

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:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027228**Date Inspected:** 21-Feb-2012**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 OBG**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 Base 13 meters diaphragm weld joint number W106, ABF welder Jin Pei Wang was observed continuing to perform 1G Shielded Metal Arc Welding (SMAW) welding root pass on the 45mm thick center diaphragm plate to 60mm shear plate Partial Joint Penetration (PJP) T-joint. The 45mm diaphragm has a 45 degrees bevel with an average root opening of 3.3mm, with partial backing bar. The alignment for weld number W106 was noted 0mm minimum to +10mm maximum. This misalignment which was previously brought to the attention of the ABF QC, and a remedial solution has been put forward by QC through Mr. Jim Bowers and awaiting approval according to QC. The welder was noted using 3/16" diameter E7018H4R implementing Welding Procedure Specification (WPS) ABF-WPS-D15-1160 with measured working current of 232 amps. Prior welding, the welder has preheated the plates to required preheat temperature of more than 150 degrees Fahrenheit using a propylene gas torch. During welding, ABF QC Steve Jensen was noted monitoring the welder. After the completion of the weld joint W106, the welder has moved to weld joint location W125 between the 60mm thick tower plate and 45mm thick South diaphragm plate. This weld joint has an average root opening of 6.8mm and has C-channel underneath the weld joint that is supporting the diaphragm plate and could serve as backing bar for the joint. The welder performed root welding using the same procedure mentioned above. This weld joint was also completed and the welder has again moved to another weld joint location W109. The 45mm outer West diaphragm plate has a 45 degrees bevel with an average root opening of 3.1mm, with partial backing bar. The alignment for weld number W109 was noted -8.5mm minimum to -12mm maximum. The welder has also welded

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the root pass but partially completed only. Welding of the remaining unwelded length of the joint should continue tomorrow.

At Tower Base 13 meters diaphragm weld joint number W107, ABF welder Wai Kitlai was observed continuing to perform 1G Shielded Metal Arc Welding (SMAW) welding root pass on the 45mm thick inner West diaphragm plate to 60mm shear plate PJP T-joint. The 45mm diaphragm has a 45 degrees bevel with an average root opening of 14mm, with backing bar. The alignment for weld number W107 was noted -6mm minimum to +7mm maximum. This misalignment which was previously brought to the attention of the ABF QC, and a remedial solution has been put forward by QC through Mr. Jim Bowers and awaiting approval according to QC. The welder was noted using 3/16" diameter E7018H4R implementing Welding Procedure Specification (WPS) ABF-WPS-D15-1050A with measured working current of 216 amps. Prior welding, the welder has preheated the plates to required preheat temperature of more than 150 degrees Fahrenheit using a propylene gas torch. During welding, ABF QC Steve Jensen was noted monitoring the welder. After the completion of the weld joint W107, the welder has moved to weld joint location W126 between the 60mm thick tower skin plate and 45mm thick South diaphragm plate. This weld joint has an average root opening of 10mm and has C-channel underneath the weld joint that is supporting the diaphragm plate and could serve as backing bar for the joint. The welder performed root welding using the same procedure mentioned above. This weld joint was also completed and the welder has again moved to another weld joint location W108 between the 45mm inner West diaphragm plate to 60mm tower skin plate. The diaphragm has a 45 degrees bevel with an average root opening of 12mm, with backing bar. The alignment for weld number W108 was noted -5mm minimum to +11.5mm maximum. The welder has also welded the root pass but partially completed only. Welding of the remaining unwelded length of the joint should continue tomorrow.

At Tower Base 9 meters diaphragm, fit up/tack welding of drop in plates at outer West diaphragm was noted. ABF welder Luo Xiao Hua was observed performing tack welding the 45mm drop ins to 60mm thick shear plate using Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode. The plates were preheated to required temperature of 150 degrees Fahrenheit using propylene gas torch prior welding. During the tack welding, ABF QC Steve Jensen was noted monitoring the parameters of the welder. At the end of the shift, fit up/tack welding of two out of four drop ins for the outer West diaphragm was completed.



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At Tower Base 9.0 meters diaphragm, ABF welder Luo Xiao Hua was noted preheating the 45mm drop in plate and 60mm shear plate prior tack welding.



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.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer