

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-017617**Date Inspected:** 25-Oct-2010**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 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). "A" Deck Stiffeners
- B). "A" Deck Longitudinal Stiffeners

A). "A" Deck Stiffeners

The QAI performed a random ultrasonic and magnetic particle verification test of the Complete Joint Penetration (CJP) groove weld identified as WN: 2E-PP13.5-E2-East and TS. A total area of approximately 10% was ultrasonically tested to verify the weld and testing by QC meet the requirements of the contract documents. The testing was performed by the QC technician John Pagliero utilizing a G.E./Krautkramer USM 35X. The examination of the CJP was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the applicable contract documents. The QAI 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 for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. The examination was performed in the first and second leg and an ultrasonic test report TL-6027 and a TL-6028, was generated on this date.

The QAI also performed a random ultrasonic and magnetic particle verification test of the Complete Joint Penetration (CJP) groove weld identified as WN: 1E-PP10.5-E2-East and TS. A total area of approximately 10%

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

was ultrasonically tested to verify the weld and testing by QC meet the requirements of the contract documents. The testing was performed by the QC technician John Pagliero utilizing a G.E./Krautkramer USM 35X. The examination of the CJP was conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 and the applicable contract documents. The QAI 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 for the examination of weld soundness which was performed utilizing a 16mm x 19mm rectangular transducer. The examination was performed in the first and second leg and an ultrasonic test report TL-6027 and a TL-6028, was generated on this date.

In regards to the welds identified as 1E-PP10.5-E2-LS-West and 2E-PP13.5-E2-LS-West the QAI verified the rejects, one reject in each of the weldments, which were noted and recorded by the QC inspector, Mr. Pagliero. The QAI assessment concurs with the QC inspector's evaluation.

Also, in regards to the the weld identified as 1E-PP10.5-E2-TS, the QAI noted a rejectable reflector at approximately 3mm deep. The QAI informed the QC inspector of this issue and a second test was performed by the QC inspector was conducted on the CJP and at the conclusion the test, QC assessment concludes that the reflector is a result of weld geometry. QAI concurs with QC assessment and both parties agree that additional grinding and testing are required. This task will be performed at the conclusion of excavation and repair welding of the west longitudinal stiffener identified as 1E-PP10.5-E2.

B). "A" Deck Longitudinal Stiffeners

The QAI observed the welder, Xiao Jian Wan ID-9677, perform the CJP groove welding on the transverse stiffener field splice identified as WN: 3E-PP19.5-E5-LS-East, located at the ventilation access hole. The welder utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and was also utilized by the QC inspector John Pagliero as a reference to monitor welding and verify the DC welding parameters. The amperage was recorded as 122 amps and the minimum preheat of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius was observed and verified. The CJP welding was performed on the "A" face of the joint and was not completed during this scheduled shift.

The welding of the longitudinal stiffeners was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The welder utilized a slag hammer, pneumatic air gun with an attached chisel 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 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 QAI also observed that the preheat temperatures were achieved and maintained utilizing the induction heating system during the welding operation. The heat induction heating process was controlled by utilizing a Miller Proheat Unit which were located at each welding station.

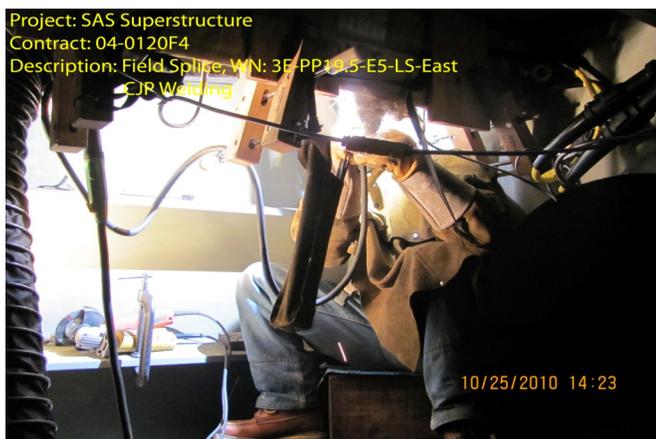
WELDING INSPECTION REPORT

(Continued Page 3 of 3)

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.

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

Reviewed By: Levell, Bill

QA Reviewer