

**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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-025135**Date Inspected:** 13-Jul-2011**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>	Steve Jensen and William Sherwood			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006			<b>Component:</b>	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 West Shaft Splice #3 @Elevation 114 meters;

At Northwest (C-D) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Salvador Sandoval continuing to perform production welding on the top half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-2. The welder was noted 2F (horizontal) fillet welding the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System and propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. Welding parameters measured during welding were 330 amperes and 24.5 volts. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-2. The welder has completed the horizontal fillet welding at the top of the plate and has moved to the sides and welded the vertical fillet weld. The welder was noted using the same process with welding parameters of 270 amperes, 21.5 volts and travel speed of 100 mm per minute with calculated heat input of 3.58 KJ per mm. At the end of the shift, 3F fillet welding was still continuing and should remain tomorrow. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 300°F as required. ABF personnel were using Miller Proheat 35 Induction

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Heating System to hold the preheat that was programmed to shut off after three hours.

At OBG 11W/12W edge plate 'B' outside, QA randomly observed ABF/JV qualified welder Jorge Lopez perform root pass welding on the Complete Joint Penetration (CJP) 28mm thick 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 steel backing bar. 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. Prior welding, the fit up alignment was checked by ABF QC William Sherwood and verified by fellow QA Doug Frey. At the end of the shift, SMAW root pass welding was still continuing and should remain tomorrow.

At OBG 11W/12W edge plate 'F' outside, QA randomly observed ABF/JV qualified welder Fred Kaddu perform root pass welding on the Complete Joint Penetration (CJP) 18mm thick 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 steel backing bar. ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. QA randomly monitored the welding parameter with reading of 128 amperes which appears in conformance to the contract requirements. Prior welding, the fit up alignment was checked by ABF QC William Sherwood and verified by fellow QA Doug Frey. At the end of the shift, SMAW root pass welding was still continuing and should remain tomorrow.

At Tower Base Elevation 13Meters Shear Plate Electro Slag Welding (ESW);

This QA together with ABF QC Jesse Cayabyab performed a joint fit up inspection/verification on the alignment of the 80-100mm transition butt joint S-043 at location 'T' in preparation for the next ESW that was scheduled to be welded July 14, 2011. The root gap and offset were measured from bottom to top. The result noted on the offset verification was less than 3.0mm on most of the part except on the following which has exceeded the maximum allowed;

Y-location	Offset	Length
7670mm to 7780mm	4mm	110mm
6850mm to 7670mm	5-6mm	820mm
2740mm to 6850mm	7-9mm	4110mm
2000mm to 2740mm	5-6mm	740mm
900mm to 2000mm	4-5mm	1100mm

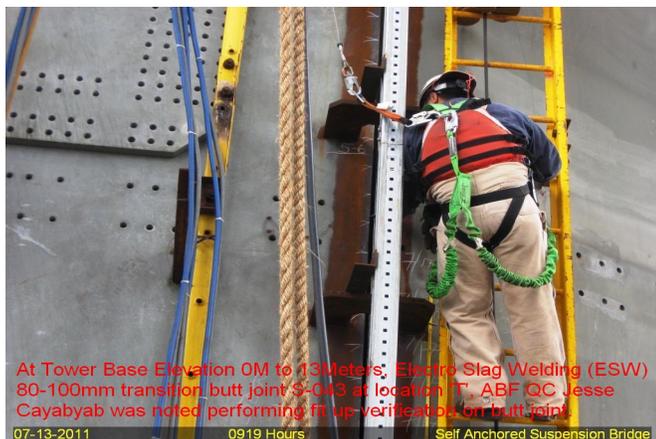
The root gap measured was 16mm minimum and 25mm maximum which appears in compliance to the approved WPS.

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## 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 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