

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 #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000517**Date Inspected:** 30-Aug-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Ye YongJun**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 Mock-Up 77Meter**Summary of Items Observed:**

Tower Mock-up 77 Meter Elevation

The QA inspector witnessed ZPMC performing magnetic particle Testing (MT) verification on the tack welding located at the junction of skin panel D and the longitudinal stiffeners weld joints # 3 thru 10. The QA inspector observed MT ASNT Level II technician Cai Xin Xin performing MT verifications. The QA inspector observed that Mr. Cai's MT verifications appeared to be in compliance with the Contract documents. See digital photograph below.

ZPMC, welder operator Liu Xie was observed by the QA Inspector performing welding operations on the skin panel D.

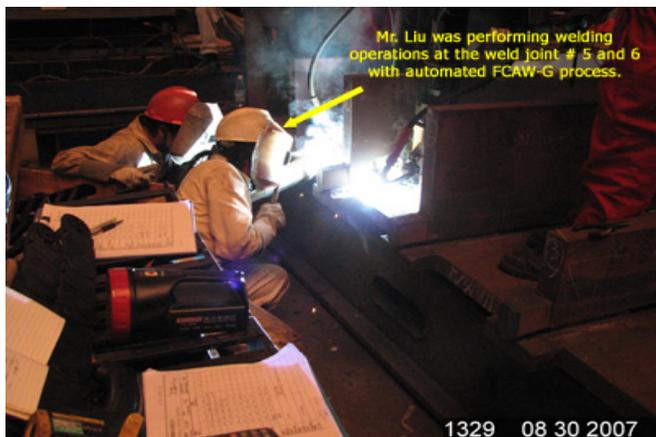
Mr. Liu was observed welding the filler and cover passes at the junction of the mp8 to skin panel D, joint # 5 and 6.

The observed welding was being performed in accordance with approved welding procedure specification WPS-B-T-2332-TC-P5-F. Base metal was designated as A-709 Grade 50. ZPMC was using the Flux Cored arc welding (FCAW) process in the horizontal (2G) position with a 1.4 mm diameter electrode designated as E71T-1 /AWS A5.20, brand name Supercored. The QA Inspector verified amperage, voltage, travel speed, preheat and heat interpass temperatures for the filler passes. The QA inspector found that the welding parameters recorded after ZPMC approved Certified Welder Inspector Xiu Zhai Gu appeared to be in accordance with the contract documents. ABF QA inspector Kevin Dye was present during welding. The digital photograph below reflects Mr. Liu performing welding operation at the weld joints 5 and 6, Skin panel D.

The QA inspector observed welders Guo Danyun and Zhang Xiangrong performing tack welding operations on the hold down devices at the SA-95 bottom diaphragm before the tack welding of the shop splice weld joint # 73 started.

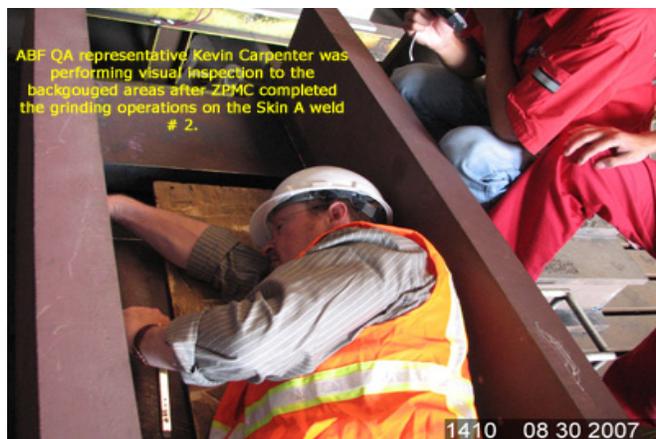
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Item	Description	WBS	Dwg No.	Status
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1	<p>Visual Inspections to the Backgouged Areas after ZPMC ground the Skin A weld joint # 2</p> <p>The QA inspector performed visual inspection to the backgouged areas at the Skin A weld joint # 2 after grinding. The QA inspector observed numerous locations where the backgouging areas were not ground to bright metal. The QA inspector had a conversation with the ABF QA supervisor Kevin Carpenter. The QA inspector brought it to Mr. Carpenter's attention that ZPMC has been having difficulties complying with the bright metal requirement after backgouging operations. Mr. Carpenter verified the backgouged area after grinding and agreed with the QA inspector.</p> <p>Mr. Carpenter asked ZPMC representatives which tool they were using to grind the backgouged areas. ZPMC relayed that they were using a conventional grinder. Mr. Carpenter relayed to ZPMC representative that ZPMC needed to use a die grinder to get to the small and tight areas. After ZPMC ground the gouged areas with a die grinder the areas of concern, the QA inspector found that the backgouged areas that were reground appeared to be in compliance with contract documents. The photograph below reflects Mr. Carpenter performing visual inspection of the backgouged areas after grinding.</p>			
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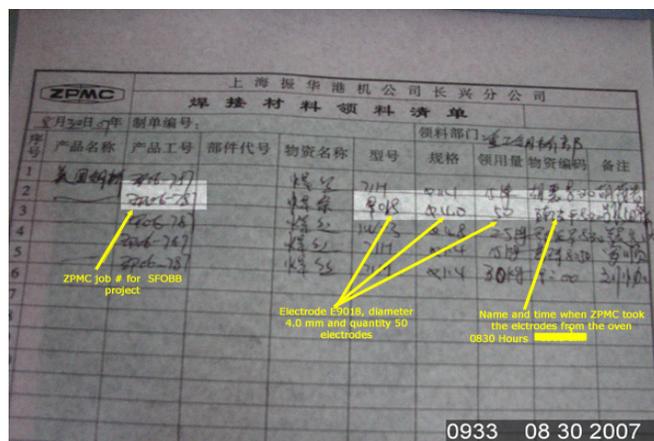


2	<p>Exposure Time for the Electrode E-9018-HR4</p> <p>The QA inspector observed welder Zhang Quanfa performing tacking operations to the bottom diaphragm (A709 HPS 485W) at the junction of the shop splice for the SA-104 subassembly to the run on tabs (A409 HPS 485W). The QA Inspector verified amperage, voltage, preheat and heat interpass temperatures for the tack welding. The QA inspector found that the welding parameters recorded after ZPMC approved Certified Welder Inspector Xu Lefeng appeared to be in accordance with the contract documents. The QA inspector had a conversation with the ABF representative Song Wemin. The QA inspector brought it to the attention of Mr. Song that 50 electrodes E-9018 H4R were taken</p>			
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from the oven by ZPMC at 0830 hours (according with ZPMC electrode control log sheet) and the allowable time of exposure was one hour. Mr. Song and the QA inspector verified the temperature inside of the portable holding ovens with the use of a thermal infrared hand held gun temperature indicator. The temperatures recorded were between 80 ° to 110° Celsius on the two ovens. Even though Mr. Song and the QA inspector agreed that the infrared gun temperature indicators were not as accurate as conventional thermometers or temperature heat indicators. After speaking with the Senior task Leader Dave McClary, the QA inspector relayed to Mr. Song and Mr. Carpenter that ZPMC could extended the exposure time to more than an hour (as required by table 4.7 AWS D1.5 2002) if ABF could prove that ZPMC was maintaining a continuous temperature inside the portable oven at 120 ° Celsius or greater. ABF and ZPMC conveyed to the QA inspector that ZPMC was going to rebake the electrodes inside of the portable holding ovens and replace with electrodes fresh from the oven. The photographs below show the ZPMC's consumable control log and welder Zhang Quanfa performing welding operation before ZPMC stopped and changed the welding electrodes.



Summary of Conversations:

As noted above.

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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Acuna, Alfredo

Quality Assurance Inspector

Reviewed By: Cuellar, Robert

QA Reviewer