

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-026704**Date Inspected:** 13-Nov-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Bernie Docena**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:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 13E/14E bottom plate 'D1' (Y=3100mm to Y=6000mm) inside, QA randomly observed ABF certified welder James Zhen ID #6001 continuing to perform 1G (flat position) Submerged Arc Welding (SAW) welding fill pass to cover pass on the unequal plate thickness (35mm/30mm) Complete Joint Penetration (CJP) splice butt joint. 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-D15-4042B-1. The Seismic Performance Critical Member (SPCM) joint being welded has a single V-groove butt joint with backing bar that will be removed then back welded. The plates were preheated to more than 200 degree Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding. Welding parameters were monitored by ABF/QC Bernie Docena. Measured welding parameters during welding were 550 amperes, 32.5 volts and 420mm per minute travel speed with calculated heat input of 2.55 Kjoules per mm. QA noted the welding parameters, the workmanship and appearance of the completed fill/cover pass deemed satisfactory. During the shift, cover pass welding was still continuing and should remain tomorrow. The welder has held the preheat of more than 200°F for three more hours after welding as required.

At OBG 13E/14E vertical plate 'I' inside, QA randomly observed ABF/JV qualified welder Xiao Jian Wan continuing to perform fill pass welding on Complete Joint Penetration (CJP) splice butt joint. The welder was observed manually welding in the 3G (vertical) position utilizing a Flux Cored Arc Welding (FCAW-G) with

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3040B-3. The 25mm equal thickness Seismic Performance Critical Member (SPCM) joint being welded has a single V-groove butt joint with backing bar that will be removed and back gouged then back welded. During welding, ABF Quality Control (QC) Bernie Docena was noted monitoring the welding parameters of the welder. Measured parameters during welding were 264 amperes, 23.7 volts and travel speed of 170mm per minute with calculated heat input of 2.2 Kjoules/mm which deemed in compliance to the contract requirements. At the end of the shift, fill pass FCAW-G welding was still continuing and should remain tomorrow. The welder has held the preheat of more than 200°F for three more hours after welding as required.

At OBG 12E/13E side plate 'C' inside, QA randomly observed ABF/JV qualified welder Wai Kitlai perform CJP groove welding repair. The welder was observed welding in the 1G (flat) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1000-Repairs. The repair excavation was preheated to more than 150 degree Fahrenheit using propane gas torch prior welding. During the shift, ABF QC William Sherwood was noted monitoring the welder. Prior welding, William Sherwood was also observed performing Magnetic Particle Testing (MT) on the repair excavations. There were no significant defects noted during the test. The following first time repairs were noted excavated and welded;

Location	Y-dimension	Length	Width	Depth	Remarks
12E/13E side plate 'C1.2'	1600mm	30mm	16mm	10mm	welding completed
12E/13E side plate 'C2'	60mm	80mm	17mm	11mm	welding completed
12E/13E side plate 'C2'	380mm	60mm	17mm	15mm	welding completed
12E/13E side plate 'C2'	740mm	60mm	14mm	11mm	welding completed
12E/13E side plate 'C2'	1020mm	60mm	13mm	11mm	welding completed
12E/13E side plate 'C2'	1380mm	80mm	20mm	17mm	welding completed
12E/13E side plate 'C2'	1640mm	60mm	18mm	15mm	welding completed
12E/13E side plate 'C2'	2040mm	60mm	21mm	15mm	welding completed
12E/13E side plate 'C2'	2780mm	60mm	20mm	18mm	welding completed
12E/13E side plate 'C2'	2990mm	55mm	13mm	10mm	welding completed
12E/13E side plate 'C2'	3500mm	80mm	17mm	17mm	welding completed

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Complete Joint Penetration (CJP) welding of one (1) edge plate splice butt joint. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection complied with the contract documents.

1. OBG 12E/13E edge plate 'F' inside - QA VT/MT verified

WELDING INSPECTION REPORT

(Continued Page 3 of 3)



Summary of Conversations:

No significant conversation occurred today.

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 SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Lizardo, Joselito

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer