

**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:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-012969**Date Inspected:** 05-Apr-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	Mike Johnson, Bnifacio Daquinag	<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 OBG 1W/2W-A, 1E/2E-E				

**Summary of Items Observed:**

The Quality Assurance (QA) Inspector, Rick Bettencourt was on site at the job site between the times noted above. The QA Inspector was on site to randomly observe the in process welding and inspection of the weld joints identified as 1W/2W-A1/A5, 1E/2E-E1/E2, 2E/3E-C1/C2 and the following observations were made:

**1W/2W-A1/A5**

Upon the arrival of the QA Inspector it was observed no welding was being performed at the above identified location. The QA Inspector performed a random visual inspection of the fit up A1-A5. The QA Inspector noted the induction heating blankets were in place and turned on, the QA Inspectors access was limited. The QA Inspector randomly observed the American Bridge/Fluor (ABF) welders Jordan Hazelaar and Kenneth Chappell begin setting up to perform shielded metal arc welding (SMAW), in an attempt to join the members by welding. The QA Inspector noted the steel backing bar was previously tack welded full length from one side of the steel backing bar only. The QA Inspector noted the ABF welders were preparing and preheating to tack weld the opposite side of the steel backing and join the two members by welding. The QA Inspector performed random visual and dimensional testing of the fit up prior to and during the SMAW tack welding. The QA Inspector noted several areas of planar misalignment that exceeds that allowed by AWS D1.5-02 section 3.3.3 In addition the QA Inspector noted several areas where the gap at the steel backing and the bevel exceed 2mm which exceeded the maximum allowable by AWS D1.5-02 section 3.3.1.1. The following locations of the above identified issues are as described below:

The unacceptable planar misalignment was located at the following locations:

A2-y=2275mm-3575mm 3-5mm misalignment (1300mm in length)

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A2-y=5200mm-5500mm 3-4mm misalignment (300mm in length)

A3-y=0mm-500mm 3-4mm misalignment (500mm in length)

A4-y=4350mm-5350 3-6mm misalignment (1000mm in length)

A5-y=0mm-40mm 3-3.5mm misalignment (40mm in length)

A5-y=2260mm-2680mm 3mm misalignment (410mm in length)

The gaps between the faying surface and the landing which exceed 2mm identified below:

A2-y=2475mm-3735mm, gap at steel backing 3-3.5mm (length 1260mm)

A2/A3-y=A2-5250mm-A3-600mm, gap at steel backing 3mm-3.5mm (length 750mm)

A4-y=1080mm-1690mm, gap at steel backing 3mm (length 610mm)

A4-y=4350mm-5350, gap at steel backing 3-5mm (approximately 1000mm)

The QA Inspector randomly observed the ABF welders Jordan Hazelaar and Kenneth Chappell performing shielded metal arc welding (SMAW) joining the steel backing bar the bevel. The QA Inspector randomly observed the ABF welders to be utilizing the SMAW process with 1/8" E7018 low hydrogen electrodes. The QA Inspector noted the SE QC Inspector Bnifacio Daquinag had set the SAW machines to approximately 130 Amps. The QA Inspector noted the SMAW parameters appeared to be in general compliance with ABF-WPS-D1.5-F1200A. The QA Inspector noted the two members were joined by welding. It was observed and noted by the QA Inspector no additional fitting tasks would be performed. The QA Inspector produced and submitted an Incident Report for the above identified issues with planar misalignment and gaps between the steel backing and the bevel.

1E/2E-E1/E2

The QA Inspector randomly observed the above identified weld joint had been previously started in weld segment E1 on the previous day shift. The QA Inspector randomly observed the ABF welders Rory Hogan and Jeremy Doleman were performing grinding tasks of the back gouged area of the weld joint in preparation of the back weld.

The QA Inspector noted no welding was performed by either of the ABF welders identified above on the QA Inspectors shift.

2E/3E-C

The QA Inspector randomly observed the ABF welder identified as Rick Clayborn and ABF apprentice welder removing the temporary attachments by grinding. The QA Inspector noted the ABF welders were removing the fit gear previously used to fit up the side plate designated "C" as well as hold the steel backing bar in place for production welding. The QA Inspector noted all of the fit up gear was removed from the external surface of the side plate identified as "C" on the 2nd transverse field weld. The QA Inspector noted additional grinding and magnetic particle testing will need to be performed where the temporary welds were removed.

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## Summary of Conversations:

The QA Inspector pointed out the SE Quality Control Manager (QCM) Leonard Cross the fit box in the QC charts on the top deck plate had not been checked off or accepted. The QA Inspector went on to point out that the weld joint was being joined by welding at that time and significant amounts of planar misalignment still existed at the time of welding. Mr. Cross informed the QA Inspector he was aware of the misalignment as well as his QC Inspectors performing the dimensional inspections. Mr. Cross went on to inform the QA Inspector, the chart is not checked off for the fit up is due to the current condition of the fit members. Mr. Cross acknowledged the unacceptable fit up and planar misalignment of the two top deck plates, but informed the QA Inspector ABF is stating no additional fit up could be performed due to the rigidity of the steel and the as built dimensions. The SE QCM informed the QA Inspector; SE QC Inspectors are recording and mapping all areas of planar misalignment and where the gap at the steel backing exceeds 2mm.

## 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 Mohammad Fatemi (916)-813-3677, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Bettencourt,Rick	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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