

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-026122**Date Inspected:** 19-Aug-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**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:** SAS Tower & OBG**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) personnel. The inspection was performed on the various field fit-up of weld joints and the Complete Joint Penetration (CJP). The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and the Flux Cored Arc Welding (FCAW-G) process.

A). Tower Shear Plates

The QAI observed the welder Richard Garcia repairing the visual inspection reject of the ESW identified as WN: E-041 located at the joint designated as "R". The welder utilized the Air Carbon Arc (ACA) method to perform the excavation of this area. The QAI observed the QC inspector, Fred Von Hoff, perform a visual inspection, with the assistance of the Magnetic Particle Testing (MPT) utilizing the AC Yoke method, at random intervals during the cutting. Later in the shift the QC inspector informed this QAI that the linear indications were still visible both testing methods at a depth of 40 millimeters. No welding was performed on this date in regards to this issue. The dimensions of the second excavation of this ESW is as follows; Y=2530 mm, L=475 mm, d=40 mm and 75 mm wide.

The QAI also observed the continued repair welding of the shear plate ESW identified as WN: N-041, located at the joint designated as "N". The welding was performed by Jeremy Dolman ID-5042 utilizing the SMAW as per the WPS identified as ABF-WPS-D15-1000-Repair, Rev. 2. The welding was performed in the vertical (3G) position with the work placed in an approximate vertical plane with the groove approximately vertical. The

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minimum preheat of 140 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius appeared to comply with the contract specifications. The QAI also observed the QC inspector, Steve McConnell, monitor the welding and verify the welding parameters utilizing the WPS as a reference to perform this task. The welding parameters of 119 amps were noted by the QC inspector and verified by the QAI. The welding was not completed during this shift.

The QAI observed the Ultrasonic Testing (UT) of the ESW skewed T-Joints identified as WN: W- 042 repair cycle R1, located at the designated joint "M". The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X. The examination was also conducted utilizing UT Procedure identified as SE-UT-D1.5-CT-108 Rev.4 and the applicable contract documents. QAI Note: This UT procedure has not been submitted to the Department for review as of this date. The QC technician performed the required longitudinal wave technique, utilizing a 1.0" 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. At the conclusion of testing there were no rejectable indications noted by the QC technician. The area tested was 300 mm in length starting from the top of the shear plate. The QAI also verified the testing of the ESW and concurs with the QC inspector. For location and additional information see TL-6027 and TL-6028 generated on this date.

The QAI also observed ABF personnel flame cutting, erecting and installing the diaphragm plates designated for the 13 Meter Elevation. The cutting was performed due to a conflict with shop fabrication and the field as built conditions.

B). OBG E11/E12

The QAI observed the continued CJP welding of the side plate field splice identified as 11E-12E-E utilizing the semi-automatic FCAW-G welding process as per the WPS ABF-WPS-D15-3042B-1 Rev. 0. The welding was performed by the welding operator James Zhen ID-6001 and the inspection was performed by the QC inspector William Sherwood utilizing the Welding Procedure Specification (WPS) as a reference during the monitoring of the welding and the verifying of the welding parameters. The welding parameters were measured by the QC inspector and were observed as follows; 230 amps, 24.4 volts and 285 mm/m. The welding was performed in the overhead (4G) position with the work placed in a fixed position at an approximate 22 degree incline. The welding was completed during this shift and appeared to comply with the contract documents.

This QA Inspector also performed a daily review of field inspection reports and update of the field document control tracking records regarding the Orthotropic Box Girders, Longitudinal and Transverse "A" Deck Stiffeners and Deck Access Holes.

QA Summary

The welding was performed in the vertical position utilizing the E7018-H4R and the E71T-1 consumables. The 3.2 mm H4R electrodes were stored in a electrically heated, thermostatically controlled oven after the removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter to measure the electrical

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welding parameters and Tempil Heat Indicators for verifying the preheat and interpass temperatures. At the time of the observation no issues were noted by the QAI.

The digital photographs below illustrate some of the work observed during this scheduled work date.



Summary of Conversations:

There were general conversations with Quality Control Lead Inspector, Bonifacio Daquinag, Jr., at the start of the shift regarding the location of 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