

**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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-019343**Date Inspected:** 14-Jan-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Gary Ershan and Pat Swain**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:** 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 9W/10W bottom plate 'D' inside, QA randomly observed ABF certified welder James Zhen ID #6001 perform 1G (flat position) Submerged Arc Welding (SAW) welding root pass then fill pass on the CJP splice butt joint. The welders were utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1. The joint being welded had a single V-groove butt joint with backing bar. The plates were preheated to more than 150 degree Fahrenheit using constant propane gas torch ahead of the SAW welding. Previously, preheating of the bottom plate during SAW welding was done using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate. For unknown reason, ABF personnel have switched to the propane gas torch prior/during welding. Welding parameters were monitored by ABF/QC Gary Ershan. QA noted the welding parameters, the workmanship and appearance of the completed root/fill pass deemed satisfactory. At the end of the shift, SAW fill pass welding was still continuing and should remain tomorrow.

At OBG 8W/9W top deck plate 'A' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP repair welding. The welder was noted welding in 1G (Flat) position utilizing Shielded Metal Arc Welding (SMAW) with 5/32" and 1/8" diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repairs. The welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC

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Pat Swain was noted monitoring the welder and his welding parameters. Welding parameter measured at the time of welding were 175 amperes and 135 Amperes respectively on the electrodes mentioned above which appears in compliance to the WPS. The locations of the repairs were noted below;

Location Y-dimension Length Width Depth Remarks

1. A3 1000mm 100mm 25mm 17mm Completed

2. A5 200mm 175mm 20mm 14mm Completed

At OBG 8W/9W side plate 'C1' inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 continuing to perform CJP groove (splice) welding fill pass on the splice butt joint. The welder was observed perform 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 has a single V-groove butt joint with backing bar. The splice joint was preheated and maintained to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding. During welding, ABF Quality Control (QC) Gary Ersham was noted monitoring the welding parameters of the welder. At the end of the shift, fill pass welding was still continuing and should remain tomorrow.

At OBG 2W-PP15-W4- #2 & #4 inside- ABF welder Mike Jimenez was observed continuing to perform 4G Shielded Metal Arc Welding (SMAW) back welding fill pass to cover pass on the infill plate to top deck plate butt joint. The welder was noted using 5/32" diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1110A. During the shift, cover pass welding was completed and the welder has asked for QC VT/MT of the just welded butt joints. ABF QC Mike Johnson performed the VT/MT which he found them acceptable. QA has verified the joints.

At OBG 8W/9W edge plate 'F' to top deck plate 'A' inside top corner transition, ABF welder Jorge Lopez was observed performing 2G/2F SMAW welding fill pass to cover pass on the joint. During the shift, the welder has completed welding the top corner transition and has moved to the bottom transition of the same location. During welding, ABF Quality Control (QC) Gary Ersham was noted monitoring the welding parameters of the welder. At the end of the shift, fill pass welding was still continuing and should remain tomorrow.



At OBG 8W/9W top deck plate 'A3' outside, ABF welder Wai Kitlai still welded the repair excavation that has the hole/opening on the plate without ABF obtaining repair request.

01-14-2011 1246 Hours Self Anchored Suspension Bridge



At OBG 8W/9W side plate 'C1' inside, ABF welder Sungtao, Huang was observed continuing to perform Flux Cored Arc Welding (FCAW-G) welding fill pass on the splice butt joint.

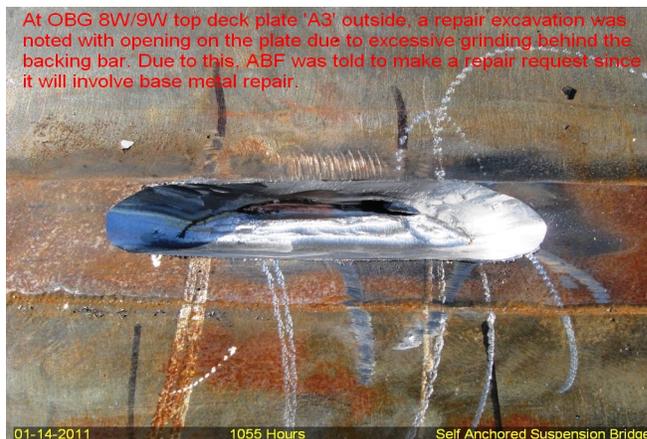
01-14-2011 1119 Hours Self Anchored Suspension Bridge

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## Summary of Conversations:

Prior to the repair welding at this location 8W/9W top deck plate 'A3', QA consulted with Lead QA Rick Bettencourt about the procedure for welding repair with burn through or excessive grinding since this particular weld repair has a hole due to excessive grinding behind the backing bar. ABF needs to make a repair request with Engineer's approval since this repair does not only involve the weld defect but also includes a base metal repair. QC Inspector Pat Swain informed QA this has happened before on similar joints which the Engineer had approved. Per Pat Swain, he will not stop the welder to perform the repair and the repair request will be followed at a later time. The welder performed the repair and was completed. QA issued an incident report for the repair being made without engineer approval.

## 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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<b>Inspected By:</b>	Lizardo, Joselito	Quality Assurance Inspector
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<b>Reviewed By:</b>	Levell, Bill	QA Reviewer
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