

**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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-017245**Date Inspected:** 05-Oct-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	Patrick Swain and Tom Pasqualone			<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>	Orthotropic Box Girder		

**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 6W/7W top deck plate 'A' outside, QA randomly observed ABF/JV qualified welder Fred Kaddu ID # 2188 perform CJP groove welding repair. The welder was observed welding in the 1G (flat) position utilizing Shielded metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1000-Repairs. The boat shape repair excavations having various dimensions were preheated to more than 140 degree Fahrenheit using propane gas torch prior welding. During the shift, ABF QC Tom Pasqualone was noted monitoring the welder. Prior welding, ABF QC Tom Pasqualone was also observed performing Magnetic Particle Testing (MT) using Parker Contour Probe with red magnetic powder as detecting media on the repair excavation. There were no significant defects noted during the test. Repair welding at this location was still continuing at the end of the shift and should continue tomorrow. The following first time repairs were noted excavated and completely welded at the end of the shift;

Location	Y-dimension	Length	Depth	Remarks
1. A5	4355mm – 4455mm	100mm	18mm	Completed
2. A2	5190mm – 5230mm	40mm	12mm	Completed
3. A2	4360mm – 4400mm	40mm	13mm	Completed
4. A2	2560mm – 2590mm	30mm	11mm	Completed
5. A2	730mm – 770mm	40mm	12mm	Completed

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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- 6. A1 5090 mm– 5110mm 20mm 12mm Completed
- 7. A1 3870mm – 3900mm 30mm 11mm Completed
- 8. A1 2990mm – 3020mm 30mm 12mm Completed

At OBG 6W/7W side plate 'E' inside, QA observed ABF welder Songtao, Huang lining up his track mounted welder nozzle holder and preparing welding equipment to weld the splice butt joint. Prior to start welding, QA performed fit up verification on the alignment of the joint and noted that from the bottom corner of 'D' plate up to the top corner of 'F' plate (minus 150mm long), the alignment measured was less than 2.0mm. But at the top of 'E' (corner edge plate 'F') around 150mm long, QA noted QC markings of misalignment of 5.0mm from 0mm to 50mm, 4.0mm from 51mm to 100mm and 1.0mm at 150mm. According to ABF QC Bonifacio Daquinag, QC has already submitted this misalignment measurement to ABF for review and approval. The root gap between the abutting plates was also measured more than 4.0mm which is in compliance to welding procedure specification ABF-WPS-D15-3042B-1.

After the fit up verification, QA checked the preheat of the plate and was noted greater than 150 degrees Fahrenheit. QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 perform CJP groove (splice) welding root pass then fill pass on the splice butt joint. The welder was observed perform automatic welding in the 3G (vertical) position utilizing a 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-D15-3042B-1. The joint being welded had a single V-groove butt joint with backing bar. The splice joint was preheated and maintained to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding. During welding, ABF Quality Control (QC) Patrick Swain was noted monitoring the welding parameters of the welder. At the end of the shift, fill pass welding on the splice butt joint was not completed and should continue tomorrow.

At OBG 5W/6W side plates 'C' and 'E' inside, this QA performed 100% visual inspection (VT) on the welded splice butt joints. During the VT, QA noted three undercut and one underfill on side plate 'C' while two undercut and one excessive weld reinforcement on side plate 'E'. These findings were relayed to ABF QC Jesse Cayabyab who acknowledged upon seeing them. QC informed QA that they will inform ABF about the unacceptable weld defects so they could be fixed.

At OBG 5W/6W bottom plate 'D' inside, ABF QC Jesse Cayabyab was observed performing Ultrasonic Testing (UT) on the welded splice butt joint. QC was using General Electric USM35 ultrasonic machine. QC was also observed scanning from both sides of face 'A' of the joint. QC informed QA that QC has found seven UT rejects from the outside earlier during the day and has found three UT rejects so far from the inside. At the end of the shift, ultrasonic testing on the butt joint was still continuing and should remain tomorrow.

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# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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At OBG 6W/7W side plate 'E' inside, QC noted a misalignment of 1mm to 5mm from corner (Start) to 150mm length of the splice. Per ABF QC Bonifacio Daquinag, QC has already submitted their measurements to ABF for review and approval.



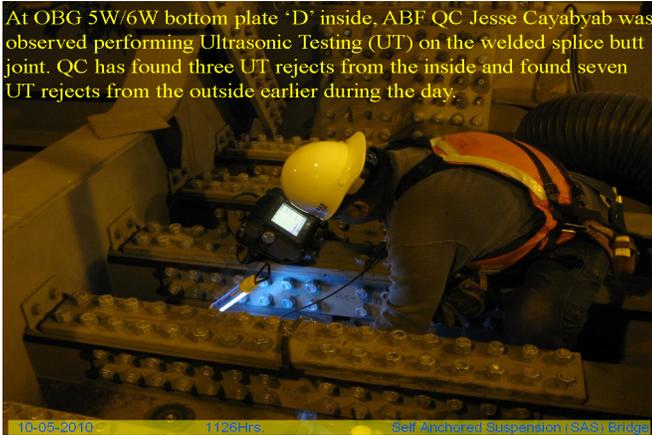
10-05-2010 1600Hrs Self Anchored Suspension (SAS) Bridge



At OBG 6W/7W top deck plate 'A1' to 'A2' outside, ABF welder Fred Kaddu was observed performing IG repair on the welded splice butt joint. The welder was using 1/8" diameter E7018LR electrode. ABF welder Brian Howell was also noted flush grinding the repairs completely welded by Fred kaddu.

10-05-2010 1600Hrs Self Anchored Suspension (SAS) Bridge

At OBG 5W/6W bottom plate 'D' inside, ABF QC Jesse Cayabyab was observed performing Ultrasonic Testing (UT) on the welded splice butt joint. QC has found three UT rejects from the inside and found seven UT rejects from the outside earlier during the day.



10-05-2010 1600Hrs Self Anchored Suspension (SAS) 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 Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer