

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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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-027094**Date Inspected:** 25-Jan-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:** Jobsite**CWI Name:** As noted 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:** SAS OBG**Summary of Items Observed:**

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

## 13E/PP119.5/E4 Lifting Lug Hole W4 (Exterior)

This QA Inspector randomly observed ABF welder Salvador Sandoval operating a propane burner to pre-heat Lifting Lug Hole W4 at 13E/PP119.5/E4. QC Inspector Fred Von Hoff verified the temperature with a 93° Tempilstik® and monitored the welding as well as the parameters. The welder performed the Shielded Metal Arc Welding (SMAW) process in the 1G flat position utilizing 3.4mm E7018-H4R electrodes procured from a baking oven. During in between passes of the welding, Mr. Sandoval ground and blended the start/stop areas of the weld at which time the QC Inspector was observed measuring the inter-pass temperatures. This QA inspector noted that the parameters at this location appeared to be in general conformance with the contract specifications and the work was completed on this date. This joint is a Seismic Performance Critical Member (SPCM).

## 13E/PP114/E3 Lifting Lug Hole W2 (Exterior)

The QA inspector observed QC Inspector Fred Von Hoff measure the planar offset of the lifting lug hole insert and the root gap of the joint as this QA Inspector verified that both were within tolerance and in accordance with the approved WPS. The QA Inspector observed ABF welder Jorge Lopez ID# 6149 preheat the joint to 125°F prior to performing SMAW in the 1G flat position on Lifting Lug Hole W2 located at 13E/PP114/E3. The

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QA Inspector observed the QC Inspector monitoring the progress to ensure the welding parameters were in compliance pertaining to ABF-WPS-D15-1050A-CU. The parameters were recorded as (Amperes=190). The QA Inspector randomly observed the ABF welder grind and blend the start and stop areas of the weld throughout the joints depth. The QA Inspector made subsequent observations throughout the shift to monitor quality and the QA Inspector noted that the work on the exterior side of W2 was completed on this date and appeared to be in general conformance with the contract documents. This joint is a Seismic Performance Critical Member (SPCM).

### 13E/PP122.5/E3 Lifting Lug Hole W1 (Exterior)

This QA Inspector observed QC Inspector Fred Von Hoff utilize a Bridge Cam Gage to measure the fit-up of the 20 mm plate in the B-U4a joint on W1 at 13E/PP122.5/E3. This QA Inspector verified the fit-up as acceptable and employed a 65°C Tempilstik to ensure the minimum pre-heat temperature had been achieved. This QA Inspector randomly observed ABF welder Salvador Sandoval (welder ID 2202) performing the SMAW process in the (1G) flat position and observed the QC Inspector verify the welding parameters were in accordance with the above mentioned WPS. This QA Inspector made subsequent observations throughout the shift to monitor quality and noted that the work was completed on this date and appeared to be in general compliance with the approved WPS and the contract specifications. This joint is a Seismic Performance Critical Member (SPCM).

### 13E/14E/D2 Repairs (Exterior)

This QA Inspector randomly observed ABF welder Wai Kit Lai performing the back-gouge operation of ultrasonic rejectable indications on bottom splice plate "D2" located at 13E/14E on the exterior of the OBG. The locations of the excavations are listed below. This QA Inspector observed QC Inspector Sal Merino perform a Magnetic Particle Inspection (MT) of the excavation to determine the soundness of the metal. Upon completion of the testing this QA Inspector verified that no rejectable indications were present.

y+40mm; 100mm's in length, 20mm's wide and 10mm's deep.  
y+260mm; 270mm's in length, 30mm's wide and 15mm' deep.  
y+1680mm; 110mm's in length, 25mm's wide and 7mm's deep.  
y+2000mm; 120mm's in length, 30mm's wide and 17mm's deep.  
y+2120mm; 95mm's in length, 20mm's wide and 8mm's deep.  
y+2730mm; 195mm's in length, 20mm's wide and 8mm's deep.  
y+2740mm; 260mm's in length, 20mm's wide and 15mm's deep.

This QA Inspector randomly observed ABF welder Wai Kit Lai (Welder ID 2953) performing the repair welding operation of seven (7) ultrasonic indications as per the Shielded Metal Arc Welding (SMAW) process in the (4G) overhead position on "D2" of 13E/14E on the exterior of the OBG. This QA Inspector observed the use of E7018-H4R electrodes and QC Inspector Fred Von Hoff verify that the preheat temperature was at the minimum of 93° degrees C and that the welding parameters (Amps=135) were in accordance with WPS D1. 5-1001- Repair. The welding parameters observed at this location appeared to be in general compliance with approved WPS and the contract specifications and this QA Inspector noted that the work is in progress.

### Magnetic Particle Testing

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This QA Inspector performed a Magnetic Particle (MT) Inspection at “A3” on 12E/13E on the exterior of the OBG. This QA Inspector performed the yoke method in conformance with ASTM E 709 and the standard of acceptance with D1.5 section 6.26. This QA Inspector noted that no rejectable indications were found at the time of testing. This QA Inspector generated a TL-6028 MT report on this date. The completed work at this location appeared to be in general conformance with the contract specifications.

### Ultrasonic Testing

This QA Inspector performed Ultrasonic Testing (UT) on approximately 10% of the welds located at A3 of 12E/13E on the exterior of the OBG. These welds were previously accepted by QC Ultrasonic technicians in accordance with AWS D1.5-2002, section 6, table 6.3. This QA observed no rejectable indications at the time of testing. This QA generated a TL-6027 UT report on this date. The completed work observed at this location appeared to be in compliance with the contract specifications.

### 12E/PP114/E4 Lifting Lug Hole Repairs (Exterior)

This QA Inspector randomly observed ABF welder Rick Clayborn (ID 2773) performing the repair welding operation of ultrasonic rejectable indications as per the SMAW process in the (1G) flat position on “A” deck Lifting Lug Holes W1, W3 and W4 at 12E/PP114/E4. This QA Inspector observed the use of E7018-H4R electrodes and QC Inspector Fred Von Hoff verify that the preheat temperature was at the minimum of 66 degrees C and that the welding parameters (Amps=135) were in accordance with WPS D1.5-1001- Repair. The dimensions of the excavations were recorded as;

W1 -y+0mm; 60mm’s in length, 25mm’s wide and 13mm’s deep.

W3 -y+35mm; 75mm’s in length, 20mm’s wide and 11mm’s deep.

y+595mm; 50mm’s in length, 15mm’s wide and 8mm’s deep.

y+600mm; 60mm’s in length, 15mm’s wide and 8mm’s deep.

W4 - y+610mm; 70mm’s in length, 25mm’s wide and 15mm’s deep.

y+470mm; 70mm’s in length, 25mm’s wide and 5mm’s deep.

y+235mm; 50mm’s in length, 20mm’s wide and 15mm’s deep.

This QA Inspector made subsequent observations to monitor quality and noted that the work was completed on this date and appeared to be in general conformance with the contract documents.

Note: The QAI reviewed the observations and inspection with QA Lead Inspector, Daniel Reyes, written in this report. The issues were noted by the QAI and the QA Lead Inspector concurs with the QA report.

### Summary of Conversations:

The were no pertinent conversations to report.

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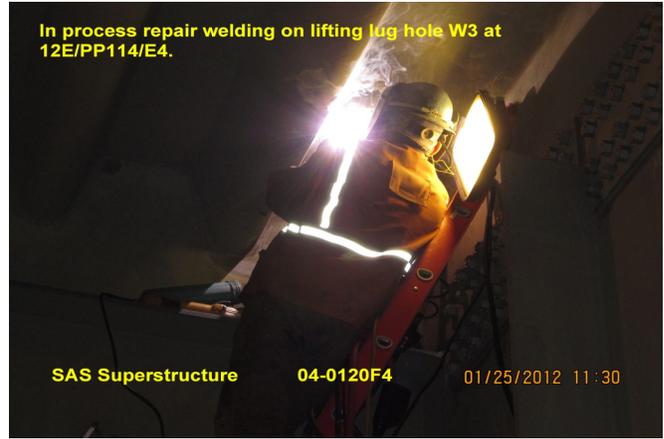
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## Comments

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:** Frey,Doug

Quality Assurance Inspector

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**Reviewed By:** Levell,Bill

QA Reviewer