

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:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-021023**Date Inspected:** 24-Feb-2011**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 Items Observed		
Inspected CWI report:	Yes	No	N/A
Electrode to specification:	Yes	No	N/A
Qualified Welders:	Yes	No	N/A
Approved Drawings:	Yes	No	N/A

CWI Present:	Yes	No	
Rod Oven in Use:	Yes	No	N/A
Weld Procedures Followed:	Yes	No	N/A
Verified Joint Fit-up:	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). "A" Deck Stiffeners
- B). Transverse Stiffener at Deck Access Hole
- C). Pipe Supports
- D). Miscellaneous Task

A). "A" Deck Stiffeners

At the start of the shift, the QAI observed Xiao Jin Wan grinding the "B" side of the Complete Joint Penetration (CJP) of the longitudinal stiffener plate field splice at the deck access hole located at Panel Point 24.5 and identified as WN: 4W-PP24.5-W5-LSE.

Later in the shift, the QAI observed Xiao Jian Wan ID-9677 perform the CJP welding of the field splice utilizing the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev. 0. The WPS was also utilized by the QC inspector Gary Erhsom as a reference to verify the amperage which was recorded as 128 amps and to monitor the welding. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to

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remove slag after the deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI. The CJP welding of the stiffener splice was completed during this shift.

At the conclusion of the CJP welding the longitudinal stiffener located at the Panel Point 24.5 deck access hole, the welder Xiao Jin Wan was directed by the welding supervisor to mobilize to the field splice W2/W3 and set-up to perform the excavation and repair welding on the stiffener field splice identified as WN: 2W-3W-A-LS1, R1 repair cycle. Later in the shift, the welder Xiao Jin Wan was observed by the QAI performing the repair welding and the QC inspector Gary Erhsom monitoring the welding and verifying the welding parameters. The Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 was utilized by the welder which was also utilized by the QC inspector as a reference to verify the amperage which was recorded as 129 amps. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes 3.2 mm electrode, identified as E9018-H4R, and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI. The repair welding of the stiffener splice was completed during this shift and the dimensions of the excavation were noted by the QC inspector and recorded by the QAI as follows; Y=135 mm, L=120 mm and d=6 mm.

The QAI also observed the Complete Joint Penetration (CJP) welding of the longitudinal stiffener field splice at the deck access hole located at the Panel Point 23.5 identified as WN: 3W-PP23.5-W2-LSW. The welding was performed by Hua Qiang Hwang ID-2930 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0. The WPS was also utilized by the QC inspector Mr. Erhsom as a reference to monitor the welding operation and verify the welding parameters. The amperage was observed by the QAI and recorded by the QC inspector as 130 amps. The welder utilized the 3.2 mm electrode and the welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welder utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. At the time of the observation no issues were noted by the QAI.

B). Transverse Stiffener at DAH at PP70.5

The QAI observed the welder Jorge Lopez ID-6149 performed the repair welding on the transverse stiffener marked as a UT reject of the Complete Joint Penetration (CJP) groove weld of the deck access hole located at Panel Point 70.5 and identified as WN: 8W-PP70.5-W5-TS, R1 cycle repair. The discontinuity was discovered by the QC technician John Pagliero. The repair welding was performed utilizing the Shielded Metal Arc Welding

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(SMAW) process and the 3.2mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1001 Repair Rev. 0. The WPS was also used by the QC inspector, William Sherwood, as a reference to monitor and verify the Direct Current welding parameters which were noted as 126 amps. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane and the groove approximately vertical. . The dimensions of the excavation was measured by Mr. Sherwood and were noted as follows; Y=0 mm, L=130 mm and d=12 mm.

C). Pipe Welding

The QAI observed the welder, Rick Kiikvee-ID-5319, perform the Complete Joint Penetration (CJP) welding of the field pipe splices for the 4" compressed air service and 2.5" utility water lines at the W2W1 pier column located at the grade elevation. The welding was performed utilizing the Weld Procedure Specification (WPS) identified as 1-12-1 which was also utilized by the QC inspector, Steve Jensen, to monitor the welding and to verify the welding parameters. The QC inspector verified the welding parameters and were observed as 66 amps.

D). Miscellaneous Task

The QAI also performed a review and update of the project progress utilizing QA field reports and NDT reports. The updated project information was documented into the various QA tracking logs.

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 inspectors 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 SMAW welding 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 on page 4 of this report illustrate some of the work observed during this scheduled shift.

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Summary of Conversations:

There were general conversations with Quality Control Field Supervisor, Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

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 Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Reyes, Danny

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer