

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-028327**Date Inspected:** 06-Sep-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2130**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Barry Drake**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 OBG**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-PP111.1-C1 drop-in side plate outside, QA randomly observed ABF/JV qualified welder Rick Clayborn continuing to perform CJP groove welding repair on a Seismic Performance Critical Member (SPCM) due to Ultrasonic Testing (UT) detected defects on welded splice butt joint. The welder was noted setting up the Miller Proheat 35 Induction Heating System with the heater blanket put in place from the outside to preheat the repair areas to 225°F prior and during excavation using carbon air arc gouging. The welder was given approval to excavate 17 repair at various locations per Caltrans approved Request for Weld Repair (RWR) #201209-001 to #201209-017. The welder ground smooth the groove of the excavation and after its completion, ABF QC Cris Concha performed Magnetic Particle Testing (MT) on the removal of the defects with no relevant defect noted during the test.

The welder pumped up the preheat to 325°F and as soon as the required temperature was attained the welder started performing the welding repair. The welder was observed manually welding in 4G (overhead) position utilizing Shielded Metal Arc Welding (SMAW) with 4.0mm diameter E7018H4R electrode implementing Caltrans approved welding procedure ABF-WPS-D15-1004 Repair. During welding, ABF QC Barry Drake was noted monitoring the welder's welding parameter with measured working current of 135 amperes on the 3.2mm diameter E7018H4R electrode. After the welding completion on the outside repairs, the welder performed the Post Weld Heat Treatment (PWHT) of 450°F using the same Miller Proheat 35 Induction Heating System and held it for one

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hour as required. The following second time repairs were noted excavated and welded during the shift;

Y-location Length Width Depth Remarks

1. 140mm 340mm 25mm 12mm R2 – combined 4 repairs completed.
210mm
250mm
320mm

2. 1320mm 190mm 20mm 12mm R2 – combined 3 repairs completed.
1370mm
1245mm

3. 1950mm 70mm 20mm 11mm R2 - completed.

After the completion of the above mentioned repairs, the welder has moved to OBG 12W/13W-B1 and performed second time repair on welded splice butt joint. The welder was noted using the same welding process and implementing the same WPS on SPCM butt joint. The repairs are being welded per Caltrans approved RWR #201209-039 to 201209-045. Prior welding and using a localized heat propylene gas torch, the welder excavated the UT detected defects and ground them smooth. ABF QC John Pagliero was noted performing MT on the groove of the excavation with no relevant defect noted during the test. The welder was observed continuing to perform repair using 3.2mm diameter E7018H4R with >325°F localized preheat. The welder completed welding seven (7) repairs then instructed two of the ABF's personnel equipped with propylene gas torch and 450°F temperature crayon and performed the post weld heat treatment (PWHT) to 450°F for one hour after welding as required.

The same welder again moved to another location OBG 12W-PP111.1-W2.1 LS3 longitudinal stiffener. In here, the welder performed a third time repair on welded stiffener splice butt joint per Caltrans approved RWR# 201209-038. The UT detected defects were excavated using carbon air arc gouging then ground smooth by the welder. The excavation was noted MT'd by ABF QC Pat Swain. The 3rd time repair was performed by the welder using 3.2mm diameter E9018H4R electrode implementing Caltrans approved ABF-WPS-D15-1002 Repair Rev. 0. Prior welding, the repair area and its vicinity were preheated to more than 200°F using propylene gas torch. During the shift, ABF QC Barry Drake was noted monitoring the welder's preheat and working current of 136 amperes. The QC was also on site monitoring the use of the E9018H4R electrode due to limited allowable atmospheric time exposure of one hour. The welder performed the repair welding until the end of the shift wherein the 3rd time repair was completed on one side and intends to excavate the other side of the weld joint tomorrow.

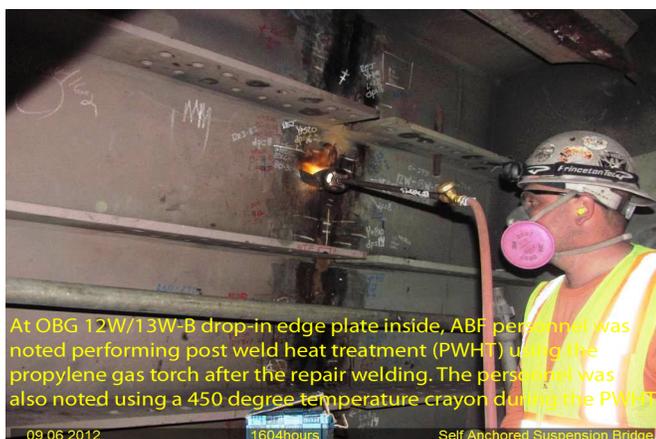
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At OBG 12W-PP111.1-C1 drop-in side plate outside, ABF personnel were noted using the Miller ProHeat 35 Induction Heating System to preheat, maintain and post weld Heat treatment the weld repair during/after welding repair.



At OBG 12W-PP111.1-C1 drop-in side plate outside, ABF welder Nick Clayborn was observed performing 4G (overhead) position shielded Metal Arc Welding (SMAW) welding repair on welded splice butt joint.



At OBG 12W/13W-B drop-in edge plate inside, ABF personnel was noted performing post weld heat treatment (PWHT) using the propylene gas torch after the repair welding. The personnel was also noted using a 450 degree temperature crayon during the PWHT.



At OBG 12W/13W-B drop-in edge plate inside, ABF QC John Pagliera was observed performing Magnetic Particle Testing (MT) on the defect removal excavation prior repair welding.

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 Gary Thomas (916) 764-6027, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer