

**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:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016137**Date Inspected:** 10-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	William Sherwood and Jesse Cayabon			<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>	Orthotropic Box Girder		

**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 OBG 4W/5W side plate 'C' (1000mm to 3200mm) inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 continuing to perform CJP groove (splice) welding fill to cover pass on the splice butt joint. The welder was using automatic welding in the 3G (vertical) 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-D15-3042B-1. The joint being welded had a single V-groove butt joint with backing bar. The splice joint was preheated and maintained to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located at the opposite side of the plate prior/during welding. ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. At the end of the shift, cover pass welding was completed and the welder should be moving to the higher elevation/location of 300mm to 1000mm tomorrow.

At OBG 5W/6W edge plate 'B' outside, QA randomly observed ABF welder Hua Qiang Hwang perform grinding on the groove of the gouged backing bar removal. After completing the grinding and QC find it acceptable, QC performed the Magnetic Particle Testing (MT) on the groove of the ground and gouged backing bar removal. The MT performed by QC was also acceptable. QC was noted pre-checking the parameters of the welder and the preheat of the plate prior welding. The welder was observed perform semi-automatic welding in the 3G (vertical) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode

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and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3110-3. The joint being welded has a single V-groove butt joint with backing bar. The backing bar was carbon arc gouged/removed and the groove was ground smooth. The groove of the joint is now being back welded using the process and WPS mentioned above. The splice joint was preheated and maintained to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located on the other side of the plate prior/during welding. ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. At the end of the shift, the welder has not completed welding the splice joint and should remain tomorrow.

At OBG 4E/5E side plates 'C' and 'F' outside, QA observed one ABF personnel on each plate were flush grinding the weld cover reinforcement of the splice joints as required. Both personnel were using a 9 inch grinder and the grinder cut was oriented parallel to the direction of the bridge as the specification requires. Grinding on both plates was still continuing at the end of the shift and should remain tomorrow.

At OBG 5E/6E side plate 'C' outside, welders Rory Hogan and Jeremy Dolman were observed preparing their welding equipment and accessories to perform back welding of the splice joint. Welders were also noted barricading their area to protect from climatic conditions. At the end of the shift, the welders have not completed their prep and should continue tomorrow. At the other side of the plate 'E' of the same OBG splice, ABF welders Mike Maday and Bryce Howell were also noted preparing their Esab plasma arc machine and lining up their Bug-o track for the gouging of the backing bar removal. Both welders have not completed their preparation at the end of the shift.

At OBG 5E/6E side plate 'E' outside, ABF welder Bryce Howell was noted prepping his Esab plasma arc machine and lining up his Bug-o track to perform gouging on the backing bar removal of the splice butt joint.



At OBG 4E/5E side plate 'C' outside, ABF personnel was noted flush grinding the weld cover reinforcement of the splice butt joint as required. The personnel was using a 9 inch angle grinder with the grinding cut oriented parallel to the bridge direction.



## Summary of Conversations:

At 3W/4W bottom plate 'D' inside, QA observed ABF QC Jesse Cayabyab perform Ultrasonic Testing (UT) on the welding repairs of the splice butt joint. The QC inspector performed UT on 12 repair areas and after his acceptance and completion of the butt joint, QC requested this QA to perform visual test (VT) on the completely welded and repaired butt joint. This QA accommodated to the request and performed the VT. During VT, QA measured the weld cover reinforcement and checked the surface profile of any irregularities. It was noted that the weld cover reinforcement and the surface profile were free from significant defects and deemed in compliance to the code requirements.

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At CMC 3W/4W bottom plate T7 inside ABF QC Jesse Cayabyab was observed performing Ultrasonic Testing (UT) on the welding repairs of the welded splice butt joint. Later after his UT completion and acceptance of the 12 repairs, QC requested QA to perform VT on the welded and repaired splice butt joint.



## 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 Mohammad Fatemi (916) 227-5298, 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