

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-028030**Date Inspected:** 21-Jul-2012**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**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 Tower**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 12W-W2.1 corner drop-in side plate 'C1' outside, QA randomly observed ABF/JV qualified welder Jin Pei Wang continuing to perform CJP groove (splice) back welding fill pass to cover pass on the splice butt joint from Y=11,000mm to Y=15,000mm. The welder was observed perform manual welding in the 4G (overhead) position utilizing a Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040C-Cu. The joint being welded has a single V-groove butt joint with copper backing bar that has been removed, back gouged and ground. During welding, ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder with measured working current of 125 amperes. At the end of the shift, cover pass welding at location mentioned above was still continuing and should remain tomorrow.

At OBG 13W-PP122.5-W2.8-BF1 drop-in floor beam, QA randomly observed ABF certified welder Steve Davies perform 2G (horizontal position) Shielded Metal Arc Welding (SMAW) welding fill pass on the CJP T-joint from location Y=0mm to Y=2680mm. The welder was utilizing 3.2mm diameter E7018H4R on the fill pass implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1100 Rev. 0. The joint being welded has a single bevel T-joint without backing bar that will be back gouged then back welded. The plates were preheated to more than 150 degree Fahrenheit using propylene gas torch prior welding. Welding parameters were monitored by ABF/QC William Sherwood. QA noted the welding working current of 135 amperes on the 3.2

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diameter E7018H4R electrode. The workmanship and appearance of the completed fill pass deemed satisfactory. During the shift, fill pass welding was still continuing when the welder has moved to the fillet portion of the weld joint from location Y=2680mm to Y=3240mm. The welder was noted using the same SMAW process with same size of E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. At the end of the shift, both the CJP and fillet welding on the floor beam web to the adjoining steel was still continuing and should remain tomorrow.

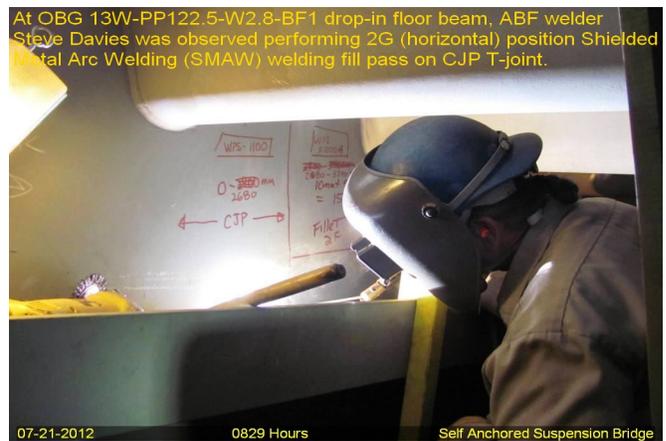
At OBG 13W-PP122.2-LS2 longitudinal stiffener inside, QA randomly observed ABF welder Xiao Jian Wan continuing to perform 3G (vertical) Shielded Metal Arc Welding (SMAW) complete joint penetration (CJP) welding fill pass to cover pass on the stiffener splice butt joint. The stiffener plates being welded are made of high strength plate material HPS 485W and has a thickness of 30mm. The joint has a double 'V' joint preparation with ceramic backing that is being 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 splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blanket located at the opposite side of the plate prior/during welding. The QA Inspector noted the ABF QC William Sherwood was on site monitoring the in process preheats and welding parameters. Measured working current during welding was 120 amps on a 3.2mm E9018H4R electrode. During the shift, QA noted ABF QC William Sherwood was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. The welder completed the cover pass on this particular joint and has moved to the other longitudinal stiffener LS1. Using the same process and procedure mentioned above, the welder welded the root pass up to the cover pass until the end of the shift. The welder held the same preheat of >200°F on the splice butt joint for three hours after welding as required.

At OBG 13W-W2.1 drop-in top deck plate inside, QA randomly observed ABF/JV qualified welder Rick Clayborn perform CJP groove welding repair. The welder was observed welding in the 4G (overhead) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1004-Repairs. The repair excavation was preheated to more than 325 degree Fahrenheit using Miller Proheat 35 Induction Heating System with the heater blanket put in place on top of the deck prior welding. During the shift, ABF QC William Sherwood was noted monitoring the welder. The boat shape repair excavations were tested by ABF QC William Sherwood using Magnetic Particle Testing (MT) prior repair welding. The following repair excavations at OBG mentioned above were welded and completed and the welder performed Post Weld Heat Treatment (PWHT) of 450 degrees Fahrenheit for one hour as required;

Y-location	Length	Width	Depth	Remarks
1. 2830mm	100mm	25mm	12mm	Completed
2. 2880	150	10	9	Completed
3. 3510	75	14	7	Completed
4. 3650	140	10	8	Completed
5. 3960	100	15	8	Completed
6. 4010	80	10	8	Completed
7. 4135	90	10	7	Completed

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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