

**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:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-026466**Date Inspected:** 30-Sep-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:** Tower & OBG**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the SAS project site and observed the work and the inspection performed by American Bridge/Fluor Enterprises (AB/F) personnel. The inspection was performed as noted below:

## A). Tower Shear Plates, ESW

The QAI observed the repair welding, Visual Testing (VT) and the Magnetic Particle Testing (MPT) on the Electro-Slag Weld (ESW) shear plate to the tower shaft skin plate connections located at the joints "D" (A-Face) and "G" (B-Face). The welding was performed by Jeremy Dolman ID-5042 and Richard Garcia ID-5892 utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1000 Repair, Rev. 2. The inspection and testing were performed by John Pagliero who also used the WPS as a reference to monitor the welding and verify the welding parameters. There were several areas marked by QC for additional grinding to remove linear indications that were found utilizing the MPT method. This work was not completed during this shift.

This QAI also noted a transverse crack of the ESW weld joint "V" also identified as WN: W-043. The crack appeared during a QC Visual Inspection (VT) and a Magnetic Particle Testing of the ESW performed by the QC inspector Sal Merino. The Y axis is 8710 mm and the excavation depth is 19 mm and upon further evaluation QC has requested the termination of this work. Later in the shift QC Lead Inspector, Bonifacio Daquinag, informed this QAI that the work will not commence until a RWR is issued.

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### B). Lifting Lug Holes

This QAI observed the excavation and repair welding utilizing the Shielded Metal Arc Welding (SMAW) of the Lifting Lug Hole (LLH) insert plate as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1002 Repair Rev. 0. The repair welding was performed by the welder Mike Jiminez ID-4671 on the LLH identified as Weld Number (WN): 9W-PP79-W4-W1 located on the "A" deck of the Orthotropic Box Girder (OBG) W9. The WPS was also utilized by the QC inspector Patrick Swain as a reference to monitor the welding and verify welding parameters which was recorded as 128 amps by the QC inspector. The 3.2 mm Lincoln electrode was utilized with the welding performed in the flat (1G) position with the work placed in an approximately horizontal plane and the weld metal deposited from the upper side. The groove joint appeared to comply with the AWS joint designation identified as B-U4a. The minimum preheat temperature of 40 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector.

### C). Deck Access Hole

The QAI observed the welder Salvador Sandoval ID-2202 perform the welding on the Complete Joint Penetration groove joint identified as 8E-PP70.5-E5 on the "A" deck of the Orthotropic Box Girder (OBG). The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the WPS identified as ABF-WPS-D15-1010, Rev. 1 which was also used by the QC inspector Steve McConnell as a reference to monitor and verify the welding parameters and were observed as The welding was performed in the overhead (4G) position with the work placed in an approximately horizontal plane and the weld metal deposited from the underneath side. The groove joint appeared to comply with the AWS joint designation identified as B-U3b. The minimum preheat temperature of 10 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector.

### D). OBG E13 and W13

This QAI also observed the moving of the Orthotropic Box Girders (OBG) to their final designation for the purpose to commence the field bolting of the "A" deck U-rib splice plates and the "D" bottom splice plates. This QA Inspector continued the daily review of field inspection reports and update of the field document control tracking records regarding the Orthotropic Box Girders (OBG, Longitudinal and Transverse "A" Deck Stiffeners, Deck Access Holes and the Tower Shear plates. The QAI also updated the tracking records for the pipe welds and the pipe supports.

On this date the QAI commence the review of QA tracking documents for the OBG's identified as E3, E4 and E5.

### QA Summary

The welding was performed in the vertical position utilizing the E7018-H4R. 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 welding parameters and Tempil Heat Indicators for verifying the preheat and interpass temperatures. At the time of the observation no issues were

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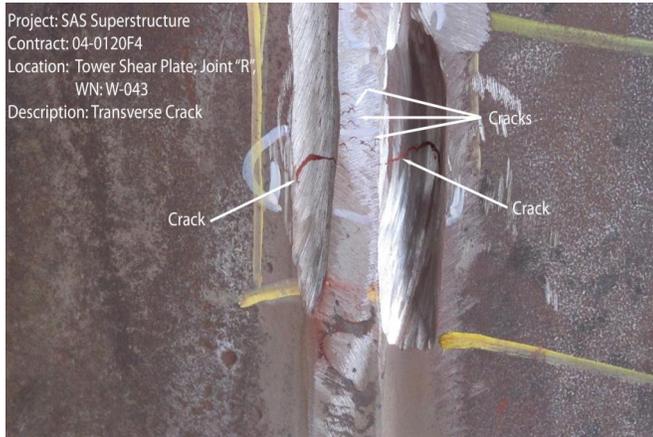
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noted by the QAI.



### 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 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.

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**Inspected By:** Reyes, Danny

Quality Assurance Inspector

**Reviewed By:** Levell, Bill

QA Reviewer

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