

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-027676**Date Inspected:** 30-May-2012**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:** As noted 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 OBG**Summary of Items Observed:**

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

13E Drop-In Panels (Exterior/Interior)

This QA Inspector randomly observed the repair welding operations performed by Two (2) ABF certified welders at the following locations; ABF welders Salvador Sandoval (ID 2202) at 13E PP123.6 on the exterior, and 13E/14E-A2.1 and 13E/14E-A.1 on the interior and Edward Brown (ID 9331) at 13E/14E-A.0 on the interior of the OBG. ProHeat 35 thermal blankets were placed over the welds to pre-heat to 110°C (225°F) prior to excavation with Carbon Arc Gouging (CAG). Upon removal of the discontinuities, QC Inspector Salvador Merino performed Magnetic Particle Testing (MT) to ensure soundness of the metal and observed no relevant indications and recorded the dimensions of the excavations which are listed below. The welders were observed depositing metal by utilizing the Shielded Metal Arc Welding (SMAW) process in the 1G flat and 4G overhead positions respectively, employing 3.2mm E7018-H4R electrodes drawing amperage of 127 as pertaining to ABF-WPS-D1.5-1004-Repair with the exception of 13E/14E-A2.1 at y+815. (See note below). This QA Inspector verified that the electrodes were obtained from a baking oven at the correct temperature and within acceptable exposure limits. The welders were observed cleaning the start/stop edges of the work utilizing small disc grinders and compressed air and restored the base metal to the original surface and ground smooth, and the welds to their specific profiles. Post Weld Heat Treatment (PWHT) was applied to each completed weld surface at 230°C (450°F) for a period of 1 hour in accordance with Section 12.15 of AWS D1.5-2002. The repairs were completed on this date.

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Dimensions of the Excavations.

Salvador Sandoval (ID 2202)

13E/14E-A.1 (Interior)-y+4430mm; 60mm in length, 20mm wide and 7mm deep, y+4920mm; 95mm in length, 20mm wide and 7mm deep.

13E/14E-A2.1 (Interior)-y+815mm; 210mm in length, 15mm wide and 7mm deep.

13E PP123.6 (Exterior)-y+220mm; 95mm in length, 30mm wide and 13mm deep, y+485mm; 100mm in length, 30mm wide and 13mm deep.

Edward Brown (ID 9331)

13E/14E-A.0 (Interior)-y+400mm; 120mm in length, 20mm wide and 6mm deep.

Note: Repair Welding was performed on 13E/14E-A2.1 at y+815 with insufficient preheat. This QA Inspector observed the ProHeat 35 thermal blanket on the exterior side of the joint was not in operation during the in process welding at this location. The weld was completed at the time of the observation and QC Inspector Salvador Merino was notified and reported to QC Management. This QA Inspector generated a TL-15 on this date. ABF-WPS-D1.5-1004-Repair and AWS D1.5-2002: Section 12.17.6 was referenced in this report.

13E PP120.6-LS2 (Interior)

This QA Inspector made random observations of ABF welder Khit Lounechaney (ID 4985) performing SMAW in the 3G vertical position on the Longitudinal Stiffener (LS) at 13E PP120.6 on the interior of the OBG. The welder was observed pre-heating the joint by use of the Pro-Heat 35 thermal blankets where they remained throughout the welding process to provide continuous heat. QC Inspector Salvador Merino monitored the welding and the parameters as they pertained to ABF-WPS-D1.5-1012-3 and measured the inter-pass temperatures between passes as the welder cleaned the work utilizing a small disc grinder. On a subsequent observation, the welder was observed back-gouging the root side of the weld to clean bright metal so as to allow QC to perform MT on the site. Upon completion of testing, the QC Inspector observed no rejectable indications and welding commenced on the root side of the joint. This QA Inspector made subsequent observations throughout the shift to monitor quality and noted that the work at this location was in progress and appeared to be in general conformance with the contract specifications.

13E PP122-E2.5 BW1 (Interior)

This QA Inspector randomly observed the in process SMAW in the 3G vertical position performed by ABF welder Steven Davis (ID 7889) on the Beam Web Splice at 13E PP122-E2.5. QC Inspector Salvador Merino was present to verify minimum pre heat requirements prior to commencement of welding and monitored the parameters to ensure compliance with ABF-WPS-D1.5-1030. The welder was observed cleaning the weld after a pass as QC measured the inter-pass temperatures. On a subsequent observation QC Inspector Salvador Merino performed MT Inspection on the back gouge from the root side of the joint to ensure soundness of the metal and observed no relevant indications and welding commenced on the root side of the joint. This QA Inspector noted that the electrodes were stored in an electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven

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temperature of 120 degrees Celsius as per the contract documents. It was observed that the use of Pro-Heat 35 thermal blankets on the opposite side of the joint to provide a constant 200° F temperature throughout the process. This QA Inspector made subsequent observations throughout the shift to monitor quality and noted that the work at this location was in progress and appeared to be in general conformance with the contract specifications.

13E PP121-E2.4 BW1 (Interior)

This QA Inspector made random observations of ABF welder Jacob Stafford (ID 8020) performing the SMAW process in the 3G vertical position utilizing E7018-H4R electrodes on the Beam Web Splice at 13E PP121-E2.4 on the interior of the OBG. The welder was observed grinding the start/stop edges of the work between passes employing a small disc grinder and maintained sanitary workmanship. QC Inspector Sal Merino was present to monitor the welding and the parameters as they apply to ABF-WPS-D1.5-1030. The welder was noted as continuing the production welding and between passes the QC Inspector verified the welding parameters and surface temperatures utilizing a Fluke 337 clamp meter to measure the electrical welding parameters and Tempilstik Heat Indicators for verifying the preheat and inter-pass temperatures. The welder was observed utilizing 3.2mm E9018-H4R electrodes drawing amperage of 125. This QA Inspector noted that the electrodes were stored in an electrically heated, thermostatically controlled oven after 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. It was observed that the use of Pro-Heat 35 thermal blankets on the opposite side of the joint to provide a constant 200° F temperature throughout the process. On subsequent observations, it was noted that the work was ongoing and appeared to be in general conformance with the contract specifications.

13E PP123.6-QC NDT (Exterior)

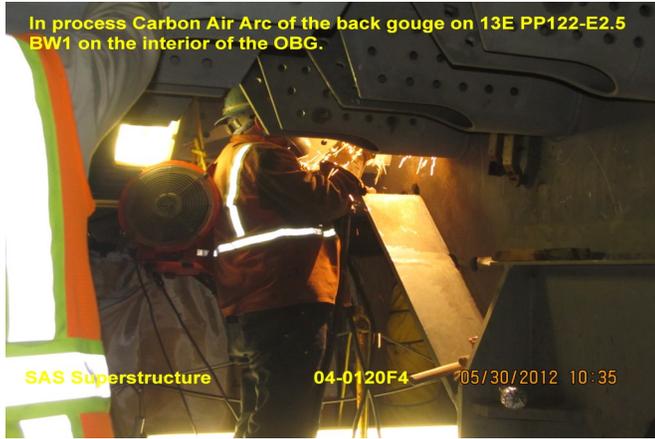
This QA Inspector randomly observed QC Inspector Steve McConnell performing Ultrasonic Testing (UT) on the completed weld along 13E PP123.6 on the exterior of the OBG. The QC Inspector completed the work at this location and recorded rejectable indications and recordable indications. The QC Inspector performed UT on the completed R2 weld joint at 13E PP122.2 and was observed scanning from each side of the weld and the scanning pattern as described in D1.5 6.24. The QC Inspector was noted as identifying recordable indications. This QA Inspector noted that the work at this location is in progress and appeared to be in general conformance with the contract documents and SE-UT-D1.5-CT-100Revision 4.

Summary of Conversations:

This QA Inspector discussed D1.5 and WPS pre heat requirements with QAI Lead Daniel Reyes.

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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: Frey,Doug

Quality Assurance Inspector

Reviewed By: Levell,Bill

QA Reviewer