

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

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-023444**Date Inspected:** 05-May-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**CWI Name:** Steve Jensen**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 Tower East Shaft Splice #2 @ Elevation 83 meters:

At East (B-C) 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 splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed ABF personnel using 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. This QA Inspector performed a verification of the welding parameters and observed 270 amperes and 21.8 volts with a travel speed of 95 mm per minute with equivalent heat input of 3.72 KJ per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. During the shift, the welder has completed the fillet weld cover on both sides of the joint. The welder has moved to the top of the plate and performed 2F fillet welding which was also completed during the shift. The welder has again moved to bottom half of the same splice and welded 3F fillet on the both sides of the joint until the end of the shift. Before the end of the shift, the welder has stopped fillet welding and 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 Heating System to hold the preheat that was programmed to shut off after three hours.

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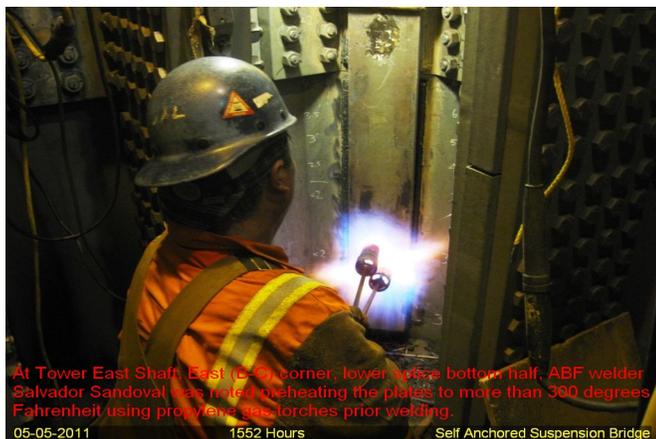
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At Tower East Shaft Splice #2 @Elevation 83meters:

At Southeast (C-D) corner, upper splice top half, this QA randomly observed ABF welding personnel Morgan Winter continuing to perform 3F fillet welding the splice plate to interior corner closure plate. The welder was noted using Flux Cored Arc Welding (FCAW) with 1.8mm diameter E71T-8 wire electrode implementing ABF-WPS-D15-F2200-3. Prior welding, the welder was noted preheating the plates to more than 300°F using propylene gas torch. ABF QC Steve Jensen was noted monitoring the parameters of the welder and measured working current of 265 amperes and 20.0 volts with a travel speed of 90mm per minute which appears in compliance to the WPS. Welding of the vertical fillet on both sides of the plate was completed and the welder has moved to upper splice bottom half and also performed 3F fillet welding which the welder has also completed during the shift. The welder has left early due to some appointment and according to him; all he has left to weld is the overhead which should be done tomorrow. Before the end of the shift, ABF personnel were noted covering the weld with heater blanket and preheated and held the temperature of more than 300°F for three hours as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower South Shaft Splice #1 @Elevation 50.3meters:

At Tower South Shaft South (C-D) corner, ABF welder Richard Garcia was observed performing fit up of the lower and upper splice plates to interior corner closure plate. The welder has tack welded using SMAW various temporary attachments to the interior corner closure plate and used wedges to hold the lower/upper splice plates in place. The welder was also noted preheating the plate to more than 225°F prior welding. ABF QC Steve Jensen was noted at site monitoring the welder and his welding parameter. During the shift, fit up of the splice plates at location mentioned above was completed. This QA has noted ABF QC Steve Jensen perform fit up verification on the installed splice plates. During the verification, the lower splice plate was noted having 6.5mm gap between the splice plate and the interior corner closure plate. ABF personnel have inserted two shim plates, one on each side of the plate. The shim on the left side of the plate was 3mm thick x 38mm wide x 630mm long and the one on the right side of the plate was 3mm thick x 38mm wide x 465mm long. All the rest of the joint fit up was having a reading of 2-3mm gap. According to ABF QC Steve Jensen, he will submit the gathered information to ABF and wait for the Engineer's approval for the use of shim before ABF could start tack welding.



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Summary of Conversations:

At Tower West Shaft, Northwest (C-D) corner, upper splice bottom half where Incident Report was written due to 1" fillet weld hold back that was disregarded and then tried to grind off the weld that eventually created a cavity, today, Caltrans Engineer Doug Wright has given an instruction to ABF personnel Erick Sparks to grind and blend the corners of the cavity as a solution to the problem. In the presence of Doug Wright, Caltrans Engineer, this QA and ABF QC Steve Jensen, ABF foreman Mr. Eric Sparks performed the grinding/blending of the cavity corners just as what Mr. Doug Wright has told him to do. After the completion of the grinding, all three of us (Caltrans, QA & QC) were satisfied the way it was fixed and accepted the last remaining joint of the West Shaft splice number 2 at elevation 83 meters.

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.

Inspected By: Lizardo, Joselito Quality Assurance Inspector

Reviewed By: Levell, Bill QA Reviewer