

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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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-013433**Date Inspected:** 23-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>	Tom Pasqualone, Steve McConnell, <del>Wiliam Preseda</del> , Daquinag			<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>

**Bridge No:** 34-0006**Component:** SAS OBG 2W/3W-A, 3W/4W-A, 1W/2W-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 2E/3E-E2, 2W/3W-A, 1W/2W-E, 3W/4W-A and the following observations were made:

**2W/3W-A**

Upon the arrival of the QA Inspector, it was observed 7 total ultrasonic testing (UT) rejections had been located and indicated by the SE QC Inspector Steve McConnell. The QA Inspector noted approximately 4 had been repaired by welding. The QA Inspector noted to SE QC was performed on the QA Inspectors shift. The QA Inspector randomly observed and noted the rejected areas of weld had been indicated with a distinguishing marking directly on the weld. The QA Inspector randomly observed the ABF welder identified as Mitch Sittinger was setting up to begin excavating the previously rejected areas of weld. The QA Inspector randomly observed the ABF welder excavate and repair 3 total rejected area on the QA Inspectors shift.

**A1**

The QA Inspector randomly observed the ABF welder begin excavating the UT rejection in A1. The QA Inspector randomly observed the excavation was being performed with a burr bit grinder. After the excavation was complete the QA Inspector randomly observed the SE QC Inspector Steve McConnell perform magnetic particle testing (MT) of the excavation prior to the repair welding. The QA Inspector noted no relevant indications were located at the time of the testing. The QA Inspector randomly observed the QC Inspector perform the MT and the QA Inspector concurred, no relevant indications appeared to be present at the time of the testing. The QA Inspector noted the excavation was ground to a weldable profile prior to the repair welding. The QA Inspector

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performed dimensional measurements of the excavation and noted it appeared to be 125mm x 25mm x 14mm. The QA Inspector observed an ABF apprentice welder, preheat the isolated area to be welded to the minimum required preheat of 150°F. After the minimum required preheat was achieved, the QA Inspector randomly observed the ABF welder begin the weld repair utilizing the shielded metal arc welding (SMAW) process. The QA Inspector randomly observed the ABF welder utilizing 5/32" E7018 low hydrogen electrodes with 155 Amps. The QA Inspector noted the SMAW parameters and minimum required preheat appeared to be in general compliance with ABF-WPS-D1.5-1000-repair. After the above identified repair was completed, the QA Inspector randomly observed the ABF welder move to the next UT reject and begin excavating the indicated area utilizing the same method identified above.

### 1W/2W-E1

The QA Inspector randomly observed the ABF welders Song Toa Huang and Huang Jin Quan setting up the FCAW semi automated machine at the above identified weld joint. The QA Inspector was asked by the SE QC Lead Inspector Leonard Cross to perform the fit inspection along side the SE QC Inspector Tom Pasqualone. The QA Inspector and the QC Inspector performed the fit up inspection including dimensional verification of the planar misalignment. It was observed by both Inspectors the fit up and dimensions of the complete joint penetration groove weld segment E1 appeared to meet the general requirements of the contract documents. The QA Inspector randomly observed the ABF welders had previously started the induction heating blankets to ensure the minimum required preheat of 150°F was achieved prior to welding. The QA Inspector randomly verified utilizing a 150°F temperature indicating marker and noted the minimum required preheat had been achieved. The QA Inspector observed the ABF welder to be utilizing a semi automated FCAW track system for welding the above identified weld joint. The QA Inspector randomly observed the SE QC Inspector identified as Tom Pasqualone set the FCAW machine to the parameters of the approved WPS. The QA Inspector randomly observed the FCAW parameters were 254 Amps, 24.1 Volts and a travel speed of 250mm/min. The QA Inspector randomly observed the ABF welder Song Toa Huang begin the FCAW fill pass, once the semi automated track system reached a certain point the ABF welder Huang Jin Quan would observe the welding arc for the remainder of the weld. The QA Inspector noted the ABF welders did not complete the weld segment E1 on the QA Inspectors shift.

### 3W/4W-A

The QA Inspector randomly observed the ABF welders Salvador Sandoval and Jordan Hazelaar performing SMAW tack welds on the steel backing joining the two top deck plates by welding. The QA Inspector randomly observed the steel backing was welded 100% on the 3W side and stitch welded full length on the 4W side upon the arrival of the QA Inspector. The QA Inspector noted the two members were joined by welding and no additional fitting tasks would be performed. The QA Inspector was informed of five total areas where the gaps at the steel backing and the bevel exceeded 2mm. The QA Task Lead Inspector Bill Levell confirmed two of the five areas where welding had not yet been completed but prior engineering approval had been granted to weld. The QA Inspector randomly observed the distinguishing marking directly on the top deck plate indicating the areas of the weld joint where the planar misalignment did not meet the tolerances of AWS D1.5 section 3.3.3. The QA Inspector performed random dimensional verifications of the indicated reading and verified they appeared to be accurate. The QA Inspector noted the ABF Welding Quality Control Manager (WQCM) Jim Bowers and the QA Task Lead Bill Levell were on site to verify the dimensional readings taken by both the SE QC Inspector Bnifacio Daquinag and the QA Inspector Rick Bettencourt. The QA Inspector and the QC Inspector performed the dimensional measurements simultaneously and utilized the same tools to perform the measurements. The dimensional measurements of the planar misalignment of the 3W/4W-A top deck weld are as follows:

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Y=12170mm-12970mm (4mm-3mm off set) 800mm in length

Y=18170mm-18650mm (2-3mm off set) 480mm in length

Y=18790mm-19030mm (4mm-3mm off set) 240mm in length

Y=20000mm-20900mm (2-3mm off set) 900mm in length

Y=21530mm-22160mm (3mm-2mm off set) 630mm in length

The QA Inspector noted the above identified dimensional readings were recorded by the QC Inspector and transposed on the planar misalignment map generated by ABF. The QA Inspector verified the numbers recorded with the numbers and readings recorded by the QA Inspector. The QA Inspector noted the dimensional readings were the same. The ABF WQCM Jim Bowers and the QA Task Lead Bill Levell signed the map generated by the QC Inspector and the WQCM to concur the readings are accurate.

### Summary of Conversations:

Mr. Bowers informed the QA Inspector and the QA Task Lead Bill Levell an internal non conformance report will be written for the planar misalignment not being with in the tolerances of AWS D1.5-02.

### 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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