

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-015473**Date Inspected:** 07-Jul-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1100**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**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:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Field Splice W1/W2
- B). Field Splice W2/W3
- C). Field Splice W3/W4
- D). Field Splice W5/W6

A). Field Splice W1/W2

The QAI observed the Ultrasonic Testing (UT) on the transverse CJP weld of the edge plate field splice identified as WN: 1W-2W-B1. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. Mr. McConnell also utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .63 x .75 rectangular transducer to perform the shear wave during the testing for weld soundness. At the conclusion of the testing three (3) rejectable flaws were noted by Mr. Connell. The testing was performed from the "A" face of the weld joint.

The QAI also observed the Ultrasonic Testing (UT) on the transverse CJP weld of the edge plate field splice identified as WN: 1W-2W-F1. The testing was also performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. Mr. McConnell also utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a

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1" diameter transducer for base metal soundness and a .63 x .75 rectangular transducer to perform the shear wave test for weld soundness. The testing was not completed during this shift.

Later in the shift, the QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 1W-2W-D1. The welding was performed by the welder /operator Rory Hogan ID-3186 utilizing the WPS ABF-WPS-D15-3110-4 Rev. 0. The WPS was also used by the QC inspector William Sherwood as a reference when monitoring the welding and verifying the welding parameters which were observed as follows: 238 amps, 22.5 volts with a travel speed measured at 196mm. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the overhead position (4G) with the work positioned in an approximately horizontal plane and the weld metal deposited from the underside. The CJP welding of the "B" face of the joint was not completed during this shift.

B). Field Splice W2/W3

The QAI observed the Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 2W-3W-B1. The welding was performed by American Bridge/Fluor Enterprise personnel Xiao Jian Wan ID-9677 utilizing the Welding Procedure Specification identified as ABF-WPS-D15-3040B-3. The QAI also observed the Quality Control (QC) Inspector Tom Pasqualone utilizing the WPS to monitor the in process welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which were noted as follows: 245 amps, 21.7 volts with a travel speed measured as 270 mm per minute. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding performed during this shift was not completed.

C). Field Splice W3/W4

The QAI observed the removal of the backing bar and at the conclusion of the backing bar removal the James Zhen ID-6001 commence the back gouging on the "B" face of the single-v-groove weld identified as Weld Number (WN): 3W-4W-B1 and F1. The back gouging was performed utilizing the air carbon arc cutting method and at the conclusion of the back gouging ABF personnel, Hua Qiang Huang, commence the grinding of the back gouged surface to remove slag, carbon residue and surface irregularities.

The QAI also observed the Ultrasonic Testing (UT) on the CJP weld joint of the side plate field splice identified as WN: 3W-4W-C2. The testing was performed by the QC technician Steve Jesse Cayabyab utilizing a G.E. /Krautkramer USM 35X. The UT procedure identified as SE-UT-D1.5-CT-100 Rev.4 was utilized by Mr. Cayabyab as a reference during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .63 x .75 rectangular transducer to perform the shear wave testing during the testing for weld soundness. The testing was performed from the "A" face side of the weld joint. The testing was not completed during this shift.

D). Field Splice W5/W6

The QAI observed the QC inspector Bonifacio Daquinag, Jr. perform a dimensional survey of the planar alignment on the deck plate field splice identified as WN: 5W-6W-A. The fit-up assembly and tack welding was performed

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by ABF personnel, Rick Clayborn ID-2773 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A Rev. 1. The QC inspector Bonifacio Daquinag, Jr. verified the welding parameters of 135 amps and the minimum preheat temperature of 60 degrees Celsius. The planar alignment task was completed during this shift and it appears at the following locations do comply with the contract documents; Y=0-80mm, misalignment is 3 to 5 mm and at Y=27170-27280, misalignment is 3 to 5mm. The QC inspector has forwarded the dimensions to the QC supervisor to be submitted to the Engineer for review.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the FCAW-G process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were no pertinent conversations were discussed in regards to the project.

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: Reyes, Danny

Quality Assurance Inspector

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Reviewed By: Levell,Bill

QA Reviewer