

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-012448**Date Inspected:** 04-Mar-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:	Mike Johnson, Jesse Cayabayab, JCWI, Prashant	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 1E/2E-A				

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 joint restoration and welding of the 1E/2E-A, The following observations were made:

- 1.) SAW 1E/2EA
- 2.) Base material Crack 1E/2EA
- 3.) Base material damage (Incident Report) 1E/2ED

1E/2E-A

Upon the arrival of the QA Inspector it was randomly observed the ABF welding operators Jeremy Doleman and Rory Hogan were setting up the submerged arc welding (SAW) machines in preparation of performing the SAW root pass. The QA Inspector noted the flux cored arc welding (FCAW) 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 6 sections beginning in the center and moving outward toward the edges of deck plate.

The QA Inspector randomly observed the ABF welding operator Jeremy Doleman begin welding the SAW root pass in the center of A3 and weld to approximately the last 300mm from the end of section A5. The QA Inspector noted a base material crack was discovered at the end of the above identified weld joint in section 1E/2E-A5. The QA Inspector observed the crack to start at the beginning of the weld tab and propagate approximately 60mm

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

down the edge of the bevel and up into the bevel face (see summary of conversations). The QA Inspector noted the crack was located by the contractor. After a verbal approval was granted to begin the excavation of the cracked area, the QA Inspector randomly observed an ABF representative utilize a burr bit grinder to excavate the area where the crack was present. The QA Inspector noted the crack did appear to be removed after approximately 2-3mm of grinding in the base material. After the grinding was completed the QA Inspector noted the steel backing was visible and the FCAW tack welds had been removed. The QA Inspector randomly observed the Smith Emery (SE) Quality Control (QC) Inspector perform magnetic particle testing (MT) of the excavated area. It was noted the crack appeared to have been removed by grinding. The QA Inspector noted the crack had occurred in an area of the joint where the steel backing was notched at the end of the joint. The QA Inspector noted the ABF welder Jeremy Doleman continue performing the SAW root pass stopping short of the area the crack was removed. The QA Inspector randomly observed the SAW parameters and they were 560 Amps, 32.5 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 (except the last 300mm of the 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. The QA Inspector performed random 10% of the completed root pass between A3-A5, no relevant indications were located at the time of the testing.

The QA Inspector noted no ABF personnel was standing around or waiting to repair the cracked area. All ABF welders moved forward in welding at other locations.

The QA Inspector noted the ABF welder Rory Hogan continued performing the SAW root pass from the center of A3-A1. The QA Inspector randomly observed the SAW parameters and they were 565 Amps, 32.5 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. The QA Inspector performed random 10% of the completed root pass between A3-A1, no relevant indications were located at the time of the testing. After the root pass was completed the QA Inspector randomly observed the ABF welding operators begin performing the SAW fill pass. The QA Inspector randomly observed the welding operator Rory Hogan blow through the steel backing bar at two separate locations as follows:

1300mm into the A2 section 150mm long was the first blow through and the second was 125mm from the first burn through towards A3.

The QA Inspector randomly observed the ABF welding operator Rory Hogan perform grinding tasks of the areas where the blow through occurred. After the areas were ground to a weldable profile, Mr. Hogan performed shielded metal arc welding (SMAW) to repair the areas prior to continuing to fill with SAW.

1E/2E-D

The WQCM informed the QA Inspector previously of under cut where the fit up gear or fitting aids were removed at the above identified location. Upon the arrival of the QA Inspector, It was observed significant base material damage had occurred during the removal of the temporary attachments (pictured below). The QA Inspector randomly observed when the temporary attachment was removed it appeared the base material was torn or fractured. The QA Inspector observed three locations, approximately the same size (23mmX5mmX2mm) where the damage had occurred (see summary of conversations). The QA Inspector noted an Incident Report was written

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

and submitted for the non conformance of section 3.3.7.3 of AWS D1.5-02 “Tack welds not incorporated into the final weld shall be removed in such a manner that the base metal is not nicked or undercut.”



Summary of Conversations:

The ABF Welding Quality Control Manager (WQCM) Jim Bowers informed the QA Inspector of the crack area. Mr. Bowers informed the QA Inspector, ABF could not wait for an approval to excavate the area. Mr. Bowers informed the QA Inspector the crack must be repaired immediately so the SAW root and fill passes can continue. Mr. Bowers went on to inform the QA Inspector he will begin excavating the cracked area without approval if he cannot get a verbal approval to excavate in a timely fashion.

The QA Task Lead Inspector Bill Levell informed the QA Inspector, the contractor has a verbal approval to excavate the cracked area.

The QA Inspector was informed by the QC Inspector Mike Johnson, the welds just fell off the bottom of the “D” plate after the fit up gear was removed. Mr. Johnson went on to inform the QA Inspector, when the weld fell off a chunk of base material fell with it. The WQCM informed the QA Inspector, he was informed by the ABF welders the base material was damaged due to the applied force of the pins in the fit up gear along with cycling of the heat above the fit up gear. The QA Inspector informed the WQCM, at a separate location an ABF welder was observed utilizing a sledge hammer and force to remove the temporary attachments. The QA Inspector went on to inform the WQCM that method was not observed at the above location but it was previously observed

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
----------------------	------------------	-----------------------------

Reviewed By:	Levell,Bill	QA Reviewer
---------------------	-------------	-------------