DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-018591
Date Inspected: 10-Dec-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 630
OSM Departure Time: 1500
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). Deck Access Hole
B). Pipe Supports
C). QC Inspection Request

A). Deck Access Hole

The QAI observed the welder, Wen Han Yu ID-6317, perform the CJP welding of the Deck Access Hole- Insert Plate (DAH-IP)identified as Weld Number (WN): 4W-PP24.5-W5-SW located on the "A" deck of the Orthotropic Box Girder (OBG) W4. The welding was performed utilizing the SMAW process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector ,William Sherwood, as a reference to monitor the welding and verify the welding parameters which was recorded as 124 amps by the QC inspector. The 3.2 mm low hydrogen electrode, E7018 H4R, was utilized with the welding performed which was performed in the overhead (4G) position with the work placed in an approximately horizontal plane and the
weld metal deposited from the underside. The groove joint appeared to comply with the AWS joint designation identified as B-U4a and the minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The work performed appeared to comply with the contract documents.

The QAI observed the continued Complete Joint Penetration (CJP) groove welding of the Deck Access Hole-Insert Plate (DAH-IP)identified as Weld Number (WN): 6W-PP46.5-W5-SE located on the "A" deck of the Orthotropic Box Girder (OBG) W6. The welder Jorge Lopez ID-6149 performed the welding utilizing the Shielded Metal Arc Welding(SMAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector William Sherwood as a reference to monitor the welding and verify the welding parameters which was recorded as 135 amps by the QC inspector. The 3.2 mm low hydrogen electrode, E7018 H4R, was utilized during the welding performed in the flat (1G) position with the work placed in an approximately horizontal plane and the weld metal deposited from the upper side. The groove joint appeared to comply with the AWS joint designation identified as B-U4a and the minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The work performed during this shift appeared to comply with the contract documents.

Later in the shift, the QAI observed the welder, Mick Chan ID-9265, perform the CJP groove welding of the Deck Access Hole (DAH) field weld identified as WN: 4W-PP19.5-W5-SW which was located at the Panel Point (PP) 19.5 of the OBG W4 "A" deck.

The welder, Mr. Chan utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1010, Rev.1 which was also utilized by the QC inspector Steve McConnell as a reference to monitor the welding and verify the welding parameters. The welding was performed utilizing a 3.2 mm E7018 H4R electrodes with the welding performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical with the weld progression up. The minimum preheat temperature of 65 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The welders utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit each fill pass.

The QAI observed the welder, Jin Pei Wang ID-7299, perform the back grinding of the groove weld of the Deck Access Hole (DAH) field weld identified as WN: 1W-PP10.5-W2-NW which was located at the Panel Point (PP) 10.5 DAH on the OBG W1 "A" deck. The back grinding was not completed during this shift.

C). Pipe Supports

The QAI observed the fillet welding of the pipe support mounting bracket identified as PS-9 located along the pier column embeds at W2-W1. The welding was performed by David Garcia ID-8789 utilizing a 3.2 mm electrode as per the Welding Procedure Specification (WPS) identified as Fillet Murex. The fillet welding was performed in vertical (3F) position utilizing a 3.2 mm electrode. The QAI also observed the field fit-up and tack welding of the pipe supports along the E5 grid line located on top side of the OBG E7 "A" deck. The QC inspection was performed by Mike Johnson utilizing the WPS to monitor the welding and to verify the welding parameters.

D). QC Inspection Request

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, the QAI randomly verified the visual appearance of the Complete Joint Penetration (CJP) welding of the following; WN: 7E-8E-A-LS3, WN:

5E-6E-A-LS2 through LS6 and WN: 4E-5E-A-LS6. Later in the shift, Mr. Daquinag issued a second request for the following overhead (4G) CJP welds; Deck Access Hole (DAH) identified as WN: 3E-PP22-E4, Weld Nos. 2 and 4. The QAI verification was performed to verify that the welding and visual inspection performed by the QC inspectors, Patrick Swain and John Pagliero, meet the requirements of the contract documents. At the conclusion of the QAI verification it appeared that the welds and the QC inspection complies with the contract documents.

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 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 below illustrate the work observed during this scheduled shift.

Summary of Conversations:

There were general conversations with Quality Control Inspector 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.

QAI inspector, Craig Hager, contacted by cell phone and informed this QAI of the ultrasonic testing performed by QC technician Jess Cayabyab was not able to re-produce a magnitude of +6 decibels as found by QAI Bert Madison. Mr. Cayabyab was able to achieve a magnitude of +12 decibels. Mr. Hager worked with Mr. Cayabyab utilizing the same equipment and noticed that the couplant utilized by Mr. Cayabyab possessed a substantial amount of grit. The couplant was exchanged for new batch and Mr. Hager was able to achieve a magnitude of +7 decibels. This QAI contacted QC Supervisor, Leonard Cross, and informed him of this issue.

Note: The CJP identified as WN: 6E-7E-B1 was completed by QC and a request for QAI verification was inquired

by QC Field Supervisor, Bonifacio Daquinag, Jr. and turned over to this QAI.

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