

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
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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-026439  
**Date Inspected:** 28-Sep-2011

**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:** 1530  
**Location:** Job Site

|                                    |                        |                                  |              |        |
|------------------------------------|------------------------|----------------------------------|--------------|--------|
| <b>CWI Name:</b>                   | Bonifacio Daquinag Jr. | <b>CWI Present:</b>              | Yes          | No     |
| <b>Inspected CWI report:</b>       | Yes No N/A             | <b>Rod Oven in Use:</b>          | Yes          | No N/A |
| <b>Electrode to specification:</b> | Yes No N/A             | <b>Weld Procedures Followed:</b> | Yes          | No N/A |
| <b>Qualified Welders:</b>          | Yes No N/A             | <b>Verified Joint Fit-up:</b>    | Yes          | No N/A |
| <b>Approved Drawings:</b>          | Yes No N/A             | <b>Approved WPS:</b>             | Yes          | No N/A |
|                                    |                        | <b>Delayed / Cancelled:</b>      | Yes          | No N/A |
| <b>Bridge No:</b>                  | 34-0006                | <b>Component:</b>                | OBG Sections |        |

**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above. This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

**Orthotropic Bridge Girder (OBG) Sections:**

5E-PP36.5-E5: This QA Inspector randomly observed ABF welding personnel Todd Jackson (#4639) using the Shielded Metal Arc Welding (SMAW) process to attach approximately 4420 mm of diverter bar/drip rail at this location. This QA Inspector observed QC Inspector Pat Swain perform and accept the fit up of the drip rail. This QA Inspector performed a random visual verification and the fit up appeared to comply with the contract requirements. Prior to welding this QA Inspector observed ABF welding personnel Todd Jackson (#4639) using a hand held gas torch to preheat the area where welding was to begin. This QA Inspector used an electronic temperature gauge to verify the preheat temperature was greater than the minimum preheat temperature on the applicable Welding Procedure Specification. This QA Inspector randomly observed QC Inspector Pat Swain verify the following welding parameters; 135 amperes. This QA Inspector observed a 3.2 mm diameter E7018H4R electrode was being used. The welding observed appeared to comply with ABF-WPS-D15-F1200A-Rev-2.

**Self Anchored Suspension (SAS) Tower section, Electro Slag Welding (ESW) joints:**

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ESW weld joint, location “V” and “T”: This QA Inspector randomly observed ABF welding personnel using a grinder to clean and contour the weld profiles. The remaining sections of the strong backs were also being removed by grinding as work progressed from the 3-meter to 9-meter elevation.

ESW weld joint, location “S”: This QA Inspector randomly observed QC Inspector Jesus Cayabyab performing a visual inspection on the ESW sump adjacent to this location (ESW location “R”) and stated that he had previously performed and accepted the visual inspection on the ESW sump at this location (ESW location “S”). This QA Inspector performed a random visual verification and observed the intersection of the ESW to the existing tower plate appeared to be abrupt with very little radius if any. This QA Inspector asked QC Inspector Jesus Cayabyab what the minimum radius was required for this location. QC Inspector Jesus Cayabyab stated he was not aware any radius was required. Lead QC Inspector Bonifacio Daquinag Jr. was also present and this QA Inspector stated that at the top of the shear plate a minimum radius of approximately 10 mm was required and presented the question as to rather a minimum radius was required at basically the same configuration except at the bottom. Lead QC Inspector Bonifacio Daquinag Jr. stated an RFI had been submitted regarding the size of the sump and radius, but that it did not address this specific location. Lead QC Inspector Bonifacio Daquinag Jr. stated he was not sure what the requirement was and that he would contact QCM Jim Bowers and/or submits an RFI. See photo below. This QA Inspector observed QC Inspector Steve McConnell perform Magnetic Particle Testing (MT) at this location and was informed that a crack like linear indication was observed and the weld was rejected. This QA Inspector observed the indication appeared to be approximately 35 mm long and located at the original joint preparation at the tower plate, see photo below. Lead QC Inspector Bonifacio Daquinag Jr. informed the QC personnel assigned to the tower location that no further work was to be performed at this location until direction from QCM Jim Bowers had been provided.

## Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted above there were no notable conversations.



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## 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.

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**Inspected By:** Hager,Craig

Quality Assurance Inspector

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**Reviewed By:** Levell,Bill

QA Reviewer