillet welding, the highlights of the welding and post weld heat treatment (PWHT) that transpired during QA observations were the following;

1. Upon QA's arrival at the welding area, fifth cover pass fillet welding was underway and was completed at 1451hours. During welding, the welder was noted using 5/32" diameter E9018H4R electrode and he was running at 155 amperes which was in compliance to the Caltrans approved ABF WPS-D15-F1205.
2. The welder started welding the sixth cover pass at 1457hours and completed at 1618hours. Using the infrared temperature gauge prior welding, the joint preheat was noted 400 degrees F. Peening was not performed on the fifth and sixth cover pass.
3. After the completion of the sixth cover pass, the welder wire brushed the fillet weld and ABF QC Mike Johnson performed the visual test (VT) and using a 25mm fillet weld gauge, measured the weld. During the VT, QC noted underfill and undercut which the welder has fixed. Final fillet welding was completed at 1640hours.
4. After the final welding was completed, ABF QC Mike Johnson performed VT and using a 25mm fillet gauge, QC measured the size of the fillet weld and accepted it.

---

---

## WELDING INSPECTION REPORT

( Continued Page 3 of 4 )

---

---

5. QA performed the same VT on the whole length of the fillet weld and concurred the surface profile and adequate size of the fillet weld.

6. The preparation for the PWHT started as soon as the weld was completed. ABF personnel were noted covering the weld joint with fiber glass/wool covering. ABF personnel Ben Jones was noted programming the machines to 390 degrees F/hour heating rate during the prep.

7. The following temperatures were noted on four Miller Proheat 35 Induction Heating System during the heating and holding period of the joint;

Time Machine #1 Machine #2 Machine #3 Machine #4

a. 1713hours 627 deg. F 608 deg. F 669deg. F 603 deg. F

b. 1810hour 926 935 836 839

c. 1920hours 1054 1053 966 1013

d. 2005hours 1085 1100 1025 1066

\*Started recording the holding of PWHT time/temperature.

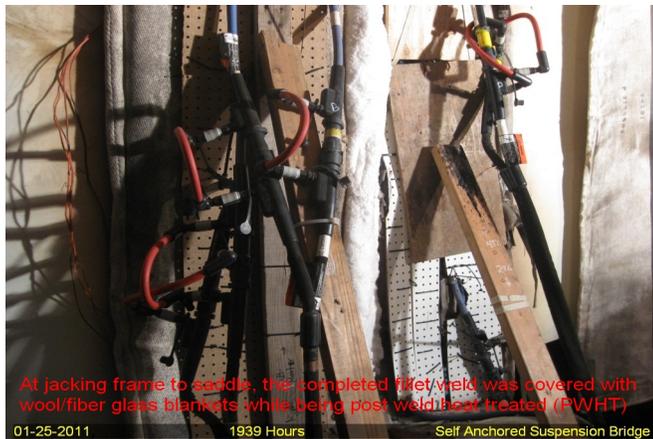
e. 2100hours 1100 1100 1100 1100

f. 2200hours 1100 1100 1100 1100

8. \*ABF personnel informed QA that they started holding the PWHT temperature at 2005hours.

9. At 2215hours, fellow QA Scott Croff arrived at the job site welding area and took over from this QA the remaining observations to be performed on the PWHT of the fillet weld joint.

10. This QA left the job site at 2230hours.



---

# WELDING INSPECTION REPORT

( Continued Page 4 of 4 )

---



## Summary of Conversations:

No significant conversation occurred today.

## 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 Sang Le 916-764-5650, who represents the Office of Structural Materials for your project.

---

**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

---

**Reviewed By:** Levell, Bill

QA Reviewer