

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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016702**Date Inspected:** 07-Sep-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**CWI Name:** See below**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 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 as "A" stiffeners, hole restoration, and the following observations were made:

1E-pp9.5-E3-4

The QA Inspector randomly observed the ABF welder identified as Jin Pei Wang performing grinding tasks on the above identified back gouged weld joint. The QA Inspector randomly observed the Smith Emery (SE) Quality Control (QC) Inspector John Pagliero perform visual testing several times in an attempt to clear or accept the back gouged weld joint. The QA Inspector randomly observed the back gouged weld joint and noted visible slag inclusions were present and additional grinding would be required. After the grinding was completed the QA Inspector randomly observed the ABF welder begin performing the SMAW back weld for the above identified weld joint. The QA Inspector noted the base metal and the weld joint were preheated to approximately 150°F and back welding was commenced. The QA Inspector randomly observed the ABF welder to be utilizing 1/8" E7208 low hydrogen electrodes with 130 Amps. The QA Inspector noted the SMAW back weld was continued from Friday 9-3-10 and completed on the QA Inspectors shift on this date. The QA Inspector randomly observed the ABF welder begin performing grinding tasks in an attempt to remove and grind the weld reinforcement flush with the base material.

1E-pp8.5-E3-1

The QA Inspector randomly observed and ABF representative performing grinding tasks with a grinding disc in an attempt to back gouge the above identified weld joint. The QA inspector randomly observed the ABF

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representative locate several weld inclusions and perform additional grinding tasks to remove them prior to the back gouged weld joint being tested with magnetic particle testing by the SE QC Inspector. The QA Inspector noted no testing was performed on the back gouged weld joint on the QA Inspectors shift.

1E-pp9.5-E3-1 Top Deck Insert Plate

The QA Inspector performed a random visual inspection of the completed weld joint identified above. The QA Inspector noted the welding had been previously completed and the weld reinforcement was ground nearly flush with the base material. Upon the inspection the QA Inspector observed the insert plate appeared to be significantly off set from looking at it from the under side of the top deck plate. The QA Inspector proceeded to the top side and performed dimensional measurements and determined the plate was not off set and appeared to be within the tolerances of planar misalignment from the top side of the "A" deck plate. QA Inspector asked the SE QC Inspector Tom Pagliero if he had performed any visual testing (VT) of the above identified weld joint. The QC Inspector informed the QA Inspector he had, in addition the QC Inspector informed the QA Inspector the insert welded into the weld joint identified above was the incorrect size. The QC Inspector elaborated by informing the QA Inspector the ABF had inadvertently installed a 30mm thick insert plate into a hole which required a 35mm plate (see summary of conversation).

6E/7E-B

The QA Inspector randomly observed the ABF welders had fit previously fit up and installed copper backing bar at the above identified location. The QA Inspector asked the WQCM Jim Bowers why the backing was installed (see summary of conversation).

6E/7E-A1-A5

Upon the arrival of the QA Inspector in the am it was observed the above identified weld joint was fit up with the approved temporary attachments or fit up gear in place. Upon the arrival of the QA Inspector, the QC and the QA Inspector performed dimensional measurements of the planar misalignment and noted the planar misalignment appeared to be minimal on the above identified weld joint. The QA Inspector noted the only unacceptable planar misalignment in the entire weld joint was in weld segment A1 and A5. The QA Inspector measured approximately 280mm of planar misalignment beginning at A1 and spanning toward A2. The QA Inspector noted the misalignment was measured at 5mm-6mm. The QA Inspector noted the misalignment at the end of A5 and spanned 65mm toward A4 the QA Inspector noted an incident report was written and submitted for review. The unacceptable planar misalignment was located at the following 4 locations:

y=0mm-140mm 2mm-4mm misalignment (140mm in length)

y=140mm-280mm 0mm-2mm misalignment (140mm in length)

y=27215mm-27230mm 0mm-2mm misalignment (15mm in length)

y=27230mm-27280mm 2mm-4mm misalignment (50mm in length)

Total planar misalignment 345mm or .12% of the total length of the weld joint.

The QA Inspector and the SE QC Inspector Bonifacio Daquinag performed dimensional verification of the gaps at the steel backing. The QA Inspector noted the following areas have a gap between the steel backing and the bevel that are greater than 2mm:

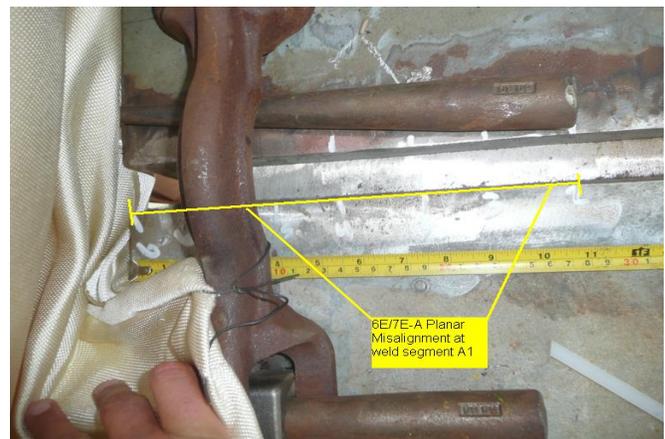
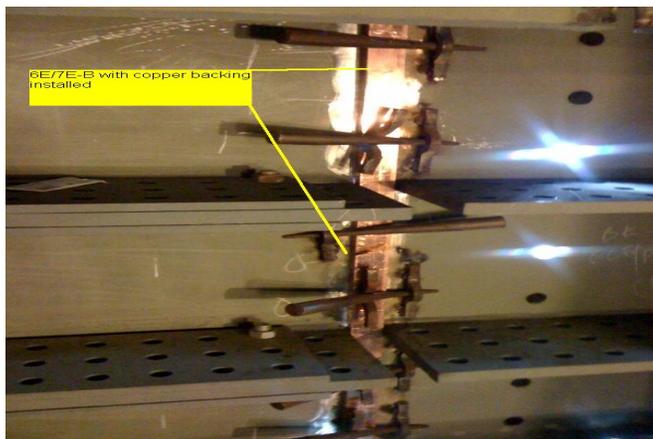
1.) Y=1470mm-1580mm 2.5mm (6E) 110mm long

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- 2.) Y=1980mm-2055mm 2.5mm (6E) 75mm long
- 3.) Y=18260mm-18360mm 2.5mm (6E) 100mm long
- 4.) Y=21100mm-21170mm 2.5mm (6E) 70mm long
- 5.) Y=25240mm-25305mm 4mm (6E) 65mm long

The QA Inspector noted the above identified locations will require engineering approval prior to performing any weld repairs. The QA Inspector noted the locations were submitted by SE to ABF and the approval was given by the Project Engineer Patrick Lowry (see summary of conversation)



Summary of Conversations:

The QA Inspector asked the Lead QC Inspector Leonard Cross and Jim Bowers if an internal non conformance report would be generated for the incorrect plate being installed at 1E-pp9.5-E3-1. Mr. Bowers informed the QA Inspector indeed an internal ABF NCR would be written; in addition the incorrect insert plate would be removed and re-welded with the correct plate.

The QA Inspector asked Mr. Bowers why the vertical weld joint identified as 6E/7E-B had a copper backing bar installed and fitted up to the weld joint. Mr. Bowers informed the QA Inspector ABF will try to utilize the copper to reduce the amount of back gouging involved with the weld joint. The QA Inspector informed Mr. Bowers the copper backing is not to be used if the arc is to touch the bar at any time, in addition the copper bar is known to cause cracking. Mr. Bowers informed the QA Inspector, no arc will ever touch the backing due to the fact the ABF welders do not use a weave technique on the vertical welds, rather they run stringer beads. Mr. Bowers went on to inform the QA Inspector the ABF welders build up one side of the weld joint, then the other side and then the middle without welding to the steel backing.

The SMR Patrick Lowry gave verbal approval to weld over the gaps at the steel backing on the transverse weld splice identified as 6E/7E-A at 1400 on this date.

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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.

Inspected By:	Bettencourt,Rick	Quality Assurance Inspector
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Reviewed By:	Levell,Bill	QA Reviewer
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