

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-026059**Date Inspected:** 11-Aug-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 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 Girder & Tower**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) processes.

A). OBG E11/E12

The QAI observed the continued CJP welding of the side plate field splice identified as 11E-12E-C 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 verifying the welding parameters. The welding parameters were noted by the QC inspector and observed and verified by the QAI as follows; 241 amps, 24.9 volts and a travel speed measured at 178 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 not completed during this shift and appeared to comply with the contract documents.

B). Tower Shear Plates

The QAI observed the base metal repair welding located at joint "N" above the shear plate ESW identified as WN:

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E-041. The welding was performed by Richard Garcia ID-5892 utilizing the SMAW as per the WPS identified as ABF-WPS-D15-1000-Repair, Rev. 2. The welding was performed in the horizontal (2G) position with the work placed in an approximate vertical plane with the groove approximately horizontal. The 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, John Pagliero, monitor the welding and verify the welding parameters utilizing the WPS as a reference to perform this task. The welding parameters of 114 amps were noted by the QC inspector and verified by the QAI.

Later in the shift, the QAI observed that Mr. Garcia had relocated his work station to the ESW identified as WN: N-045. The QC inspector, Mr. Pagliero, had performed a preliminary UT and noted a second reject in the approximate area of the R1 repair. Mr. Garcia commence the excavation of the reject utilizing the Air Carbon Arc method and a rotary file attached to a die grinder. The excavation of the was performed prior to QC notifying the QAI. This QAI informed the QC inspector, Mr. Pagliero, that QA needs to be notified when an excavation is required. The QC inspector replied that this was not communicated to him and from this point on would notify QA of future rejects. The excavation was completed and the grinding of the surface was finished to a bright metal. At this time the welder relocated to his original work station and continued the welding of the base metal repair at the joint "N".

The above excavation issue has been resolved with Structures Representative, Douglas Wright. Mr. Wright has verbally approved the contractor's Request for Weld Repair Approval in regards to the ESW weld identified as WN: N-045, repair cycle # 2, located at the joint identified as "E".

The QAI also observed the base metal repair welding located at joint "S" above the shear plate ESW identified as WN: S-041. 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 horizontal (2G) position with the work placed in an approximate vertical plane with the groove approximately horizontal. The 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, John Pagliero, monitor the welding and verify the welding parameters utilizing the WPS as a reference to perform this task. The welding parameters of 117 amps were noted by the QC inspector and verified by the QAI.

D). Weld Access Holes

The QAI observed the cutting of the weld access hole at the tower shear plates located at the tower base. The ABF personnel cut the holes utilizing a thermal type cutting process identified as a Thermal Lance Cutting with a .25" diameter iron tube attached to the holder. The cut surfaces will require additional grinding to meet the requirements of the contract specifications. The cutting was performed by Jeff Souza.

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.

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The welding was performed in the flat and horizontal positions utilizing the E7018-H4R. The 3.2 mm H4 electrodes were stored in 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 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