

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-027918
Date Inspected: 05-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: 1730
Location: Job Site

CWI Name:	Bernie Docena	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 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 'E' face A (N-045), QA randomly observed ABF/JV qualified welder Wai Kitlai (who took over from Jin Pei Wang) continuing to perform CJP groove welding repair. 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 'V' face A, Y=7600mm to Y=9850mm having dimensions of 2250mm long X 60mm wide X 40mm deep. During the shift, ABF QC Bernie Docena was noted monitoring the welder with measured working current of 242 amperes, 23 volts with travel speed of 230mm per minute and calculated heat input of 1.45Kjoules per mm. At the end of the shift, 3G FCAW-G 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. 'E'	N-045	7600mm	2250mm	60mm	40mm	In progress.

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At Tower Base Electro Slag Weld (ESW) location 'V' face B (W-043), QA randomly observed ABF/JV qualified welder Han Wen Yu 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 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 B, Y=250mm to Y=620mm was having dimensions of 370mm long X 60mm wide X 50mm deep is a continuation repair from face A due to linear indication that was left during previous MT. This repair has been approved per Request for Welding Repair (RWR) #201206-042. During the shift, ABF QC Bernie Docena was noted monitoring the welder with measured working current of 128 amperes. At the end of the shift, repair welding at location mentioned above was still continuing and should remain tomorrow. The welder held the same preheat of 350°F on the repair for three hours after welding as required.

Location	Weld No.	Y-dim.	Length	Width	Depth	Remarks
1. V'	W-043	250mm	370mm	60mm	50mm	In progress.

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=3710mm due to Ultrasonic Testing (UT) detected defect. The repair excavation is being undertaken per Caltrans approved Request for Weld Repair (RWR) #201206-056. The welder was noted using carbon air arc gouging followed by grinding using a die grinder. During the excavation at 28mm deep, there was no indication noted. This was confirmed using Magnetic Particle Testing (MT). The welder continued the excavation at depth 32mm and still no indication was found. The welder continued the excavation at approximate depth 37mm, 42mm, 50mm and 55mm deep and still no indication was found. At 55mm deep excavation, ABF QC Bernie Docena has performed the final VT and MT on the boat shape repair excavation and found no indication whatsoever. Due to reported depth of the suspected UT defect was at 39mm and the excavation was already at the maximum allowable excavation depth, ABF QC Bernie Docena instructed the welder to weld repair excavation. This QA also performed the same VT and MT on the same excavation and found same result.

At Tower Base Electro Slag Weld (ESW), this QA observed ABF welder Jin Pei Wang perform repair excavation at location 'V' face A (W-043) Y=4580mm due to Ultrasonic Testing (UT) detected defect. The repair excavation is being undertaken per Caltrans approved Request for Weld Repair (RWR) #201206-046. The welder was noted using carbon air arc gouging followed by grinding using a die grinder. The following excavation events were noted during the repair excavation;

ESW location	Y-dim	Depth of excavation	Noted defect
1. 'V' (A)	4580mm	30mm	No indication noted.
2. 'V' (A)	4580mm	35mm	No indication noted.
3. 'V' (A)	4580mm	40mm	No indication noted.
4. 'V' (A)	4580mm	45mm	No indication noted.
5. 'V' (A)	4580mm	50mm	Grinding in progress.

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At Tower Base Electro Slag Weld (ESW) location 'E' face A (N-045), ABF personnel were noted using the Miller Preheat Induction Heating System to preheat and maintain the required temperature during repair welding from Y=7850mm to 9850mm.



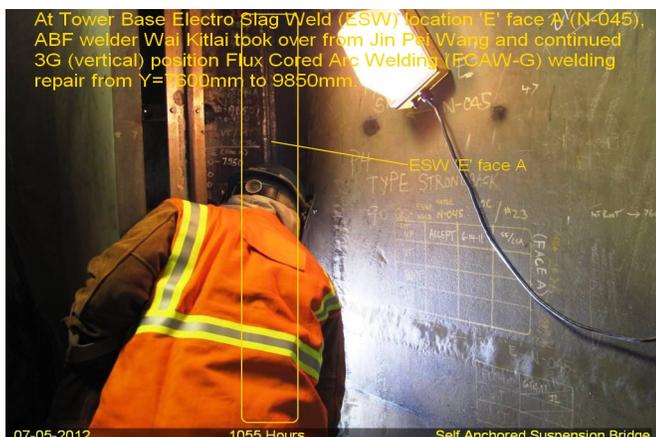
07-05-2012 1305 Hours Self Anchored Suspension Bridge



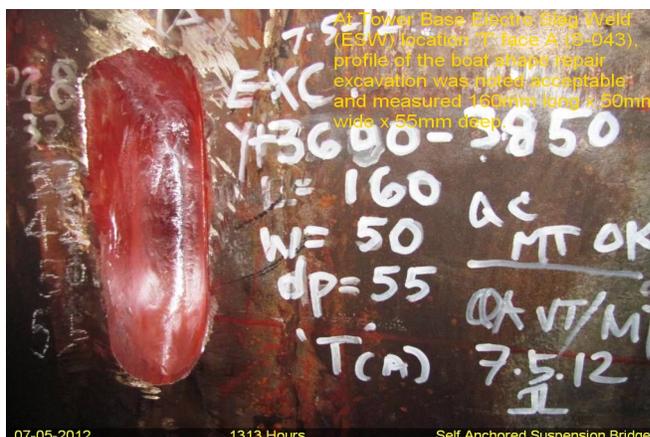
At Tower Base Electro Slag Weld (ESW) location 'V' face B (N-043), ABF welder Han Wen Yu was observed performing 3G (vertical) position Shielded Metal Arc Welding (SMAW) welding repair at Y=250mm to Y=620mm per RWR #201206-042.

07-05-2012 1303 Hours Self Anchored Suspension Bridge

At Tower Base Electro Slag Weld (ESW) location 'E' face A (N-045), ABF welder Wai Kitlai took over from Jin Pei Wang and continued 3G (vertical) position Flux Cored Arc Welding (FCAW-G) welding repair from Y=1500mm to 9850mm.



07-05-2012 1055 Hours Self Anchored Suspension Bridge



At Tower Base Electro Slag Weld (ESW) location 'T' face A (N-043), profile of the boat shape repair excavation was noted, acceptable; and measured 160mm long x 50mm wide x 55mm deep.

07-05-2012 1313 Hours Self Anchored Suspension Bridge

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