

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-014697**Date Inspected:** 09-Jun-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>	Bernard Docena, Bnifacio Daquing	<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				

**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 4W/5W-A, and the following observations were made:

**4W/5W-A**

Upon the arrival of the QA Inspector a 33mm crack was observed in the full length shielded metal arc welding (SMAW) tack weld in the weld segment identified as A1. The crack was located in the SMAW tack weld attaching the steel backing bar to the bevel face of the OBG 4W. It was noted by the QA Inspector the Smith Emery Quality Control (QC) Inspector Steve McConnell had already performed magnetic particle testing of the area. On the previous day shift a 180mm crack was located, excavated and re-welded on in the same weld segment originating from the weld tab but on the opposite side of the weld joint. The previous crack was located in the SMAW tack weld attaching the steel backing to the OBG 5W bevel face. Upon the QA Inspectors discovery of the 33mm crack, the QC Inspector approached the QA Inspector in frustration (see summary of conversations). The QA Inspector noted the SE Lead QC Inspector Leonard Cross was present at the time of the conversation.

Within 30 minutes of the discovery of the above identified crack an additional crack was located opposite the 33mm crack in the full length SMAW tack weld against the bevel of the OBG 5W. The second crack was located in the full length SMAW tack weld against the bevel of the OBG 4W. The QA Inspector noted the additional crack measured approximately 30mm in length and also originated from the weld tab (both cracks pictured below). The QA Inspector informed the QA Inspector Mike Foerder of the cracks and Mr. Foerder was speaking directly with the Welding Quality Control Manager (WQCM) Jim Bowers on getting the repair procedure approved at 0800.

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At approximately 0815 the QA Inspector randomly observed the ABF Welding Superintendent Dan Ieraci performed minimal grinding of the two cracked areas and immediately instructed the ABF welder Kenny Chappell to perform SMAW root and fill passes. The QA Inspector noted the ABF welder began performing the SMAW fill passes of the cracked areas, which appeared to be welding over the cracks. The QA Inspector noted the SE QC Inspectors Steve McConnell, Leonard Cross and the QA Inspector were standing by to perform MT of the areas to determine the extent of the cracks. The QA Inspector noted no access was granted by the Welding Superintendent and the ABF welder proceeded to perform SMAW of the cracked area. The QA Inspector immediately asked the Welding Superintendent why no MT was performed of the areas prior to welding (see summary of conversation).

The QA Inspector noted the ABF welding personnel proceeded with production welding including the repairs of the cracked area with out prior written permission or approval from the engineer. The QA Inspector wrote and submitted to Incident Reports for the issues described above. The first Incident Report was written for the contractor proceeding with the repair with out acquiring prior written permission or approval by the engineer, which is a direct non conformance of the Caltrans Special Provisions. The second Incident Report was written for the contractor not affording the QC Inspector access to perform MT of the excavated area to determine the extent of the cracking and not verifying the crack had been completely removed and the excavation was extended 50mm beyond.

The QA Inspector it was randomly observed the ABF welding operators Mike Maday and Bryce Howell were setting up the submerged arc welding (SAW) machines in preparation of performing the SAW root pass. The QA Inspector noted the shielded metal arc welding (SMAW) full length tack weld was previously deposited on both sides of the weld joint against the bevel and the steel backing bar. The QA Inspector randomly observed the ABF welding personnel had pre determined and indicated with a distinguishing marking on base material the sequencing in which the joint would be welded. The QA Inspector observed the weld was broken into 5 sections beginning in the center and moving outward toward the edges of deck plate.

### A3-A5

The QA Inspector randomly observed the ABF welding operator Bryce Howell begin welding the SAW root pass in the center of A3 and weld to the end of section A5. The QA Inspector randomly observed the SAW parameters and they were 580 Amps, 33 Volts and a travel speed of 381mm/min. The QA Inspector noted the SAW parameters appeared to be in general compliance with ABF-WPS-D1.5-4042B-1. After the root pass was completed between the center of A3-A5, the SE QC Inspectors performed MT of the root pass. The QA Inspector noted no relevant indications were located at the time of the testing. After some minor grinding and blending the QA Inspector randomly observed the ABF welder continue performing the SAW fill passes. The QA Inspector randomly observed the ABF welding operators performing the SAW fill passes for the remainder of the shift.

### A3-A1

The QA Inspector randomly observed the ABF welding operator Mike Maday begin welding the SAW root pass in the center of A3 and weld to the end of section A1. The QA Inspector randomly observed the SAW parameters and they were 575 Amps, 33 Volts and a travel speed of 381mm/min. The QA Inspector noted the SAW parameters appeared to be in general compliance with ABF-WPS-D1.5-4042B-1. After the root pass was completed between the center of A3-A1, the SE QC Inspectors performed MT of the root pass. The QA Inspector noted no relevant indications were located at the time of the testing. After some minor grinding and blending the

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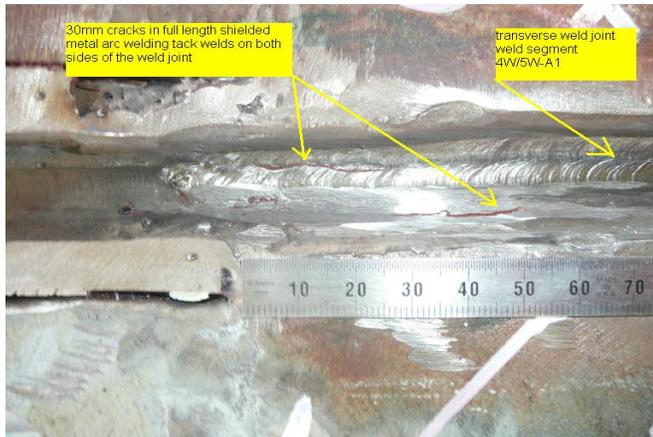
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QA Inspector randomly observed the ABF welder continue performing the SAW fill passes. The QA Inspector randomly observed the ABF welding operators performing the SAW fill passes for the remainder of the shift.



## Summary of Conversations:

The SE QC Inspector Steve McConnell informed the QA Inspector he was unable to perform magnetic particle testing (MT) of the area repaired in the weld segment 4W/5W-A5. The QC Inspector went on to inform the QA Inspector he was not given access to the area to verify per MT if the area was free and clear of cracks as previously discovered in A1 after the repairs had been made on the previous day shift. The QC Inspector informed the QA Inspector the ABF Welding Superintendent Dan Ieraci instructed the ABF welder Kenney Chappell to perform SMAW of the previously cracked area which appeared to be blatant disregard for the QC Inspector responsibilities.

The QA Inspector asked the Mr. Ieraci why no SE QC Inspector was allowed to perform MT of area which was excavated. Mr. Ieraci informed the QA Inspector he removed the cracks by grinding himself. The QA Inspector informed Mr. Ieraci that he was not a qualified MT technician and he did not verify the cracks were removed by an NDT method such as MT. Mr. Ieraci informed the QA Inspector the WQCM Jim Bowers informed him by phone it was ok to weld the cracked areas. The QA Inspector acknowledged the phone conversation took place, but added it was still required by the AWS D1.5-02 bridge welding code to perform MT to determine the extent of crack being removed. In addition it was required by the Caltrans Special Provisions the contractor attains permission or prior written approval to proceed with the repairs of a crack. Mr. Ieraci Acknowledged the QA Inspector and admitted "I may have jumped the gun" "put my name in a report". The QA Inspector informed Mr. Ieraci his name would certainly be put in a report.

## 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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**Inspected By:** Bettencourt,Rick

Quality Assurance Inspector

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**Reviewed By:**      Levell,Bill

QA Reviewer