

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-021767**Date Inspected:** 14-Mar-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:** Pat Swain 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.

QA randomly observed ABF/JV qualified welder Rory Hogan continuing to perform CJP groove (splice) back welding cover pass on Orthotropic Box Girder (OBG) 9E/10E side plate 'C2' outside. The welder was observed back 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 was 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 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located on top of the plate prior welding and by moving the blanket to the side of the weld being welded during welding. The vicinity was also properly protected from wind and other climatic conditions. 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 started moving his welding equipment at bottom plate 'D' outside of the same OBG for his next weld location.

At OBG 2E-PP13.5-E5-N 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 fill pass on the stiffener splice butt joint. The stiffener plates being welded are made of high strength

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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. Prior welding, the fit up was inspected and accepted by ABF QC Pat Swain. QA also verified the root gap of less than 7mm and alignment of less than 1.5mm which deemed acceptable to the contract requirements. 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 Pat Swain was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC Pat Swain was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. At the end of the shift, fill pass welding was still continuing and should remain tomorrow.

The following other welding activities were noted;

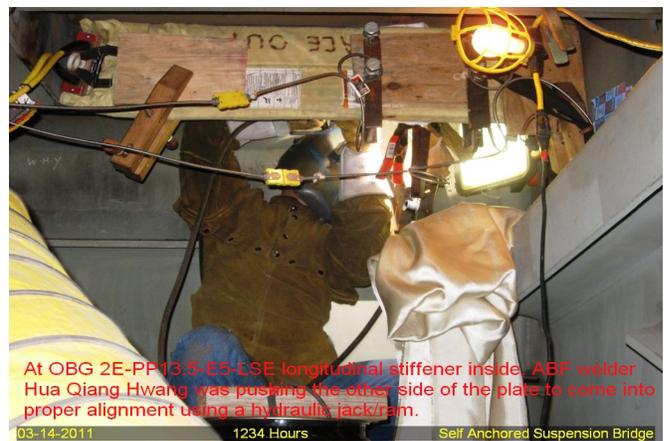
1. 9E/10E plate 'D' outside – smooth grinding of the groove of the carbon air arc gouged backing bar removal was in progress.
2. 6E-PP37.5-E5-NW inside – flush grinding of weld cover reinforcement was ongoing.
3. 10E/11E edge plate 'F' inside – carbon air arc gouging of backing bar removal was noted and after gouging, welder Fred Kaddu started smooth grinding the groove of the gouged backing bar removal.
4. 10E/11E edge plate 'B' inside – ABF QC John Pagliero was noted performing Ultrasonic Testing (UT) on the welded splice butt joint. He found three UT rejects during the test.

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 one deck access hole to top deck plate butt joint. 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 welds and the QC inspection complied with the contract documents.

1. 2E-PP13.5-E5-N deck access hole to top deck plate outside – QA VT/MT verified

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Summary of Conversations:

Today's weather at the job site was rainy. Due to this weather condition, the welders were instructed by Superintendent Dan Ieraci to perform welding inside the OBG except for Rory Hogan who was outside and underneath the OBG and got his own welding protection.

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