DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027767
Date Inspected: 12-Jun-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: 1930
Location: Job Site

CWI Name: Fred Michels and William Sherwood

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 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 OBG 13W-W2.5 Y=3000mm to Y=5030mm top deck drop-in plate inside, QA randomly observed ABF certified welder Rory Hogan continuing to perform 4G (overhead position) Shielded Metal Arc Welding (SMAW) back welding cover pass on the CJP SPCM splice butt joint. The welder was utilizing 3.2mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040C-CU. The joint being welded had a single V-groove butt joint with copper plate backing bar that was originally welded from the top using a combination of SMAW and Submerged Arc Welding (SAW) then removed the copper backing plate using carbon air arc gouging and ground smooth. The plates were preheated to more than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System prior welding. Welding parameters were monitored by ABF/QC William Sherwood. QA noted the working welding parameters of 130 amperes on the 3.2mm diameter E7018H4R electrode. The workmanship and appearance of the completed cover pass deemed satisfactory. At the end of the shift, cover pass welding on area mentioned above was partially completed.

At OBG 13E-PP122.5-E2.8-BF2 drop-in floor beam , QA randomly observed ABF certified welder Steve Davies perform 2G (horizontal position) Shielded Metal Arc Welding (SMAW) back welding fill pass to cover pass on the CJP skewed flange splice butt joint. The welder was utilizing 3.2mm diameter E7018H4R on the fill pass implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1030 Rev. 0. The joint being welded has a skewed angle butt joint that was welded from the other side then back gouged and tested using

Magnetic Particle Testing (MT). The plates were preheated to more than 150 degree Fahrenheit using propylene gas torch prior welding. Welding parameters were monitored by ABF/QC William Sherwood. QA noted the welding working parameter of 129 amperes on the 3.2 diameter E7018H4R electrode. The workmanship and appearance of the completed cover pass deemed satisfactory. During the shift, cover pass welding on the flange butt joint was completed and the welder has moved to the web BW1 of the floor beam and perform the same splice butt welding using the same procedure. The welder was observed perform 3G (vertical) position SMAW welding root pass to cover pass on one side of the web plate and after its completion ABF welder Rick Clayborn performed the back gouging using carbon air arc gouging. The groove of the gouged area was ground smooth and ABF QC performed the verification using Magnetic Particle Testing (MT). After the acceptance of the MT test, the welder resumed welding the other side of the web splice joint using the same WPS as previously mentioned. At the end of the shift, cover pass back welding of the BW1 floor beam web splice was completed.

At OBG 13W-W2.5 Y=0mm to Y=3000mm top deck drop-in plate inside, QA randomly observed ABF certified welder Mike Jimenez continuing to perform 4G (overhead position) Shielded Metal Arc Welding (SMAW) back welding cover pass on the CJP SPCM splice butt joint. The welder was utilizing 3.2mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040C-CU. The joint being welded had a single V-groove butt joint with copper plate backing bar that was originally welded from the top using a combination of SMAW and Submerged Arc Welding (SAW) then removed the copper backing plate using carbon air arc gouging and ground smooth. The plates were preheated to more than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System prior welding. Welding parameters were monitored by ABF/QC William Sherwood. QA noted the working welding parameters of 130 amperes on the 3.2mm diameter E7018H4R electrode. The workmanship and appearance of the completed cover pass deemed satisfactory. At the end of the shift, cover pass welding on area mentioned above was partially completed.

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the following various welded joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector 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. 13E-PP120-TS1 – transverse stiffener butt weld joint QA verified.
2. 13E-PP120.5-TS1 – transverse stiffener butt weld joint QA verified.
3. 13E-PP120.6-LS1 – longitudinal stiffener butt weld joint QA verified.
4. 13E-PP121-E2.4-BW1 – floor beam web splice butt weld joint QA verified.

At Tower elevation 38 meter, QA randomly observed ABF/JV qualified Rory Hogan continuing to perform all position Shielded Metal Arc Welding (SMAW) fillet welding Crosby size number 4 padeye on tower skin plates. Four padeyes are being welded on tower skin plates A and E on tower shafts South and East while there are only two being welded padeyes on tower skin plate A of tower shafts North and West. The padeyes are also being welded per Contract Change Order (CCO) #201 and per Caltrans approved drawing Tower Access Detail #30.

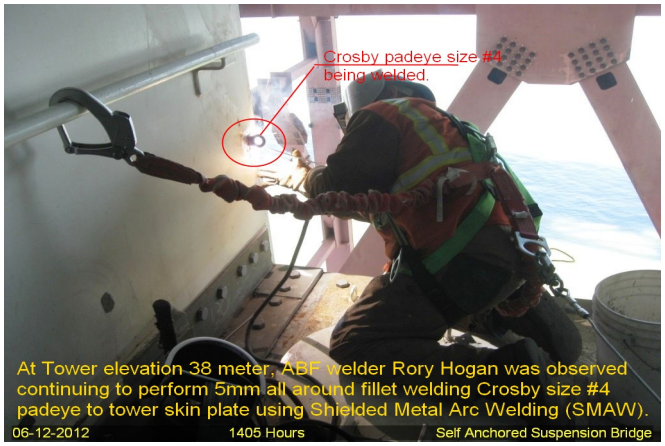
Prior welding, ABF foreman Rory Hogan was noted laying out the location of the padeyes while another ABF personnel was noted grinding off the paint on the tower where the padeye will be welded. After grinding, the same personnel preheated the tower skin plate to required temperature of more than 225°F. After reaching the required

preheat temperature, ABF welder Rory Hogan performed the tack welding using SMAW with 3.2mm diameter E7018H4R electrode with measured working current of 131 amperes on the mentioned electrode.

As soon as the padeye is tack welded, the welder immediately preheated the tower skin plate and the padeye itself to the required preheat temperature of more than 225°F. The welder then fully fillet welded the Crosby Padeye to 5mm all around fillet using the same electrode and size. During fillet welding, ABF QC Fred Michels was observed monitoring the preheat temperature and working current. At the end of the shift, the welder has completed fillet welding a total of 12 padeyes at tower four shafts elevation 38 meters.

FW Spencer:

At OBG 13W-PP119 grid line W5 outside, this QA randomly observed FW Spencer Damian Llanos continuing to perform fit up/tack welding and fillet welding of PS5 pipe support. The tack welding and field welding was performed by welder Damian Llanos utilizing a 3.2 mm electrode implementing Caltrans approved Welding Procedure Specification (WPS) identified as Fillet Murex. The 6mm fillet welding was performed in 2F/3F positions on two 3" X 3" angular to structural tee WT 6. ABF QC Fred Michels was noted on site monitoring the welder and the workmanship of welding being performed. At the end of the shift, three (3) PS5 support with two angular welded to the WT6 were completed. The completed horizontal and vertical fillet welds were designated as W120612-01 and W120612-02, W120612-03 and W120612-04, W120612-05 and W120612-06.



WELDING INSPECTION REPORT

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Summary of Conversations:

No significant conversation ocurred 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