

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-027384**Date Inspected:** 29-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:** See below**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:** Tower**Summary of Items Observed:**

Quality Assurance (QA) Inspector Danny Smith arrived at the new San Francisco Oakland Bay Bridge to observe, document and perform a general visual verification and NDT. Upon arrival as noted above the QA Inspector observed Quality Control (QC) on site performing welding inspection.

**Tower at 13mm:**

At Tower Base 13 meters diaphragm the QC Inspector relayed to the QA Inspector W115 and W126 had been 100% "Magnetic Particle Test" Tested (MT) with no relevant indications found on this date. The QA Inspector then performed 10% MT on both W115 and W126 welds and found no relevant indications on this date. A TL 6028 report was generated on this date.

At this time the QC Inspector relayed to the QA Inspector weld marked as W114 was found to have relevant linear indications in two locations as follows: One at 570mm long starting from the East end of the weld and one 200mm long starting from the West side of the weld. The QA Inspector relayed to the QC Inspector the indications found were in the root pass and in process so no RWR (Repair Weld Procedure) would need to be generated at this time. Later in the shift the QC Inspector relayed to the QA Inspector ABF welding personnel would be generating an RWR at this time for the weld in question W114.

The QC Inspector relayed to the QA Inspector the shear plate between welds marked as W114 and W115 had been "Magnetic Particle Tested" for laminations. At this time the QC Inspector relayed to the QA Inspector no relevant indications were found at this time on this date for the above stated welds

---

## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

---

At Tower Base 13 meters diaphragm, weld joint number W115, 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 external center diaphragm and 60mm shear 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 with an average root opening of 4.2mm and C-channel installed underneath that will serve as the backing bar. The plates were preheated to more than 225 °F using Miller Preheat 35 Induction Heating System with one heater blanket located on top of each plate prior welding and moving it to the side and lifting the other 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 381 mm per minute.

Later in the shift At Tower Base 13 meters diaphragm, weld joint number W126, QA randomly observed ABF certified welder Dan Ieraci ID #3232 continuing to perform 1G (flat position) Submerged Arc Welding (SAW) on the Partial Joint Penetration (PJP) T- joint between the 45mm thick external center diaphragm and 60mm Tower. 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 with an average root opening of 4.2mm and C-channel installed underneath that will serve as the backing bar. The plates were preheated to more than 225 °F using Miller Preheat 35 Induction Heating System with one heater blanket located on top of each plate prior welding and moving it to the side and lifting the other 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 381 mm per minute.

The QA Inspector observed the welding work at these locations was not yet completed on this date.

### FW Spencer-Mechanical Piping:

Later in the shift the QA Inspector observed the following: At location Panel Point 10W-PP104 at grid line W2, weld I.D. numbers 1-CA2-104-NW and 1-DW1-104-NW the QA randomly observed FW Spencer qualified welder Damian Llanos perform Complete Joint Penetration (CJP) 6G (all position) using Shielded Metal Arc Welding (SMAW) on the root pass and cover passes on the 1" weld-o-let to the 2 1/2" diameter air and domestic water lines respectively. The air and water line systems being welded are field welds along the grid line of W2 of the OBG. The welder was noted welding the root pass with 3/32" diameter E6010 electrode and followed by fill pass to cover pass using 3/32" diameter E7018H4R electrode implementing Caltrans approved procedure FW Spencer WPS 1-12-1. The welder was noted preheating and removing the moisture of the joint using a portable torch prior welding. During welding, ABF QC Steve Jensen was noted monitoring the parameters of the welder. At the end of the shift, one drain on each line was completed and was visually accepted by QC.

Work appears to be in general compliance with contract documents.

---

---

# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

---

---



## Summary of Conversations:

Conversations included welding work being performed on this date.

## 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:** Smith,Danny

Quality Assurance Inspector

---

**Reviewed By:** Levell,Bill

QA Reviewer