

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-021200**Date Inspected:** 28-Feb-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). "A" Deck Stiffeners
- B). Pipe Welds
- C). QC Non-Destructive Testing
- D). QC Inspection Request/ QAI VT and UT Verification
- E). Miscellaneous Task

A). "A" Deck Stiffeners

At the start of the shift, the QAI observed Xiao Jian Wan ID-9677 perform the excavation and repair welding of the field splice identified as WN: 3W-PP19.5-W2-TS, R. The welder utilized the Shielded Metal Arc Welding process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1001 Repair, Rev.0. The WPS was also utilized by the QC inspector Gary Ehrson as a reference to verify the amperage which was recorded as 123 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 with the welding performed in an upward progression.. The minimum preheat temperature of 40 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 the deposit of each fill pass. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed

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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 and the repair welding of the stiffener splice was not completed during this shift. The dimensions of the excavation were noted by the QC inspector and recorded by the QAI as follows; Y=0 mm, L=230 mm and d=10 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-LSE. 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 monitor the welding operation and verify the welding parameters. The amperage was observed by the QAI and recorded by the QC inspector as 125 amps. The welder utilized the 3.2 mm electrode and the welding 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). 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.

The QAI also performed a Visual Test (VT) verification as requested by the QC Inspector Steve Jensen. The QAI randomly verified the QC visual inspection of the Complete Joint Penetration (CJP) welding of the following; 5-2.5-W2-W, 7-2.5-W2-W, 8-2.5-W2-W, 9-2.5-W2-W and 4-4-W2-W through 9-4-W2-W. 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.

C). QC Non-Destructive Testing

The QAI observed the Ultrasonic Testing (UT) of the "A" deck longitudinal and transverse stiffeners located at Panel Point 13.5 identified as WN: 2W-PP13.5-W5-LSE, LSW and TS, R1. The testing was performed by the QC technician Pat Swain utilizing a G.E./Krautkramer USM 35X. The examination of the Complete Joint Penetration (CJP) groove welds was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the applicable contract documents. The QC technician performed the required longitudinal wave technique, utilizing a 25.4mm diameter transducer, to perform the examination for base metal soundness and the shear wave technique

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for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. At the conclusion of the welding one rejectable indication was noted by the QC technician on the R1 transverse stiffener.

The QAI also observed QC inspector, Gary Ehrsom perform the UT on the "A" deck longitudinal and the transverse stiffeners located at Panel Point 19.5 identified as 3W-PP19.5-W2-LSE, LSW and TS. At the conclusion of the testing Mr. Ehrsom noted one (1) rejectable indication on the transverse stiffener.

D). 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; the overhead (4G) welding of the Lifting Lug Hole (LLH) identified as WN: 4W-PP25-W4, Weld Numbers 2 and 4. 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.

The QAI also performed a random Ultrasonic Test (UT) of the Complete Joint Penetration (CJP) groove welds identified as WN: 2W-3W-A-LS1, LS2 and LS3. 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. An ultrasonic test report TL-6027 was generated on this date.

E). 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.

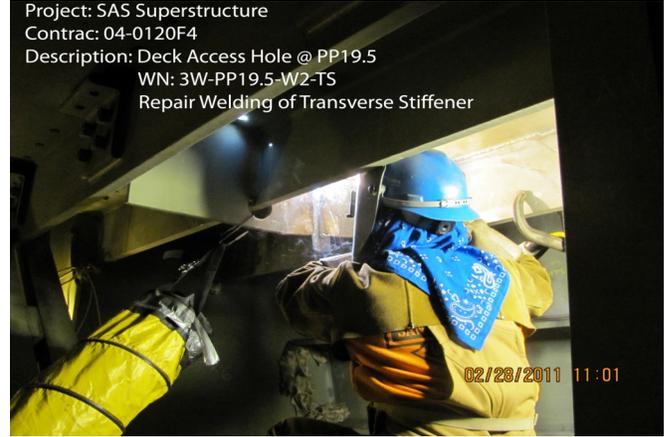
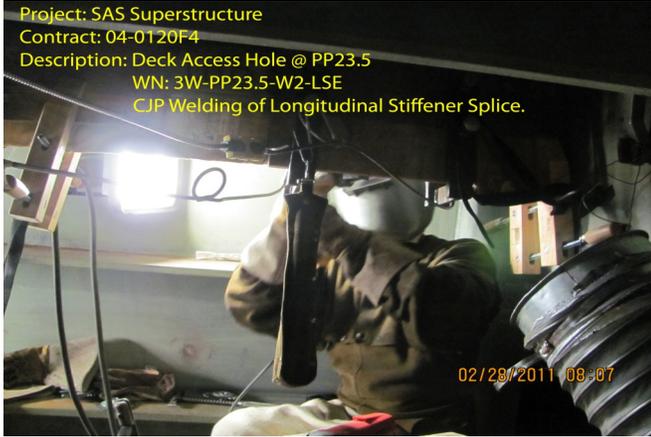
QA Observation and Verification Summary

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 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

Reviewed By: Levell, Bill

QA Reviewer
