

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-027120
Date Inspected: 31-Jan-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:	Salvador Merino	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 Components	

Summary of Items Observed:

On this date, Quality Assurance Inspector (QAI) Kenneth Riley was present at the San Francisco Oakland Bay Bridge job site at Yerba Buena Island to observe erection and welding activities for the San Francisco Oakland Bay Bridge (SFOBB) project. This Quality Assurance Inspector (QAI) observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A) Lifting Lug Holes
- B) Field Splice 12W-13W
- C) Field Splice 13W-14W
- D) RFI ABF-RFI-002685 R00

- A). Lifting Lug Holes
13W (SPCM)

The QAI observed that welder Mike Jimenez, was placing the cover passes for location 13W-PP119.5-W4-W4 lifting lug hole. The welder was using the Shielded Metal Arc Welding (SMAW) using electrode E7018 for the Complete Joint Penetration weld with copper backing in the flat (1G) position under Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-CU. The welder had pre-heat the area prior to welding using a weed burner at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The electrode used was 4.0mm diameter with welding amps verified as 187. The welder was using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

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Later in the shift the welder had completed this location and moved to 13W-PP121.5-W4-W2. The QAI observed that welder Mike Jimenez, was fitting up this location and the QC inspector had checked the fit up tolerance for adherence to the Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-CU which was found to be acceptable and verified by the QAI. The welder then proceeded to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was using the Shielded Metal Arc Welding (SMAW) using electrode E7018 for the Complete Joint Penetration weld with copper backing in the flat (1G) position. The electrode used was 3.2mm diameter with welding amps verified as 134. The welder was using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

B). Field Splice 12W-13W (SPCM)

The QAI observed welder Rich Garcia, completed the weld at 12W-13W-A5 location between Y= 300mm and 3500mm and proceeded to 12W-13W-A3 & A4 (A3-5000 to A4-1800). The welder used the Carbon Arc Cutting (CAC) process to remove the back-up bar and back gouge the weld. The weld was then ground to bright metal and the QC inspector performed magnetic particle inspection to ensure sound weld metal prior to the beginning of the welding process. The results of the MT inspection were found to be acceptable as relayed to this QAI. The welder then proceeded the welding process under Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4 for the Complete Joint Penetration weld using the Flux Cored Arc Welding (FCAW) process with the E71T-1M, 1.6mm electrode. The welding parameters were verified as 267 amps, 23.2 volts and Heat index of 1.52 k/j. The area for welding had been pre-heated to 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder placed the root pass and then continued with the intermediate weld passes. The welder was observed using a power grinder and power wire wheel for the interpass cleaning by this QAI. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

C). Field Splice 13W-14W-E1 & E2

The QAI observed welder Jeremy Dolman at the 13W-14W-E2 (side plate) in the flat (1G) position. The Welding Procedure Specification (WPS) ABF-WPS-D15-3040B-3 for the Complete Joint Penetration weld using the Flux Cored Arc Welding (FCAW) process with the E71T-1M, 1.6mm electrode. The welding parameters were verified as 229 amps, 23.0 volts and Heat index of 1.26 k/j. The area for welding was then pre-heated prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was placing the root/intermediate and cover weld passes where the bolted connections were located for the stiffeners. This area was unbolted to allow the welder access. These are the areas where the contractor could not weld with the Bug O system. This QAI observed that 2 stiffener areas were removed from E1/E2 location. Starting from the F1 edge plate the splice plates removed were numbers 4 and 8. The QC inspector for this location was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

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D). RFI ABF-RFI-002685 R00

This QAI during a random observation that the contractor had placed a high line tie-back beam on the deck of lift 14W under Request For Information (RFI) ABF-SUB-002685 Rev00. This is for the Cable-East End Anchorage High line tie-back beam for the PWS cable system. This is to facilitate the handling of the PWS/PWS Socket as outlined with the RFI. This QAI observed that Jeremy Dolman was using the SMAW process to place 6mm fillet welds 152mm in length at both sides of the base plate. The contractor was observed as using the weed burner to pre-heat the deck plate to 40 degrees Celsius (150 degrees F) as required for the SMAW process under using electrode E7018 for the Complete Joint Penetration weld with copper backing in the horizontal (2F) position under Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. The welds were placed in the longitudinal direction of the bridge only (not Transverse) The RFI received by this QAI is per the outline and response for the High Line Tie-Back beam.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding utilizing the WPS's as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspectors utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized for the welding process stated appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators. Unless noted otherwise, all work observed on this date appeared to be in general compliance with the contract documents at the time of observations.



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Summary of Conversations:

Basic conservation, fundamental to completion of the tasks at hand, occurred between this QAI and ABF QC personnel.

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:	Riley, Ken	Quality Assurance Inspector
Reviewed By:	Levell, Bill	QA Reviewer
