

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-027363**Date Inspected:** 22-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 9 meter outer East external diaphragm below the drop in plate WD1-A46, this QA Inspector randomly observed ABF personnel Jin Pei Wang continuing to perform 2F/4F (horizontal/overhead) fillet welding the 45mm thick 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 noted fillet welding the stiffener plate using Shielded Metal Arc Welding (SMAW) with 5/32" diameter E7018H4R electrode implementing Caltrans approved WPS ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to, during 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 225°F. This QA Inspector performed a verification of the welding parameters and observed 145 amperes on the 5/32" diameter E7018 electrode. At the end of the shift, 2F/4F fillet welding on weld location mentioned above was completed. The welder performed the post weld heat treatment (PWHT) after welding using the same preheat temperature and heating machine and held it for three hours as required.

After the completion of the above mentioned weld, the welder waited for the three hour PWHT period then moved to the 9 meter outer East external diaphragm WD1- A46 drop in plate. The welder was observed welding the root

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pass using the Flux Cored Arc Welding (FCAW-G) at 1G (flat position) of weld joint #059 (3 & 4) and #060 (2). The welder was observed perform root pass welding on the PJP T-joint between the 45mm drop in plate and shear/tower skin plates and splice butt joint on drop in plate to diaphragm plate. After the welding completion of the root pass, ABF QC Bernie Docena was observed performing MT on the root welded T-joints and butt joint with positive result. This QA also performed random MT on the same welded root pass with noted same result. The welder resumed FCAW-G welding fill pass until the end of the shift without completing the weld joints. The welder has held the same preheat of more than 325°F for three hours as required after welding for the PWHT.

At Tower Base 9 meter outer East external diaphragm below the drop in plate WD1-A60, this QA Inspector randomly observed ABF personnel Wai Kitlai perform 4F (overhead) fillet welding the 45mm thick 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 noted fillet welding the stiffener plate using Shielded Metal Arc Welding (SMAW) with 5/32" diameter E7018H4R electrode implementing Caltrans approved WPS ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to, during 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 225°F. This QA Inspector performed a verification of the welding parameters and observed 160 amperes on the 5/32" diameter E7018 electrode. At the end of the shift, 4F fillet welding on weld location mentioned above was completed. The welder performed the post weld heat treatment (PWHT) after welding using the same preheat temperature and heating machine and held it for three hours as required.

At Tower Base 9 meter South external diaphragm, this QA Inspector randomly observed ABF personnel Han Wen Yu perform 4F (overhead position) fillet production welding on the C10 channel to 45mm thick diaphragm plate fillet weld joint 100-3. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the ZPMC drawing number FW3. The welder was using the 1/8" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 130 amperes on the 1/8" diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-DF1200A. At the end of the shift, the welder has completed the 6mm fillet weld on South external diaphragm.

At Tower Base 9 meter South external diaphragm, this QA Inspector randomly observed ABF personnel Xiao Jian Wan perform 4F (overhead position) fillet production welding on the C10 channel to 45mm thick diaphragm plate fillet weld joint 100-4. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the ZPMC drawing number FW3. The welder was using the 1/8" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 135 amperes on the 1/8" diameter electrode. The welding

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appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-DF1200A. At the end of the shift, the welder has completed the 6mm fillet weld on South external diaphragm.

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Partial Joint Penetration (PJP) welding of twelve (12) PJP T-joints and four (4) PJP butt joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector at 9 meter inner East external diaphragm meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection complied with the contract documents.

1. W031 to W032 PJP T-joint – weld cover QA verified
2. W047 to W048 PJP T-joint – weld cover QA verified
3. W065-3 & 4 PJP T-joints – weld cover QA verified
4. W066-2 PJP butt joint – weld cover QA verified
5. W067-3 & 4 PJP T-joints – weld cover QA verified
6. W068-2 PJP butt joint – weld cover QA verified
7. W069-3 & 4 PJP T-joints – weld cover QA verified
8. W070-2 PJP butt joint – weld cover QA verified
9. W071-3 & 4 PJP T-joints – weld cover QA verified
10. W072-2 PJP butt joint – weld cover QA verified

Summary of Conversations:

No significant conversation occurred today.

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
