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

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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-027932
Date Inspected: 09-Jul-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:	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:

12E-E2.1-C1 (Interior)

This QA Inspector at random intervals observed ABF/JV qualified welder Mike Jimenez #4671 performing the SMAW process in the 1G flat position on 12E-E2.1-C1 y+25000mm on the interior of the OBG. The work at this location was initiated on 7/4/2012. QC Inspector Salvador Merino was observed measuring the preheat temperature and setting the parameters to ensure compliance with the welding procedure specification (WPS) ABF-WPS-D1.5-1040C-CU. The welder was observed using a small disc grinder to blend the start/stop edges of the work to provide a smooth transition. The welder was observed utilizing 3.2mm E7018-H4R electrodes drawing amperage of 128. The electrodes were obtained from a baking oven verified by this QA Inspector. On a subsequent observation this QA Inspector monitored the work for quality and noted that it was in progress and appeared to be in general conformance with the contract documents.

This QA Inspector randomly observed ABF/JV qualified welder Richard Garcia #5892 using the Flux Core Arc Welding (FCAW) process in the 2G horizontal position on 12E-E2.1-C1 starting at y+1000mm on the interior of the OBG. Work at this location was initiated on 7/5/2012. This QA Inspector observed QC Inspector Salvador Merino verify prior to the start of welding operations, that the minimum preheat temperature as per the approved WPS was established; and afterwords verified that the welding parameters (Amps, Volts and Travel Speed) were

in accordance with ABF-WPS-D1.5-1-3040A-1. The welder was observed grinding and blending the start/stop edges of the work utilizing a small disc grinder and compressed air in between passes as QC measured the inter-pass temperatures with an infra-red temperature gun. This QA Inspector made subsequent observations throughout the shift to monitor quality and noted that the work at this location was in progress and appeared to be in general conformance with the contract documents.

This QA Inspector at random intervals, observed the FCAW process performed by ABF/JV qualified welder Jeremy Dolman #5042 near y+31000mm at 12E-E2.1-C on the interior of the OBG. During welding, ABF Quality Control (QC) Salvador Merino was noted monitoring the welding parameters (Amps, Volts and Travel Speed) as they pertain to ABF-WPS-D1.5-1040A-1. This QA Inspector noted that between passes the welder was cleaning the work using a small disc grinder as QC measured the inter-pass temperatures with Tempilstik Heat Indicators. At the time of the observations no issues were noted by this QA Inspector. On subsequent observations to monitor quality, it was noted that the work is in progress and appeared to be in general conformance with the contract documents.

13E-E2.8 Repair Welding (Interior)

This QA Inspector randomly observed ABF welder Rick Clayborn #2773 performing the back-gouge operation of ultrasonic rejectable indications on the locations 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 observed that no rejectable indications were present. This QA Inspector randomly observed the welder performing the repair welding operation as per the SMAW process in the (4G) overhead position. This QA Inspector observed the use of E7018-H4R electrodes and QC Inspector Sal Merino verify that the preheat temperature was at least the minimum required and that the welding parameters were in accordance with WPS D1.5–1004- Repair. On a subsequent observation, the welder was noted as continuing the repair welding and between passes the QC Inspector verified the welding parameters and surface temperatures utilizing a Fluke 337 clamp meter to measure the electrical welding parameters and Tempilstik Heat Indicators for verifying the preheat and inter-pass temperatures. This QA Inspector noted that the electrodes were stored in electrically heated, thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. Thermal heating blankets were placed for a period of 1 hour at 450°-650° as specified in the WPS. RWR's referenced for these welds are: listed below. This QA Inspector noted that the work was in progress. At 13E PP123.6, excavation and welding was performed prior to approval. This QA Inspector generated an Incident Report on this date and notified METS QA Task Leader Bill Levell via email for review and disposition of the report due to the non-compliance with AWS D1.5-2002 - Section 12- 12.17.4 Approval: All critical weld repairs to base metal and welds shall be approved by the Engineer prior to beginning the repair.

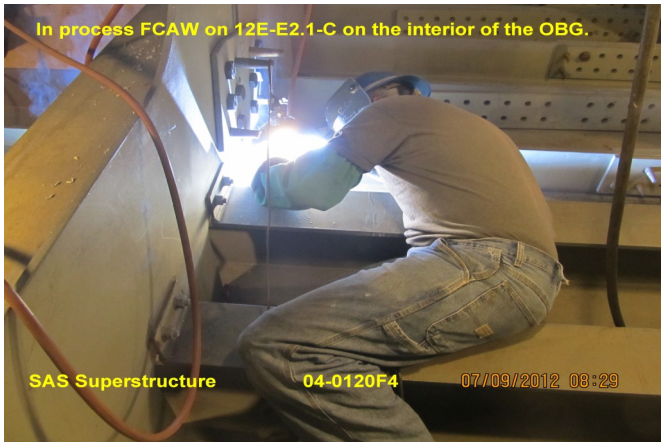
13E PP122.2
Y+820mm: 60mm in length, 18mm wide and 6mm deep. RWR# 201207-002
Y+1185mm: 60mm in length, 20mm wide and 6mm deep. RWR# 201207-003
Y+2590mm: 105mm in length, 20mm wide and 6mm deep. RWR# 201207-013
Y+3040mm: 120mm in length, 20mm wide and 7mm deep. RWR# 201207-004
Y+3580mm: 80mm in length, 25mm wide and 8mm in deep. RWR# 201207-005
Y+3990mm: 90mm in length, 25mm wide and 9mm deep. RWR# 201207-006

13E PP123.6
Y+205mm: 60mm in length, 20mm wide and 12mm deep. – No RWR
Y+685mm: 70mm in length, 18mm wide and 8mm deep. - No RWR

13E-E2.1
Y+9400mm: 80mm in lewngth, 30mm wide and 12mm deep. RWR# 201207-010
Y+9275mm: 70mm in length, 30mm wide and 10mm deep. RWR# 201207-009

13E-E2.2
Y+4230mm: 70mm in length, 30mm wide and 10mm deep. RWR# 201207-007
Y+4620mm: 110mm in length, 20mm wide and 10mm deep. RWR# 201207-008

Summary of Conversations:
Conversation with Quality Control Inspector Salvador Merino concerning the weld repair at 12E PP123.6 without approval.



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:	Frey,Doug	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer