

**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 #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027881**Date Inspected:** 29-Jun-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	Jesse Cayabyab		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	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 Tower Base Electro Slag Weld (ESW), this QA observed ABF welder Lou Xiao Hua continuing to perform repair excavation at location 'T' face A (S-043) Y=4510mm due to Ultrasonic Testing (UT) detected defect. The repair excavation is being undertaken per Caltrans approved Request for Weld Repair (RWR) #201206-053. The welder was noted using carbon air arc gouging followed by grinding using a die grinder. During the excavation, one linear indication was noted at depth 32mm and was measured 27mm long. This was confirmed using Magnetic Particle Testing (MT). The welder continued the excavation at depth 42mm and the indication has increased to 45mm long. The welder continued the excavation at approximate depth 48mm and the remaining linear indication was noted 20mm at the bottom and 10mm at the top of the original 45mm long indication. The welder continued the excavation at 50mm deep and the bottom indication was gone while the top indication has reduced to 12mm. At 54mm deep excavation, the 12mm top indication has already gone and ABF QC Jesse Cayabyab instructed the welder to grind smooth the excavation in preparation for QC and QA visual test (VT) and Magnetic Particle Test (MT). ABF QC Jesse Cayabyab has performed the VT and MT on the boat shape repair excavation and noted no relevant indication during the tests. This QA also performed the same VT and MT on the same excavation and found same result.

After the VT and MT acceptance of the repair excavation just mentioned above, the same welder started another excavation at the same weld location but Y=5170mm. The repair excavation is being undertaken per Caltrans

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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approved Request for Weld Repair (RWR) #201206-054. The welder was noted using carbon air arc gouging followed by grinding using a die grinder. During the excavation, one linear indication was noted at depth 30mm and was measured 30mm long. This was confirmed using Magnetic Particle Testing (MT). The welder continued the excavation at depth 35mm and the indication has increased to 50mm long. The welder continued the excavation at approximate depth 43mm and the linear indication was reduced to 40mm. The welder continued the excavation at 53mm deep when the linear indication has disappeared and ABF QC Jesse Cayabyab instructed the welder to grind smooth the excavation in preparation for QC and QA visual test (VT) and Magnetic Particle Test (MT). ABF QC Jesse Cayabyab has performed the VT and MT on the boat shape repair excavation and noted no relevant indication during the tests. This QA also performed the same VT and MT on the same excavation and found same result.

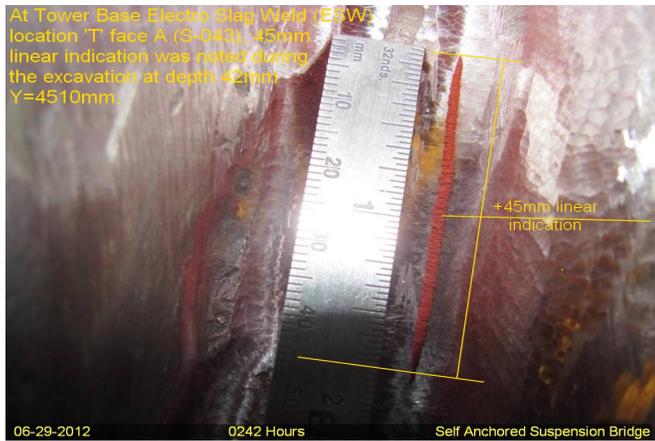
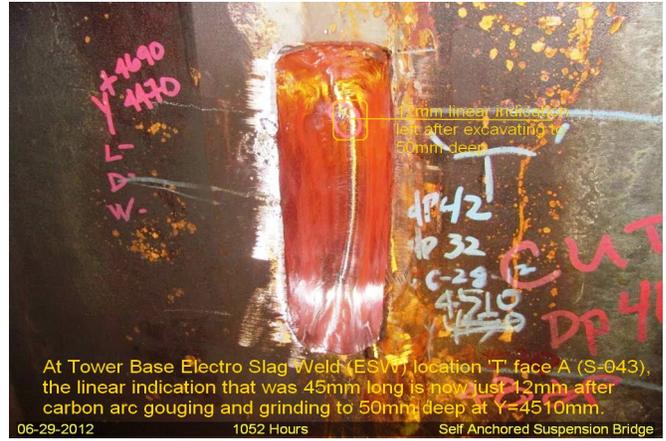
At Tower Base Electro Slag Weld (ESW) location 'V' face A (W-043), QA randomly observed ABF/JV qualified welder Xiao Jian Wan continuing to perform CJP groove welding repair. The welder was observed manually welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1000 Repair Rev. 2. The repair welding is being undertaken per Caltrans approved Request for Weld Repair (RWR)#201206-044 and #201206-045 in a combined repair excavations at Y=3950mm and Y=4270mm respectively . 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 'V' face A, Y=3900mm having dimensions of 560mm long X 70mm wide X 53mm deep. During the shift, ABF QC Jesse Cayabyab was noted monitoring the welder with measured working current of 123 amperes. At the end of the shift, 3G SMAW repair welding at location mentioned above was still continuing and should remain tomorrow. The welder held the same preheat of 350°F on the combined excavation repair for three hours after welding as required.

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. 'V' W-043	3900mm	560mm	70mm	53mm	In progress.	

At Tower Base center external diaphragm above 9 meter, ABF qualified welder Jin Pei Wang was observed continuing to perform 2F/3F/4F position fillet welding the 60mm thick wall penetration doubler plate shop marked P1128-2 to 60mm thick shear plate. The welder was noted fillet welding the plate using the Shielded Metal Arc Welding (SMAW) with 3.2mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed QC Inspector Jesse Cayabyab using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed working current of 130 amperes on the 3.2mm E7018H4R electrode. At the end of the shift, the welder has completed the 10mm fillet weld joints on four (4) corners on both sides of the doubler plate.

# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )



## 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