

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 01.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-029985**Date Inspected:** 05-Sep-2013**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Arrival Time:****OSM Departure Time:****Location:** Job Site

<b>CWI Name:</b>	Jesus Cayabyab & Bernie Docena			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>

**Bridge No:** 34-0006**Component:** See Below**Summary of Items Observed:**

Quality Assurance Inspector (QAI) Edward Leach was at the American Bridge/Flour (ABF) job site at Yerba Buena Island between the times noted above in order to monitor Smith Emery Quality Control (QC) functions and the in process work being performed by ABF personnel. The following items were observed:

ESW Repair Excavations

RWR201308-004

ESW S-043, Location "T" Face B

The QAI periodically observed ABF welding personnel Mike Jimenez utilizing the Shielded Metal Arc Welding (SMAW) process in the vertical (3G) position with Atom Arc E7018-1 H4R, 5/32" diameter electrode to weld face B for two repair excavations on Electroslag Weld (ESW) weld "T" S-043. Locations are listed as detailed in Request for Weld Repair (RWR) 201308-004 from Ultrasonic Testing indications designated for repair. The repair locations & dimensions are noted as:

Y=4690mm-4990mm, Length=300mm, Width=65mm, Depth=70mm & Y=4100mm-4410mm, Length=310mm, Width=68mm, Depth=70mm.

Prior to welding, Mr. Mike Jimenez was observed preheating the weld to over 350° Fahrenheit with Miller ProHeat 35 heat induction blankets and hand held propylene torch. The welding parameters were verified by QC Inspector Bernie Docena with a Fluke 337 current clamp meter and preheat was verified with temperature indicators per ABF Welding Procedure Specification (WPS)

ABF-WPS-D15-1000-Repair Rev.3. The welding observed on this date is being performed for the upper excavation at Y=4690mm. Mr. Docena performed welding parameter verifications at random intervals for the duration of the shift. Welder was observed using proper interpass cleaning methods with a slag hammer, wire

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wheel and light grinding.

## Tower Skirt Ring Beam East Shaft

The QAI periodically observed ABF welding personnel Guo Wu Chen at the above location utilizing the Shielded Metal Arc Welding (SMAW) process in the vertical (3G) position with Atom Arc E7018-1 HR4, 1/8" diameter electrode to complete in process welding for side B of Complete Joint Penetration (CJP) joint weld. The weld number for this location is designated as #166. QC Inspector Mr. Docena performed welding parameter verifications at random intervals for the duration of the shift per Welding Procedure Specification (WPS) ABF-WPS-D1.5-1020, Rev1. Welder was observed using proper interpass cleaning methods with a slag hammer, wire wheel and light grinding. Once welding was complete, the QAI along with QC Inspector Bernie Docena performed Magnetic Particle Testing (MT) examination with a hand held yoke, final visual inspection on all welds (#164, #165, #166) & Ultrasonic Testing (UT) examination for Complete Joint Penetration (CJP) weld of East tower ring beam. The UT was performed with a straight beam examination followed by a full volumetric shear wave examination with a transducer/70° plastic wedge combination. No relevant indications were noted during examination and the welds were accepted by both QAI and QC.

## 9 Meter Tower Diaphragm: Replacement Plate-East Shaft

The QAI along with QC Inspector Bernie Docena performed inspection for fit-up on 45mm diaphragm plate insert to verify root opening and offset were in general compliance with the contract specifications. ABF welding personnel Wai Kit Lai previously performed cut and bevel prep for this plate prior to fit up. The weld joint configuration is a single bevel Partial Joint Penetration (PJP) weld. Once the fit up was accepted ABF welding personnel Wai Kit Lai performed Flux Cored Arc Welding (FCAW) in the flat (1G) position with ESAB Dual Shield 70 Ultra Plus, E71T-1M to weld a root pass. Once the root pass was complete the QAI observed QC Inspector Bernie Docena perform MT verification of root pass. No relevant indications were noted at this time. Mr. Wai Kit Lai continued welding filler passes using the same process mentioned above for the remainder of the shift. At random intervals, QC Inspector Bernie Docena performed a verification of welding parameters with a Fluke 337 current clamp meter. QAI observed welding parameters at 240 amperes and 23 volts which were in compliance with WPS-FCAW-3160-1. Preheat was maintained with rose bud propylene torch. This work is part of Request for Information (RFI) 003457R00.

The welding & workmanship observed on this date appeared to be in general compliance with the contract specifications. The following pictures below detail some of the observations made on this date.

### **Summary of Conversations:**

General conversations with ABF/JV QC NDT personnel relevant to work and testing performed during this shift.

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

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**Inspected By:** Leach,Ed Quality Assurance Inspector

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**Reviewed By:** Mertz,Robert QA Reviewer