

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-026808**Date Inspected:** 02-Dec-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:** Steve Jensen**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:** OBG Sections**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above. This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

SAS – Tower – F.W. Spencer:

This QA Inspector observed F.W. Spencer personnel and welding personnel Damian Llanos (#6645) fitting up and welding the 2-inch diameter water line for the tower. This QA Inspector observed that QC Inspector Steve Jensen was assigned to monitor and perform inspections for F.W. Spencer this shift. This QA Inspector randomly observed the following during the fit up of the weld joints; the ends of the piping appeared to be cleaned and beveled, the bevels appeared to be between 30 and 45 degrees, what appeared to be a 3/32-inch diameter electrode (with the flux removed) was positioned between the ends of the pipe to create a root opening, the ends of the pipe were positioned into a fitting aid and clamped. This QA Inspector observed the straightness was checked and then the two ends tack welded together. This QA Inspector randomly observed during the Shielded Metal Arc Welding (SMAW) process a 1/8-inch diameter E6010 electrode was used to weld the root pass and then a 3/32-inch diameter E7018 electrode was used to weld the fill and cover passes. This QA Inspector was informed by QC Inspector Steve Jensen of the following welding parameters for F.W. Spencer welding personnel Damian Llanos; 85 amperes for the 1/8-inch diameter E6010 electrode and 100 amperes for the 3/32-inch diameter E7018 electrode. The welding observed by this QA Inspector appeared to comply with WPS-12-1-1 Revision-2, being used by the QC Inspector. See below for the list of weld joints in which this QA Inspector performed a random

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verification of the fit up and/or a final weld visual verification after QC inspection and acceptance: 3/2/T/142 (final-VT) and 5/2/T/128 (fit up). QC Inspector Steve Jensen informed this QA Inspector he had performed and accepted the fit up and final visual inspections for the following weld joint; 3/2/T/142, 4/2/T/132 and 5/2/T/128.

Orthotropic Box Girder (OBG):

13E/14E-weld joint D-1 (SPCM): This QA Inspector observed QC Inspectors John Pagliero and Jesus Cayabyab performing Ultrasonic Testing (UT) from the bottom (face B) of the weld joint. QC Inspector John Pagliero started from the Y-0 end and QC Inspector Jesus Cayabyab started from the other end. This QA Inspector periodically observed both QC Inspectors scanning from both sides of the weld and appeared to be using adequate scanning techniques. This QA Inspector observed several areas had been rejected and several recordable indications had been marked at the applicable Y locations. This QA Inspector was informed the UT inspection had been completed by the end of the shift this date.

13E/14E-weld joint H (SPCM): This QA Inspector observed QC Inspector John Pagliero start the UT inspection of this weld joint from inside the OBG section. This QA Inspector randomly observed the scanning pattern, verified the reference level and observed UT signals as they appeared on the screen. The UT inspection observed appeared to comply with the contract requirements. This QA Inspector was informed by QC Inspector John Pagliero that he had completed the UT from inside the OBG and only found 2 small areas that required investigation from outside prior to making a disposition.

14E-PP125-E4 Lifting Lug Hole (LLH) LLH-1 (SPCM): This QA Inspector observed QC Inspector Pat Swain perform a visual, Magnetic Particle Testing (MT) and UT on the final weld from outside the OBG section. This QA Inspector observed a short area (approximately 5 mm) of undercut was marked for repair during the visual inspection, no indications were marked during the MT inspection and 2 defects marked reject and 1 indication marked recordable from the UT inspection.

14E – A-Deck- Southwest corner: This QA Inspector observed ABF welding personnel Salvador Sandoval (#2202) performing Flux Cored Arc Welding (FCAW) at this location. The welding appeared to consist of only fillet welds; from the winch frame to a heavy temporary plate and from the heavy temporary plate to the A-Deck. This QA Inspector observed QC Inspector Fred Von Hoff monitoring the welding at this location.

13E/14E-weld joint D-2: This QA Inspector observed ABF personnel grinding the weld face from outside the OBG section to prepare for QC inspections.

13E/14E-weld joint D-1 (SPCM) Repairs: This QA Inspector observed ABF welding personnel Wai Kitlai (#2953) using the carbon arc process and grinder to excavate 2 defects from the bottom of the OBG section. This QA Inspector observed QC Inspector Jesus Cayabyab monitoring the work. QC Inspector Jesus Cayabyab stated the base metal had been preheated as required prior to using the carbon arc process. This QA Inspector observed the defects original locations were Y-220 and Y-470. This QA Inspector observed QC Inspector Jesus Cayabyab perform a visual and MT inspection on each of the excavations after grinding. QC Inspector Jesus Cayabyab informed this QA Inspector the inspections had been accepted and observed the length, width and depth had been marked adjacent to each of the final excavations. This QA Inspector performed a visual verification and confirmed the following; excavation at Y-220 was 110 mm long, 29 mm wide and 17 mm deep, excavation at

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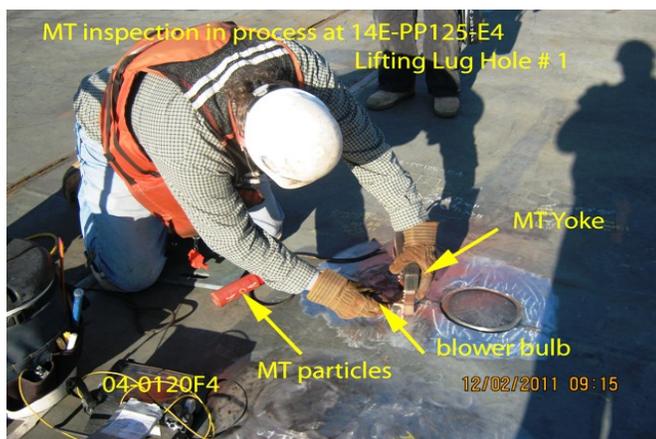
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Y-470 was 105 mm long, 19 mm wide and 10 mm deep. The work observed appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-1004 Repair. This QA Inspector observed a coil had been formed with the liquid induction heating equipment placed on the top side and over the repair area. This QA Inspector verified the preheat temperature to be greater than 325°F with a temperature indicating marker prior to the start of welding. This QA Inspector observed QC Inspector Jesus Cayabyab verify the following Shielded Metal Arc Welding (SMAW) parameters for ABF welding personnel Wai Kitlai (#2202); 132 amperes. This QA Inspector observed a 3.2 mm diameter E7018H4R electrode was being used in the overhead (4G) position. The welding observed appeared to comply with ABF-WPS-D15-1004 Repair being used by the QC Inspector. This QA Inspector periodically monitored and verified the welding activities at this location and observed at approximately 1400 hours the welding appeared to be completed. This QA Inspector confirmed with ABF welding foreman James Zhen and QC Inspector Jesus Cayabyab the induction heating equipment had been set for a temperature slightly greater than 450°F for 1-1/2 hours. The thickness of the plate on 13E is 30 mm and the thickness on 14E is 35 mm. The work observed appeared to comply with the contract requirements.

This QA Inspector verbally informed QA SPCM Lead Inspector, Daniel Reyes, of the issues noted in this report for compliance therefore for further details of issues of significance see QA SPCM Lead Inspector, Daniel Reyes, Daily Inspection Report (6031) for this date.

Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted above there were no notable conversations.



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: Hager, Craig

Quality Assurance Inspector

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Reviewed By: Levell,Bill

QA Reviewer