

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 #: 1x.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-013215**Date Inspected:** 21-Apr-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

CWI Name:	Jim Cunningham and Bonifacio Daquinag			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 L3E/L4E plate 'B' (outside), QA randomly observed ABF/JV qualified welder James Zhen ID #6001 perform CJP groove (splice) back welding fill to cover pass. The welder was observed welding in the 3G (vertical) position utilizing a manual 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-D15-3110-3. 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 200 degree Fahrenheit using Miller Proheat 35 Induction Heating System located at the other side of the plate prior/during welding. During welding, ABF Quality Control (QC) Bonifacio Daquinag was noted monitoring the welding parameters of the welder. The ABF welder was having porosity in his weld during fill pass and this was attributed to the accidental cutting off of supply of shielding gas. QC has instructed the welder to grind off/remove the porosity in the weld pass while other ABF personnel was fixing the gas problem. After completing grinding, QC have visually inspected and performed Magnetic Particle Testing (MT) on the ground/removal of porosity and accepted. This QA confirmed the acceptance of the ground/removal of porosity. Welding parameters measured during welding were 225 amperes and 23.4 voltages which appear in compliance to the contract requirements.

Before welding commenced on the above splice butt joint, this QA had a discussion with the ABF QC Bonifacio

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Daquinag concerning the preheat maintenance on a 25mm plate thickness splice butt joint at plate 'B'. QC talked to his Supervisor Lenard Cross who also called ABF QCM Jim Bowers and asked about the preheat due to disagreement as to how the preheat should be maintained. Per QC, Jim Bowers informed Lenard Cross during their telephone conversation that the plate splice butt joint has two assigned weld identification (i.e. inside and outside) and that each weld is treated separately. When ABF has finished welding one side (outside) they just have to hold the heat for three hours and then stop the preheat maintenance. After they back gouge the other side (inside), ground smooth the backing bar removal and perform MT on the gouged/ground areas, ABF will treat this weld as a new weld and preheat and maintenance will also start. In other words ABF is saying there is no continuation of preheat maintenance between outside welding and inside welding. I tend to disagree with this interpretation of the Special Provision but with the assistance of Lead QA Daniel Reyes, who informed this QA that there was an agreement between Caltrans and ABF regarding this matter.

QA randomly observed ABF/JV qualified welders Rory Hogan (ID #3186) and Jeremy Dolman (ID #5042) perform CJP groove (splice) back welding fill to cover pass on Orthotropic Box Girder (OBG) L2E/L3E plate 'E'(7755mm to 10555mm / outside). The welders were observed 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 is 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 at the other side of the plate prior/during welding and the vicinity was properly protected from wind. During welding, ABF Quality Control (QC) Jim Cunningham was noted monitoring the welding parameters of the welder. During the shift, ABF welders were having problem with their welding machine and it took a while before their machine was fixed. At the end of the shift, welding in this location was still continuing.



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Summary of Conversations:

As stated above.

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.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer