

**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-027997**Date Inspected:** 22-Jul-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Fred Michels**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:** 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 OBG 13W-PP122.2-LS1 longitudinal stiffener inside, QA randomly observed ABF welder Xiao Jian Wan perform carbon air arc gouging after the removal of the ceramic backing. The welder ground smooth the groove of the weld joint after the gouging and it was tested by ABF QC using the Magnetic Particle Testing (MT). After the MT acceptance of the ground and back gouged surface of the joint splice, the welder resumed welding the splice. The welder was observed continuing to perform 3G (vertical) Shielded Metal Arc Welding (SMAW) complete joint penetration (CJP) 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 with ceramic backing that was welded from one side and after the completion from one side it was back gouged; Non Destructive Testing (NDT) tested using Magnetic Particle Testing (MT) and being back welded to the other side. The welder was noted using E9018H4R with 3.2mm diameter electrode implementing Caltrans approved welding procedure specification (WPS) ABF-WPS-D1.5-1012-3. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blanket located at the opposite side of the plate prior/during welding. The QA Inspector noted the ABF QC Fred Michels was on site monitoring the in process preheats and welding parameters. Measured working current during welding was 120 amps on a 3.2mm E9018H4R electrode. QC was also closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. The welder completed the cover pass on the other side of the longitudinal stiffener LS1. The welder held the same preheat of >200°F on the splice butt joint for three hours after

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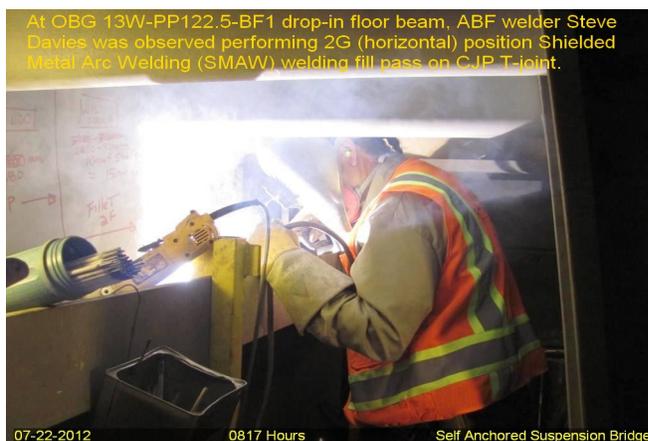
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welding as required.

At OBG 13W-PP122.5-W2.8-BF1 drop-in floor beam , QA randomly observed ABF certified welder Steve Davies continuing to perform 2G (horizontal position) Shielded Metal Arc Welding (SMAW) welding fill pass on the CJP T-joint from location Y=0mm to Y=2680mm. The welder was utilizing 3.2mm diameter E7018H4R on the fill pass implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1100 Rev. 0. The joint being welded has a single bevel T-joint without backing bar that will be back gouged then back welded. The plates were preheated to more than 150 degree Fahrenheit using propylene gas torch prior welding. Welding parameters were monitored by ABF/QC William Sherwood. QA noted the welding working current of 135 amperes on the 3.2 diameter E7018H4R electrode. One side of the CJP and fillet weld joint from Y=0mm to Y=3240mm was completed and the welder went to the other side of the weld joint and back gouged the area where CJP was required. The workmanship and appearance of the completed cover pass on one side deemed satisfactory. After back gouging, the welder ground smooths the groove of the weld joint and called for QC to perform the MT. At the end of the shift, both the CJP and fillet welding on the floor beam web to the adjoining steel was still continuing and should remain tomorrow.

At OBG 12W/13W corner drop-in assembly side plate 'C1.1' outside, QA randomly observed ABF/JV qualified welder James Zhen continuing to perform CJP groove (splice) back welding fill pass to cover pass on the splice butt joint. The welder was observed perform manual welding in the 4G (overhead) position utilizing a Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040C-Cu. The joint being welded has a single V-groove butt joint with copper backing bar that has been removed, back gouged and ground and tested by ABF QC using MT. During welding, ABF Quality Control (QC) Fred Michels was noted monitoring the welding parameters of the welder with measured working current of 120 amperes. At the end of the shift, cover pass welding at location mentioned above was still continuing and should remain tomorrow.

Other welding related activities noted during the shift include backing bar removal using carbon air gouging at 12W-W2.1 location Y=26,000mm to 30,000mm of corner drop-in assembly top deck plates. Grinding on the groove of the gouged backing bar removal followed after carbon air arc gouging.



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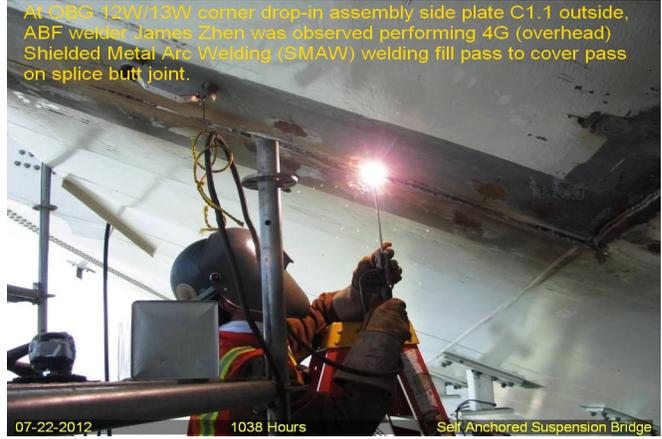
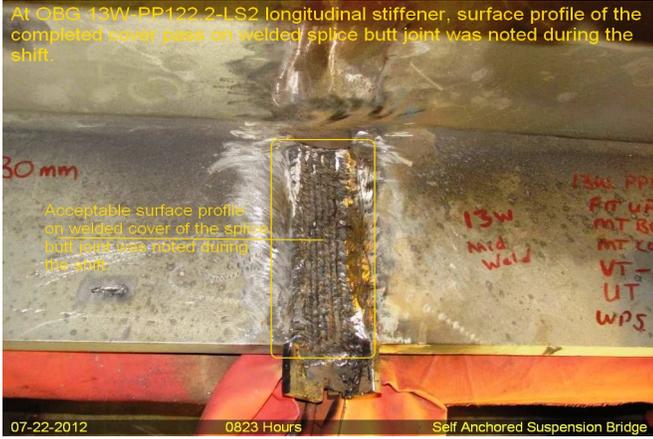
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## Summary of Conversations:

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