

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
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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-027492
Date Inspected: 23-Apr-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1730
Location: Job Site

CWI Name:	William Sherwood and Fred Von Hoff			OSM 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 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 13 meters diaphragm, weld joint number W124, QA randomly observed ABF certified welder James Zhen ID #6001 continuing to perform 1G (flat position) Submerged Arc Welding (SAW) on the Partial Joint Penetration (PJP) T- joint between the 45mm thick Tower South shaft skin plate and the 45mm outer West diaphragm plate. The welder was utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4062-1. The joint being welded has a 45 degree bevel groove T- joint. The plates were preheated to more than 225 °F using Miller Proheat 35 Induction Heating System with one heater blanket located on top of each plate prior/during welding. ABF/QC Fred Von Hoff was noted monitoring the welding parameters of the welder with measured working current of 550 amperes, 32.5 volts with travel speed of 380 mm per minute and calculated heat input of 2.8 Kjoules/mm. QA noted the welding parameters, the workmanship and appearance of the completed fill satisfactory. During the shift, SAW cover pass welding on PJP T-joint mentioned above was completed.

At Tower Base 13 meter diaphragm, ABF welder Wai Kitlai was observed performing 2G (horizontal position) Shielded Metal Arc Welding (SMAW) welding root pass to fill pass on 250mm long X 60mm thick corner stiffener plate shop marked 356. The welder was noted using SMAW with 3.2mm diameter E7018H4R electrode on the root pass and 4.0mm diameter same electrode for the fill pass. The 60mm thick corner stiffener has a 45 degree double bevel configured for a Partial Joint Penetration (PJP) per detail drawing FWT28 of FWDT-2 Field

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Welding Schedule drawing. The stiffener plate is being welded to the 60mm shear plate on one side and to the tower skin plate on the other side. The welder was noted welding alternately from one side to the other to avoid distortion. Prior welding, the plates were preheated to more than 150°F using propylene gas torch. This QA Inspector observed QC Inspector Fred Von Hoff 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 and 170 amperes on the 3.2mm and 4.0mm diameter electrode respectively. At the end of the shift, the 2G (horizontal position) PJP T-joint SMAW welding was completed at 'J' location between the inner East and outer East diaphragm plates. The 3G (vertical position) weld joint was still outstanding awaiting the Miller Proheat 35 Induction Heating System machine which is not available at the moment.

At Tower Base 13 meter diaphragm, ABF welder Lou Xiao Hua was observed performing 2G (horizontal position) Shielded Metal Arc Welding (SMAW) welding root pass to fill pass on 250mm long X 60mm thick corner stiffener plate shop marked 356. The welder was noted using SMAW with 3.2mm diameter E7018H4R electrode on the root pass and 4.0mm diameter same electrode for the fill pass. The 60mm thick corner stiffener has a 45 degree double bevel configured for a Partial Joint Penetration (PJP) per detail drawing FWT28 of FWDT-2 Field Welding Schedule drawing. The stiffener plate is being welded to the 60mm shear plate on one side and to the tower skin plate on the other side. The welder was noted welding alternately from one side to the other to avoid distortion. Prior welding, the plates were preheated to more than 150°F using propylene gas torch. This QA Inspector observed QC Inspector Fred Von Hoff 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 133 and 178 amperes on the 3.2mm and 4.0mm diameter electrode respectively. At the end of the shift, the 2G (horizontal position) PJP T-joint SMAW welding was completed at 'J' location between the inner East and outer East diaphragm plates. The 3G (vertical position) weld joint was still outstanding awaiting the Miller Proheat 35 Induction Heating System machine which is not available at the moment.

At Tower Base 13 meter outer West external diaphragm, this QA Inspector randomly observed ABF personnel Xiao Jian Wan continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W130-1. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the FW3 drawing. The welder was using the 3.2mm 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 Steve Mc Connell 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 3.2mm diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was still continuing and should remain tomorrow.

At Tower Base 13 meter outer West external diaphragm, this QA Inspector randomly observed ABF personnel Jin Pei Wang continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W130-1. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the FW3 drawing. The welder was using the 3.2mm 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 Steve Mc Connell using a Fluke

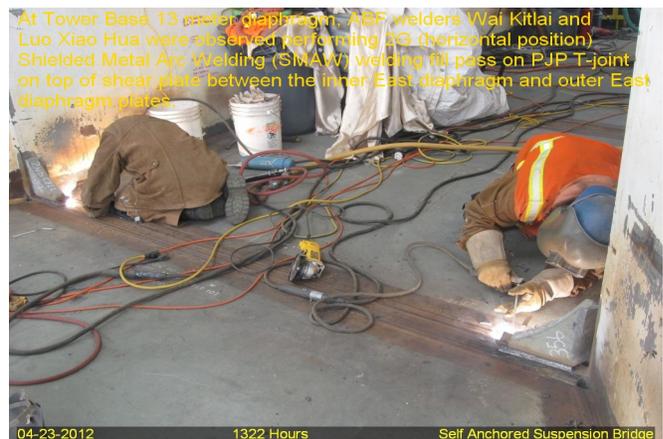
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infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 125 amperes on the 3.2mm diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was still continuing and should remain tomorrow.

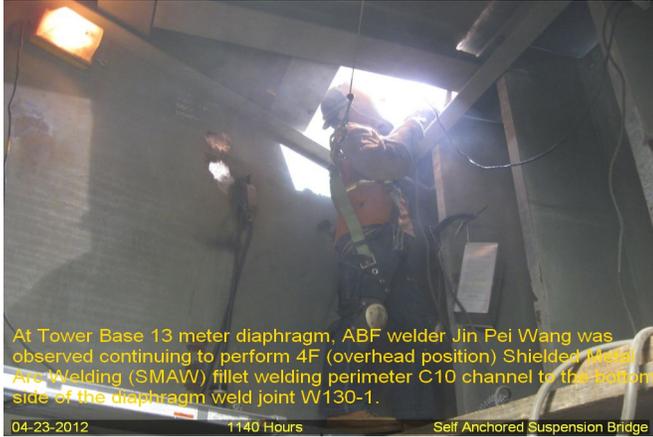
At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Partial Joint Penetration (PJP) welding of nine (9) PJP T-joints, five (5) PJP butt joints and one (1) fillet weld joint. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector at 9 meter outer 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. W059-3 & 4 PJP T-joints – weld cover QA verified
2. W060-2 PJP butt joint – weld cover QA verified
3. W061-1 & 2 PJP T-joints – weld cover QA verified
4. W062-1 & 2 PJP butt joints – weld cover QA verified
5. W063-5 & 6 PJP T-joints – weld cover QA verified
6. W064-5 & 6 PJP butt joints – weld cover QA verified
7. W030 - PJP T-joint – weld cover QA verified
8. W046 - PJP T-joint – weld cover QA verified
9. W045 - PJP T-joint – weld cover QA verified
10. P440-8 stiffener fillet weld joint – weld cover QA verified



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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