

**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-016159**Date Inspected:** 11-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 Jim Cunningham |           |            | <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' (300mm to 1000mm) inside, QA noted this location has already been welded by the welder, Songtao, Huang prior to QA's arrival. The welder has moved to the new location at 7916mm to 9955mm and welded the root pass. After welding the root pass, the welder went outside the OBG plate and removed the fitting gear that was holding the backing bar in place. After removing the fitting gear, the heater blanket was put back in place in direct contact with the plate being welded. This set-up should give more heat to the plate. While the welder was removing the fitting gear from the outside, one ABF personnel was noted heating the plate from inside using propane gas torch to maintain the 200 degrees Fahrenheit preheat. This was continued until the removal of the fitting gear and putting back in place of the heater blanket was completed. The welder went back inside and resumed welding. This 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 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, fill pass welding was not completed and should continue tomorrow.

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# WELDING INSPECTION REPORT

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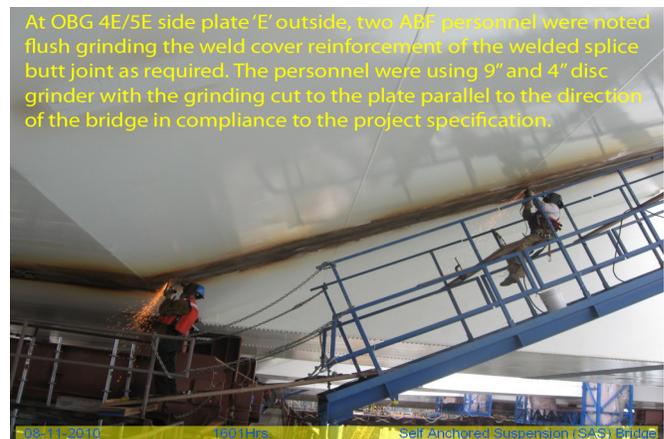
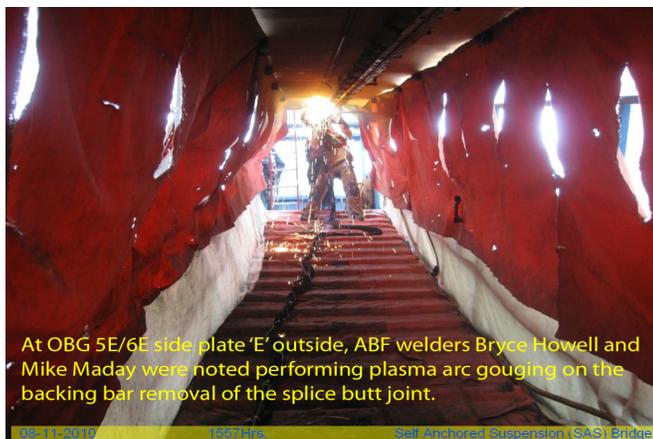
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QA randomly observed ABF/JV qualified welders Rory Hogan and Jeremy Dolman continuing to perform CJP groove (splice) back welding fill pass on Orthotropic Box Girder (OBG) 5E/6E side plate 'C1' outside. The welder was observed back welding in the 4G (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 gouged and ground splice butt joint was also Non Destructive Testing (NDT) tested using the Magnetic Particle Testing (MT). The splice joint was preheated and maintained to greater than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System located on top of the plate prior welding and by moving the blanket to the side of the weld being welded during welding. The vicinity was also properly protected from wind and other climatic conditions. ABF Quality Control (QC) Jim Cunningham was noted monitoring the welding parameters of the welder. During the shift, fill pass welding was still continuing and should remain tomorrow.

At OBG 4E/5E side plates 'C' and 'F' outside, QA observed ABF personnel were continuing to flush grind the weld cover reinforcement of the splice joints as required. ABF personnel were using a 9 inch and 4 inch disc grinders and the grinding 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 'E' outside, QA randomly observed ABF personnel Mike Maday and Bryce Howell perform plasma arc gouging on the backing bar removal of the splice butt joint. The personnel were using an Esab plasma arc gouging machine that has the nozzle holder attached to a Bug-o track. Gouging of the backing bar was not completed today and should continue tomorrow.

At OBG 3W/4W bottom plate 'D' inside, this QA performed 10% MT verification on the welded splice butt joint. QA was using Parker Contour Probe Model DA 400 with serial number 16989 electromagnetic yoke with red magnetic powder as detecting media. QA found no significant indications during the verification. Please see TL-6028 report for more information.



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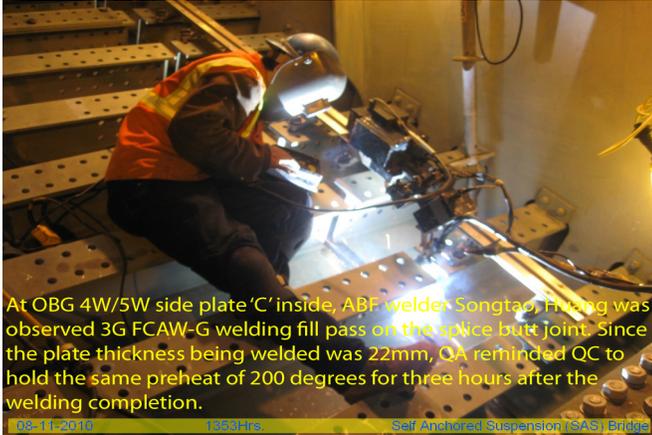
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## Summary of Conversations:

At 4W/5W side plate 'C' inside, due to 22mm thickness of the plate being welded, QA reminded ABF QC William Sherwood to hold the preheat of 200 degrees Fahrenheit for three hours after the welding completion which QC agreed. QC mentioned to QA that ABF is switching the power connection of the Miller Proheat 35 Induction Heating System from the big generator to small generator at the end of the shift since ABF is turning off the big generator.



At OBG 4W/5W side plate 'C' inside, ABF welder Songtao Huang was observed 3G FCAW-G welding fill pass on the splice butt joint. Since the plate thickness being welded was 22mm, QA reminded QC to hold the same preheat of 200 degrees for three hours after the welding completion.

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

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