

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-021628**Date Inspected:** 04-Mar-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**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). Field Splice W4/W5
- B). Deck Access Hole
- C). Field Splice E9/E10
- D). QC Inspection Request
- E). QAI UT Verification

A). Field Splice W4/W5

The QAI observed the welding to correct the excessive root opening of the longitudinal stiffener located at the field splice W4/W5 and identified as WN: 4W-5W-A-LS1. The QC inspector, Gary Ehrsom, noted and recorded the dimensions as 4 mm at the bottom of the joint to 8.5 mm at the top. 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. Ehrsom as a reference to inspect the fit-up, monitor the welding operation and verify the welding parameters. The amperage was observed by the QAI and recorded by the QC inspector as 126 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

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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). Deck Access Hole

The QAI observed the Complete Joint Penetration (CJP) welding of the deck access hole located at the Panel Point 13.5 identified as WN: 2E-PP13.5-E5-NE. The welding was performed by Xiao Jin Wan ID-9677 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector Pat Swain as a reference to monitor the welding operation and verify the welding parameters. The amperage was observed by the QAI and recorded as 121 amps. The welder utilized the 3.2 mm electrode and the welding performed in the flat (4G) position with the work placed in an approximate horizontal plane and the weld metal deposited from underneath. The minimum preheat temperature of 10 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 E7018-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 QAI also observed the welder Jorge Lopez ID-6149, perform the CJP welding of the Deck Access Hole (DAH) located Panel Point 37.5 identified as WN: 5E-PP37.5-E5-NW. The welding and QC inspection was performed utilizing the WPS identified as ABF-WPS-D15-1010, Rev. 1. The QAI randomly observed the QC inspector, William Sherwood, perform the weld inspection, verify the welding parameters, the preheat and interpass temperatures during the welding operation which appeared to comply with the contract specifications. The CJP welding was not completed during this shift.

C). Field Splice E9/E10

The QAI observed the welder, Fred Kaddu ID-2188, perform the repair welding of the bottom plate field splice identified as WN: E9-E10-B1, R2 repair cycle. The welder performed the welding utilizing the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001Repair, Rev.0. The WPS was also utilized by the QC inspector, Jesse Cayabyab, as a reference to verify the amperage and to monitor the welding. The average amperage of 129 amps was verified by the QC inspector and observed by the QAI. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane and groove joint vertical with the weld progression upward. The minimum preheat temperature of 40 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 E7018-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 was not completed during this shift. The dimensions of the two (2) excavations were also measured and noted by the QC inspector and verified

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by the QAI as follows; Y=955 mm, L=185 mm, d=13 mm and Y=1215 mm, L=80 mm, d=23 mm.

D). QC Inspection Request

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, the QAI randomly verified the QC visual inspection of the Complete Joint Penetration (CJP) welding of the following; WN: 2W-PP13.5-W5-LSE, LSW and TS. The QAI verification was performed to verify that the welding and the visual weld inspection performed by the QC inspector 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.

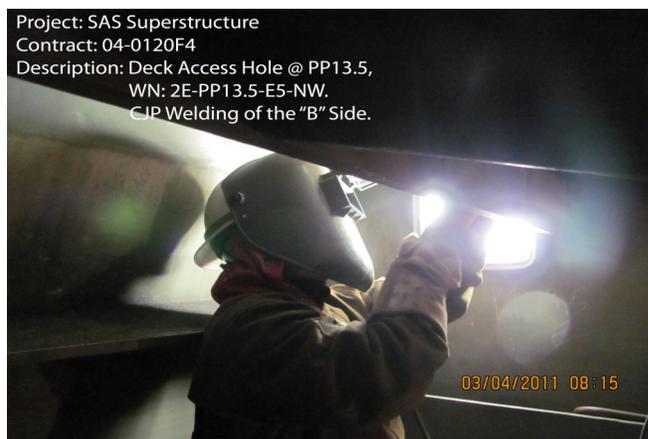
E). QAI UT Verification

The QAI performed a random Ultrasonic Test (UT) of the Complete Joint Penetration (CJP) groove welds identified as WN: 8W-9W-C1 and C2. A total area of approximately 10% was tested to verify the weld and the testing performed by QC meet the requirements of the contract documents. A UT report identified as TL-6027 was generated on this date.

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 below illustrate some of the work observed during this scheduled shift.



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Summary of Conversations:

There were general conversations with Quality Control Inspector Jesse Cayabyab and William Sherwood 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
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Reviewed By:	Levell,Bill	QA Reviewer
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