

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-022947**Date Inspected:** 20-Apr-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:	Fred Von Hoff and 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:	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 10E/11E side plate 'C2' (0mm to 2638mm) inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 continuing to perform CJP groove (splice) welding cover 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) John Pagliero was noted monitoring the welding parameters of the welder. At the end of the shift, cover pass welding was completed and the welder has moved to 'C2' (2638mm to 5277mm) inside of the same OBG.

At OBG 10E/11E side plate 'E1' (0mm to 1100mm) inside, QA randomly observed ABF/JV qualified welder Fred Kaddu continuing to perform fill pass to cover pass welding on the Complete Joint Penetration (CJP) splice butt joint where the track mounted Bug-o FCAW welder nozzle holder has limited access. The welder was observed manually welding in the 3G (vertical) position utilizing a Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040B. The joint being welded has a single V-groove butt joint with steel backing bar. During

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welding, ABF Quality Control (QC) John Pagliero was noted monitoring the welding parameters of the welder. At the end of the shift, cover pass SMAW welding at location mentioned above was completed.

At OBG 7E-PP55-E3-#2 & 4 lifting lug access hole to top deck plate outside – ABF welder Jason Collins was observed 1G SMAW welding root pass to cover pass on the infill plate to top deck plate butt joints. The welder was noted using 1/8” and 5/32” diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1070. Prior welding, ABF QC Fred Von Hoff was observed inspecting the fit up of the butt joints. QA verified the fit up alignment of the two access holes which deemed acceptable to the contract requirements. During welding, ABF QC Fred Von Hoff was noted monitoring the welder’s welding parameters. During the shift, cover pass welding on the top side location of the two butt joints was completed and the welder has moved to 7E-PP56-E3-#1 to 4 access holes. The welder performed fit up on the access hole #3 and QC has checked the alignment as usual. The welder performed the root pass to fill pass until the end of the shift.

At OBG 9E/10E side plate ‘E2’ inside, QA randomly observed ABF/JV qualified welder Jorge Lopez perform CJP groove welding repair. The welder was observed welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8” diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1001-Repairs. The first time repair excavation located at Y=2800mm and was having excavation profile of 90mm long x 20mm wide x 13mm deep was preheated to more than 140 degree Fahrenheit using propane gas torch prior welding. During the shift, ABF QC Jesse Cayabyab was noted monitoring the welder. Prior welding, ABF QC Jesse Cayabyab was also observed performing Magnetic Particle Testing (MT) on the boat shape repair excavation. At the end of the shift, cover pass welding on the repair was completed.

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Complete Joint Penetration (CJP) welding of three (3) longitudinal stiffeners, three (3) side plates, one (1) bottom plate and four (4) lifting lug access hole to top deck plate butt joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection complied with the contract documents.

1. OBG 7W/8W LS1, LS2 & LS3 longitudinal stiffeners inside - QA MT verified
2. OBG 8E/9E side plate ‘C’ inside - QA VT/MT verified
3. OBG 9E/10E side plates ‘C’ & ‘E’ inside – QA MT verified
4. OBG 9E/10E bottom plate ‘D’ inside – QA MT verified
5. OBG 7E-PP55-E4-#1 to 4 lifting lug access holes outside - QA MT verified

Tower Splice – 83 Meter elevation, West shaft: This QA Inspector randomly observed the status of the upper and lower Interior Corner Closure Splice Plates located at the B- C corner and C-D corner. During this shift the following was observed.

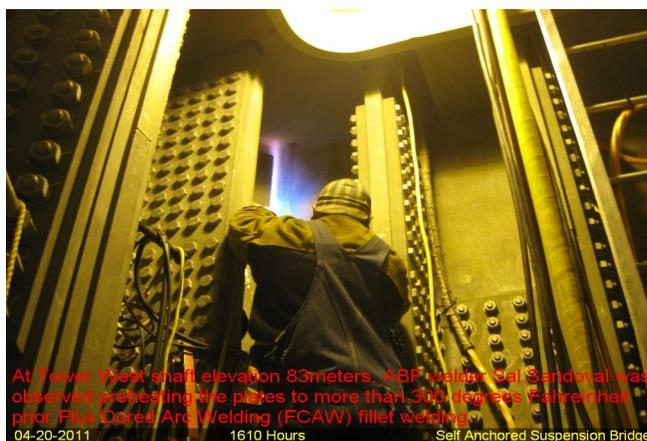
At West B-C corner, upper splice plate: This QA Inspector randomly observed ABF welding personnel Salvador Sandoval (#2202) performing production welding on the bottom half of the splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed a propane gas torch was being used to preheat areas prior to welding. This QA Inspector observed QC Inspector Steve Jensen using an infra red

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temperature gauge to verify the preheat temperature of more than 300°F. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. The welding of the vertical fillet welds was still continuing and should remain tomorrow. Before the end of the shift, at around 1630hours, 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 of more than 300°F that was programmed to step down 95°F per hour until the completion of three hours. Since this step down preheating of the plate after welding that was implemented by ABF was contrary to the Caltrans Special Provision, an incident report will be generated.

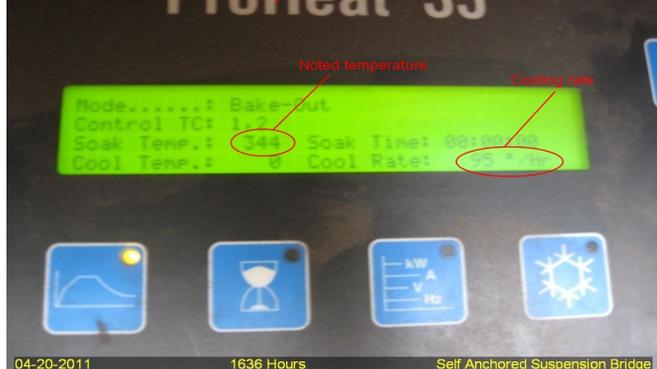
At Northwest C-D corner, lower splice plate: This QA Inspector randomly observed ABF welding personnel Gil Peralta performing production welding on the bottom half of the splice plate using the self shielded Flux Cored Arc Welding (FCAW) process. This QA Inspector observed a propane gas torch was being used to preheat areas prior to welding. This QA Inspector observed QC Inspector Steve Jensen using an infra red temperature gauge to verify the preheat temperature of more than 300°F. This QA Inspector performed a visual verification of the welding profile that was being welded and noted unacceptable fill passes on the fillet weld. This was relayed to ABF QC Steve Jensen later during the end of the shift due to QC was not present at the site at the time. QC has informed this QA that he will take a look first thing in the morning tomorrow. The welding of the vertical fillet welds was still continuing and should remain tomorrow. Before the end of the shift, at around 1630hours, 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 of more than 300°F that was programmed to step down 95°F per hour until the completion of three hours. Since this step down preheating of the plate after welding that was implemented by ABF was contrary to the Caltrans Special Provision, an incident report will be generated.



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At Tower West shaft, elevation 83meters the Miller Proheat 35 Induction Heating System was programmed to a cooling rate of 95 degrees.F per hour as shown on the control panel of the machine.



At OBG 10E/11E side plate 'C2' inside, ABF welder Songtao, Huang was observed performing 3G Flux Cored Arc Welding (FCAW-G) welding cover pass on splice butt joint.



Summary of Conversations:

During the conversation with the ABF welding foreman Erick Sparks, he mentioned to this QA that ABF will step down the preheat of the plates after welding for three hours at the Tower West shaft elevation 83meters.

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