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 #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-020847
Date Inspected: 15-Feb-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 800
OSM Departure Time: 1630
Location: Job Site

CWI Name:	Steve Jensen and Gary Ersham			**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 9E/10E side plate ‘E2’ (0mm to 2638mm) inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 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) Steve Jensen was noted monitoring the welding parameters of the welder. During the shift, cover pass welding was completed and the welder has moved to ‘C2’ (2638mm to 5277mm) where he manually welded root pass in between the temporary WT stiffener connection plates. The welder has also waited for the bolting crew to remove the temporary WT stiffener connection plates to have access for the Bug-o track mounted nozzle holder.

At OBG 3W-PP19.5-W2-N deck access hole to top deck plate inside, QA randomly observed ABF/JV qualified welder Jin Pei Wang perform CJP repair welding. The welder was noted welding in 4G (vertical) position utilizing SMAW with 1/8” diameter E7018H4R electrode implementing new Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repair. The welding repairs were excavated to a boat shape

profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC Steve Mc Connell was noted monitoring the welder and his welding parameters. QA noted parameter during welding was 125 amperes which appears in compliance to the WPS. The locations of the repairs were noted below;

Location	Y-dimension	Length	Width	Depth	Remarks
1.	2390mm	255mm	20mm	6mm	Completed
2.	3260mm	100mm	20mm	4mm	Completed
3.	2780mm	450mm	20mm	5mm	Completed
4.	4020mm	110mm	25mm	6mm	In progress

At OBG 8W-PP61.5-W5-SW deck access hole to top deck plate inside, QA randomly observed ABF/JV qualified welder Jorge Lopez perform CJP repair welding. The welder was noted welding in 4G (vertical) position utilizing SMAW with 1/8" diameter E7018H4R electrode implementing new Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repair. The welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC William Sherwood was noted monitoring the welder and his welding parameters. QA noted parameter during welding was 135 amperes which appears in compliance to the WPS. The locations of the repairs were noted below;

Location	Y-dimension	Length	Width	Depth	Remarks
1.	4340mm	130mm	20mm	9mm	Completed
2.	3990mm	90mm	18mm	10mm	Completed
3.	3335mm	100mm	23mm	10mm	Completed
4.	3205mm	50mm	17mm	10mm	Completed
5.	2820mm	80mm	22mm	10mm	Completed

At OBG 8W/9W edge plate 'F1' inside, QA randomly observed ABF/JV qualified welder Fred Kaddu perform CJP repair welding. The welder was noted welding in 3G (vertical) position utilizing SMAW with 1/8" diameter E7018H4R electrode implementing new Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repair. The second time welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC William Sherwood was noted monitoring the welder and his welding parameters. QA noted parameter during welding was 130 amperes which appears in compliance to the WPS. The locations of the repairs were noted below;

Location	Y-dimension	Length	Width	Depth	Remarks
1.	120mm	90mm	20mm	14mm	Completed
2.	530mm	120mm	15mm	15mm	Completed
3.	740mm	140mm	20mm	13mm	Completed

At OBG 9W/10Wtop deck plate 'A1' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP repair welding. The welder was noted welding in 1G (flat) position utilizing SMAW with 1/8" diameter E7018H4R electrode implementing new Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1003 Repair. The new repair procedure includes putting in place a copper backing alongside the typical steel backing bar when the repair excavation is expected to occur at the edge of the steel backing. The second time welding repair located at Y=5mm and having dimension profile of 100mm long x 28mm

wide x 24mm deep was excavated to a boat shape profile and was tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC John Pagliero was noted monitoring the welder and his welding parameters. QA noted parameter during welding was 140 amperes which appears in compliance to the WPS.

At OBG 3W/4W LS5 longitudinal stiffener inside, QA randomly observed ABF welder Hua Qiang Hwang ID #2930 perform 3G (vertical) SMAW back welding fill pass on the stiffener CJP splice butt joint. The joint has a double V joint preparation that was welded from one side using E9018H4R with 1/8” diameter electrode implementing Caltrans approved welding procedure specification (WPS) ABF-WPS-D1.5-1012-3. The joint being welded was root welded using a ceramic backing, fully welded from one side then back gouged and was ground smooth. The other side was back gouged and ground smooth and was also Non Destructive Testing (NDT) tested using the MT. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located at the opposite side of the plate prior/during welding. QA noted the ABF QC Gary Ersham was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC Gary Ersham was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. At the end of the shift, fill pass welding on the other side of the stiffener LS5 was still continuing and should remain tomorrow. The welder was also told to keep the preheat maintenance of more than 200 degrees Fahrenheit after welding and hold it for three hours as required.

At OBG 3W/4W LS3 longitudinal stiffener inside, QA randomly observed ABF welder Xiao Jian Wan perform 3G (vertical) SMAW back welding cover pass on the stiffener CJP splice butt joint. The joint has a double V joint preparation that was welded from one side using E9018H4R with 1/8” diameter electrode implementing Caltrans approved welding procedure specification (WPS) ABF-WPS-D1.5-1012-3. The joint being welded was root welded using a ceramic backing, fully welded from one side then back gouged and was ground smooth. The other side was back gouged and ground smooth and was also Non Destructive Testing (NDT) tested using the MT. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located at the opposite side of the plate prior/during welding. QA noted the ABF QC Gary Ersham was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC Gary Ersham was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. During the shift, cover pass welding on the other side of the stiffener LS3 was completed. The welder was also told to keep the preheat maintenance of more than 200 degrees Fahrenheit after welding and hold it for three hours as required.

WELDING INSPECTION REPORT

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Summary of Conversations:

No significant conversation ocurred 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