

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
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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-027987  
**Date Inspected:** 17-Jul-2012

**Project Name:** SAS Superstructure  
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV  
**Contractor:** American Bridge/Fluor Enterprises, a JV

**OSM Arrival Time:** 700  
**OSM Departure Time:** 1830  
**Location:** Job Site

<b>CWI Name:</b>	Bernie Docena	<b>CWI Present:</b>	Yes	No
<b>Inspected CWI report:</b>	Yes No N/A	<b>Rod Oven in Use:</b>	Yes	No N/A
<b>Electrode to specification:</b>	Yes No N/A	<b>Weld Procedures Followed:</b>	Yes	No N/A
<b>Qualified Welders:</b>	Yes No N/A	<b>Verified Joint Fit-up:</b>	Yes	No N/A
<b>Approved Drawings:</b>	Yes No N/A	<b>Approved WPS:</b>	Yes	No N/A
		<b>Delayed / Cancelled:</b>	Yes	No N/A
<b>Bridge No:</b>	34-0006	<b>Component:</b>	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 Tower Base Electro Slag Weld (ESW) location 'P' face B (N-043), QA randomly observed ABF/JV qualified welder Wai Kitlai continuing to perform CJP groove welding repair. The combined repair excavations being welded have Caltrans approval per Request for Weld Repair (RWR) #201206-072 and #201206-073. The welder was observed perform automatic welding in the 3G (vertical) position utilizing a Bug -o track mounted 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-D15-3000-3 Repair. The repair excavation was preheated and continuously maintained to more than 350 degree Fahrenheit using Miller Proheat 35 Induction Heating System prior/during welding. The ESW repair being welded is located at ESW 'P' face B, from Y=4080mm to Y=4500mm having dimensions of 800mm long X 70mm wide X 55mm deep. During the shift, ABF QC Bernie Docena was noted monitoring the welder with measured working current of 265 amperes, 22.6 volts with travel speed of 210mm per minute and calculated heat input of 1.66Kjoules per mm. At the end of the shift, 3G FCAW-G repair welding at location mentioned above was still continuing and the welder held the same preheat of 350°F on the excavation repair for three hours after welding as required.

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. 'P'	N-043	4080/4250mm	800mm	70mm	55mm	In progress.

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## WELDING INSPECTION REPORT

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At Tower Base Electro Slag Weld (ESW) location 'Q' face B (E-043), QA randomly observed ABF/JV qualified welder James Zhen continuing to perform CJP groove welding repair. The repair excavation being welded has Caltrans approval per Request for Weld Repair (RWR) #201206-083. The welder was observed perform automatic welding in the 3G (vertical) position utilizing a Bug -o track mounted 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-D15-3000-3 Repair. The repair excavation was preheated and continuously maintained to more than 350 degree Fahrenheit using Miller Proheat 35 Induction Heating System prior/during welding. The ESW repair being welded is located at ESW 'Q' face B, from Y=4030mm to Y=5410mm having dimensions of 1380mm long X 60mm wide X 55mm deep. During the shift, ABF QC Bernie Docena was noted monitoring the welder with measured working current of 265 amperes, 22.5 volts with travel speed of 200mm per minute and calculated heat input of 1.7Kjoules per mm. At the end of the shift, 3G FCAW-G repair welding at location mentioned above was still continuing and the welder held the same preheat of 350°F on the excavation repair for three hours after welding as required.

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. 'Q'	E-043	4030mm	1380mm	60mm	55mm	In progress.

At Tower Base Electro Slag Weld (ESW), this QA observed ABF welder Lou Xiao Hua (who took over from Han Wen Yu) continuing to perform repair excavation at location 'Q' face B (E-043) Y=6160mm due to Ultrasonic Testing (UT) detected defect. The repair excavation is being undertaken per Caltrans approved Request for Weld Repair RWR #201206-084. The welder was noted using carbon air arc gouging followed by grinding using a die grinder. The excavation was alternately gouged and ground then Magnetic Particle Testing (MT) tested by ABF QC Bernie Docena and this QA. The following excavation events were noted during the repair excavation;

ESW location Y-dim Depth of excavation Noted defect:

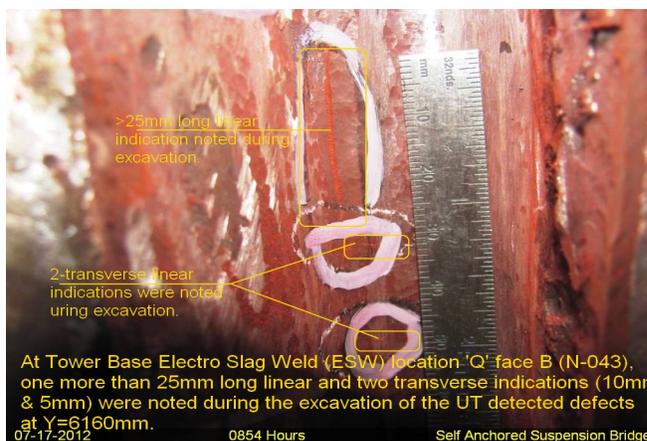
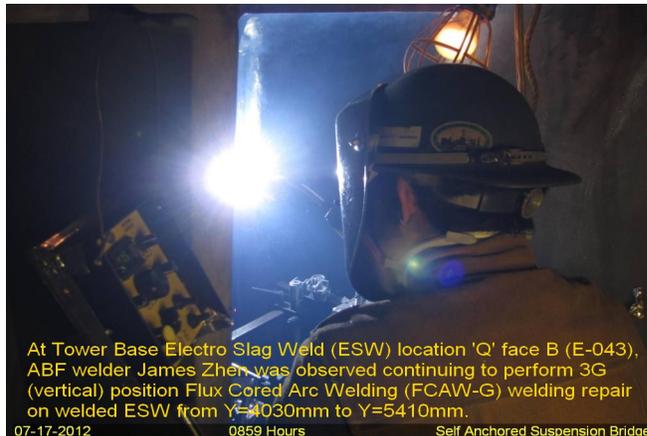
- 'Q' (B) 6160mm 40mm 1-25mm & 1-10mm long linear indications noted.  
1-18mm, 1-10mm & 1-5mm transverse ind. noted.
- 'Q' (B) 6160mm 50mm 1-32mm, 1-12mm & 1-10mm long linear ind. noted.  
1-12mm transverse indication noted.
- 'Q' (B) 6160mm >50mm Excavation in progress.

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# WELDING INSPECTION REPORT

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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.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

**Reviewed By:** Levell, Bill

QA Reviewer

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