

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-027313**Date Inspected:** 12-Mar-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:	Bernie Docena		
Inspected CWI report:	Yes	No	N/A
Electrode to specification:	Yes	No	N/A
Qualified Welders:	Yes	No	N/A
Approved Drawings:	Yes	No	N/A

CWI Present:	Yes	No	
Rod Oven in Use:	Yes	No	N/A
Weld Procedures Followed:	Yes	No	N/A
Verified Joint Fit-up:	Yes	No	N/A
Approved WPS:	Yes	No	N/A
Delayed / Cancelled:	Yes	No	N/A

Bridge No: 34-0006**Component:** SAS Tower**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base Shear Plate to outer West external diaphragm plate weld joint #040(8), this QA Inspector randomly observed ABF personnel Wai Kitlai continuing to perform root pass production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 80mm thick West shear plate and 45mm thick outer West external diaphragm plate. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to and after welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 260 amperes and 25.0 volts. After the welding completion of the root pass, ABF QC Bernie Docena was observed performing MT on the root welded T-joint. No relevant indications were observed. This QA also performed random MT on the same welded root pass with noted same result. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welder has completed the PJP weld joint and right after the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat.

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After the welding completion of the above mentioned PJP T-joint, the welder has moved to the 45mm thick stiffener plate below the 9 meter outer West diaphragm plate (South side). The welder was noted fillet welding the three (3) sides of the drop in stiffener plate to 80mm thick shear plate on one side, 45mm thick tower shaft 'S' skin plate 'B' on another side and 65mm thick vertical stiffener on the third side. There are no weld joint designations for these fillet weld joints since ABF QC has not come up with their weld map yet. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode without Caltrans approved WPS on the 4F overhead position. According to QC Bernie Docena, QC will issue a Non-Conformance Report to ABF. This QA was also instructed by Lead QA Danny Reyes to generate an Incident Report due to this infraction. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to and after welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 280 amperes and 23.0 volts. At the end of the shift, 4F fillet welding was still continuing and should remain tomorrow.

At Tower Base Shear Plate to outer West external diaphragm plate weld joint #040(10), this QA Inspector randomly observed ABF personnel Jin Pei Wang continuing to perform root pass production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 80mm thick West shear plate and 45mm thick outer West external diaphragm plate. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to and after welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 296 amperes and 25.0 volts. After the welding completion of the root pass, ABF QC Bernie Docena was observed performing MT on the root welded T-joint. No relevant indications were observed. This QA also performed random MT on the same welded root pass with noted same result. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welder has completed the PJP weld joint and right after the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat.

After the welding completion of the above mentioned PJP T-joint, the welder has moved to the 45mm thick stiffener plate below the 9 meter outer West diaphragm plate (North side). The welder was noted fillet welding the three (3) sides of the drop in stiffener plate to 80mm thick shear plate on one side, 45mm thick tower shaft 'S' skin plate 'B' on another side and 65mm thick vertical stiffener on the third side. There are no weld joint designations for these fillet weld joints since ABF QC has not come up with their weld map yet. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode without Caltrans approved WPS on the 4F overhead position. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to and after welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 325°F. This QA Inspector performed a verification of the welding parameters and observed 290 amperes and 23.5 volts. At the end of the shift, 4F fillet welding was still continuing and should remain tomorrow.

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At Tower Base 9 meter outer East external diaphragm, ABF personnel were noted cutting the 45mm stiffener plate below the 9 meter diaphragm using the grinder cutting disc.



At Tower Base 9 meter diaphragm, ABF QC Bernie Docena was observed performing Magnetic Particle Testing (MT) on welded root pass of the PJP T-joint W040-10.



At Tower Base 9 meter diaphragm, ABF welders Wai Kitlai and Jin Pei Wang were observed 1G Flux Cored Arc Welding (FCAW-G) welding root pass on PJP T-joints W040-8 and W040-10 respectively.



At Tower Base 9 meter diaphragm, ABF personnel were noted using the Miller Proheat 35 Induction Heating System to preheat, maintain and post weld heat treatment the PJP T-joints that were being welded.



Summary of Conversations:

Due to unavailability of Caltrans approved Welding Procedure Specification (WPS) for the overhead (4F) fillet welding of the 45mm thick stiffener plate to tower skin plate, shear plate and vertical stiffener plate at outer West below the 9 meter diaphragm, ABF QC Bernie Docena informed this QA that QC will issue a Non-Conformance Report concerning this issue.

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 SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer