

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-000007**Date Inspected:** 08-Nov-2006**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

CWI Name:	Liu Liu	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:	N/A	

Summary of Items Observed:

This Office of Structural Materials Quality Assurance Inspector observed welding and quality control functions during procedure qualification testing at the ZPMC facility in Shanghai, Republic of China today.

This Quality Assurance Inspector observed the Quality Control Inspector, Mr. Liu Liu witnessing the running of a flux-cored arc welding procedure qualification test HP2006106 in the shop at ZPMC. The test was being run to Paragraph 5.12 for minimum heat input in the vertical welding position (3G). The welders were Lei Li Chao and Zhang Xing Jin who were using Hyundai, Supercored 71, and 1.4 millimeter diameter wire. A smaller plate has been added to the top of the actual procedure qualification plate so a practice weld can be carried out just prior to each pass on the actual test plate. After welding of the first two passes a number of discussions were held about what benefits the running the minimum heat input test plate could provide. Mr. Liu decided that for the rest of the afternoon the welders would practice with various amperage, voltage and travel speed settings to see if they could lower them significantly to make it worth running a minimum heat input plate.

Reviewed radiographic film for procedure qualification HP-2006105 from yesterday. Reviewed two films which appeared to meet the code requirements.

Summary of Conversations:

1. Conversations were held with Mr. Liu and Huang Wei concerning the visual inspection of the final weld for the maximum heat input plate run yesterday for procedure qualification HP-2006105. Mr. Huang Wei stated that he had performed the final visual inspection at 1800 last night. It was asked of Mr. Huang Wei to place a mark on the plate so that quality assurance could perform their visual examination. Mr. Craig Knops of Fluor also contributed in the conversation.

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2. A discussion was held with Mr. Liu about the need for a package to be made up and to travel with each of the procedure qualification plates through out the process starting with the welding and ending with the mechanical testing. Items that should be in the package at the start and added in as the test progressed were pointed out such as that the material test reports, welding procedures, quality control reports, consumable and equipment certifications, non-destructive testing reports, mechanical testing reports.

3. A conversation was held with Liu Liu, Quality Control Inspector for ZPMC and Craig A Knops with Fluor concerning the voltage, amperage and travel speed being used for the running of the procedure qualification. The welding procedure being used for running the minimum plate called for an amperage of 150, voltage of 24 and travel speed of 140mm/min. The welder is using 170 amps, 26 volts and a travel speed of 124mm/min for the first pass. It was pointed out that the heat input was 2.1KJ/mm when the proposed procedure called for 1.5KJ/mm. This would only give a window of 209.3 to 170 for the amperage, 26 to 26.6 for the voltage and for travel speed the window was only 101.3 to 126.3 mm/min, which is actually a smaller window than already qualified by the Maximum Heat Input PQR already performed. Mr. Liu despite these observations wished to continue with these settings. It was then discussed what this would mean for a welder, welding without the aid of a bug-o-system, were his travel speed could not vary by more than 25mm/min and he would have to stay in between 26.6 and 26 volts. After much discussion and explanations Mr. Liu finally decided to see about lowering the actual amperage and voltage being used so that the travel speed could be increased.

4. Another meeting was held with Craig A. Knops and Mr. Liu concerning the window for amps, volts and travel speed using the minimum and maximum plates or just using the maximum plate. It was realized that running the minimum plate at the setting currently being used would not gain ZPMC anything in the way of a larger window of variables. Mr. Liu decided to go back to his office to analyze the information which he gained from the meeting.

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:	Berger, Bruce	Quality Assurance Inspector
Reviewed By:	Lowry, Patrick	QA Reviewer
