

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-022501**Date Inspected:** 12-Apr-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

CWI Name:	William Sherwood and John Pagliuca			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 11E-PP97.5-E5 LSE longitudinal stiffener inside, QA randomly observed ABF welder Hua Qiang Hwang perform 3G (vertical) Shielded Metal Arc Welding (SMAW) complete joint penetration (CJP) welding root pass to cover pass on the one side of the stiffener splice butt joint. The stiffener plates being welded are made of high strength plate material HPS 485W and has a thickness of 30mm. The joint has a double V joint preparation that was welded from one side and after the completion from one side, to be back gouged; Non Destructive Testing (NDT) tested using Magnetic Particle Testing (MT) and back welded to the other side. The welder was noted 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. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blanket located at the opposite side of the plate prior/during welding. The QA Inspector noted the ABF QC Fred Von Hoff was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC Fred Von Hoff was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. During the shift, cover pass welding on both sides of the stiffener was completed and the welder was instructed by QC to hold and maintain the preheat of 200°F for three more hours after welding as required. This access hole location was originally intended to be an access hole but to be relocated (for unknown reason) after the two longitudinal stiffeners (LSW & LSE) have already been cut. The two cut longitudinal stiffener weld locations are being welded to restore the plate.

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

At OBG 10E/11E side plate 'C1' inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 perform CJP groove (splice) welding root pass on the splice butt joint. The welder was observed perform manual 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 plate being welded was preheated to >150 °F using propane gas torch prior welding. During welding, ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. At the end of the shift, root pass welding at location mentioned above was completed and fill pass welding will continue tomorrow.

At OBG 10W/11W side plate 'C2' (4577mm to 5277mm) inside, QA randomly observed ABF/JV qualified welder Fred Kaddu perform root pass to fill 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 welding, ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. Prior welding, QA randomly verified the fit up where the welder would be welding and noted a root gap of 5mm and alignment of 2mm which appears in conformance to the contract requirements. During the shift, fill pass SMAW welding was still continuing and should remain tomorrow.

At OBG 10W/11W top deck plate 'A' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai 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 first time welding repairs were excavated to a boat shape profile and were 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. The locations of the repairs were noted below;

Location	Y-dimension	Length	Width	Depth	Remarks
1. A1	4960mm	90mm	20mm	15mm	Completed (R1)
2. A1	5410mm	85mm	20mm	15mm	Completed (R1)
3. A2	2040mm	90mm	20mm	17mm	Completed (R1)
4. A1	0mm	110mm	20mm	21mm	Excavated
5. A1	775mm	120mm	20mm	21mm	Excavated

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 five (5) longitudinal stiffeners and one (1) deck access hole transverse stiffener 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 9E/10E LS3 longitudinal stiffener inside - QA MT verified

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

2. OBG 9E/10E LS6 longitudinal stiffener inside - QA MT verified
3. OBG 10E/11E LS 4 to LS6 longitudinal stiffener inside - QA VT/MT verified
4. 6E-PP37.5-E5 TS deck access hole transverse stiffener inside - QA VT/MT verified



Summary of Conversations:

At OBG 11E-PP97.5-E5, this access hole location was originally intended to be an access hole but to be relocated (for unknown reason) after the two longitudinal stiffeners (LSW & LSE) have already been cut. The two cut longitudinal stiffener weld locations are being welded to restore the plate. This QA talked to ABF QC Bonifacio Daquinag and informed this QA that there was a mistake in marking the location of the access hole that caused the error.

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
