

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-000704**Date Inspected:** 24-Oct-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 830**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

<b>CWI Name:</b>	N/A	<b>CWI Present:</b>	Yes	No
<b>Inspected CWI report:</b>	Yes No N/A	<b>Rod Oven in Use:</b>	Yes No N/A	
<b>Electrode to specification:</b>	Yes No N/A	<b>Weld Procedures Followed:</b>	Yes No N/A	
<b>Qualified Welders:</b>	Yes No N/A	<b>Verified Joint Fit-up:</b>	Yes No N/A	
<b>Approved Drawings:</b>	Yes No N/A	<b>Approved WPS:</b>	Yes No N/A	
		<b>Delayed / Cancelled:</b>	Yes No N/A	
<b>Bridge No:</b>	34-0006	<b>Component:</b>	RT Set-Up	

**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Timothy McClendon was present to observe quality control functions related to welding, testing and fabrication procedures for the San Francisco Oakland Bay Self Anchored Suspension Bridge, specifically testing welder qualification test plates using the Radiation Testing (RT) method, at the Hua Yi Company facility in a suburb of Shanghai, China.

Caltrans Quality Assurance (QA) Inspector Timothy McClendon accompanied by ZPMC QA Mr. Shen Xue Jun and ZPMC QC Mr. Huang Yu Hai to witness the radiographic set-up for (4) of the (11) 60 millimeter nonstandard joint detail welder qualification test plates which were to be radiographed today. The (11) welder qualification test identification numbers are 071001011, 071001025, 071001027, 071001022, 071001026, 071001002, 0710010023, 071001024, 071001015, 071001016, 071001010, of which the initial set-up was witnessed for 071001011, 071001025, 071001027, 071001022. As part of the set-up the (4) approximately 200 millimeter long by approximately 100 millimeter wide by approximately 60 millimeter thick plates was set on edge with the weld caps facing each other with the radiation source located in the center (see photograph below). Edge plates were used in order to prevent overexposure to the extreme outer edges of welder qualification test. There was a distance of 1000 millimeters between the weld faces, with the radiation source located at the midpoint, giving a source-to-film distance (SFD) of 560 millimeters for each exposure. One Image Quality Indicator (IQI) was placed near the center of each test plate, source side. The IQI was a number 40 American Society of Mechanical Engineers (ASME) hole type with 1, 2 and 4-T holes in each. Two lines drawn parallel to the top and bottom weld toe of each welder qualification test plate in order to place IQI and welder qualification test numbers on the parent material approximately 10 millimeters from the toe's of the weld. The exposure will be made using a 22 curie Ir 192 radiation source with an exposure time of 60 minutes. The exposure was recorded on Agfa C-7

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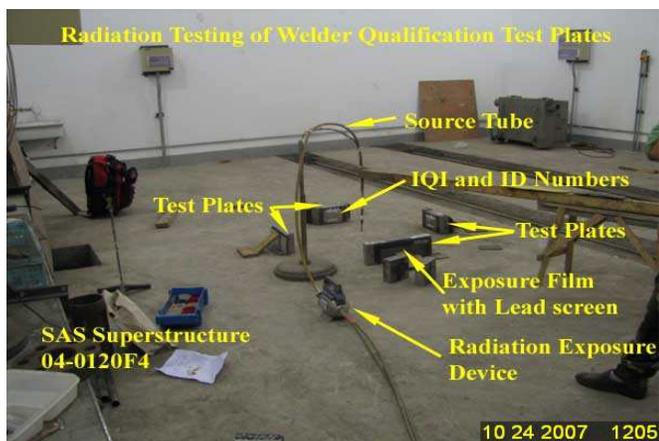
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type film which will be manually processed. The focal spot size was 3mm x 3mm. A 12 millimeter, lead letter 'B' was observed on the back of each film cassette in order to determine if back scatter will be present. A lead filter was placed behind each film cassette in order to filter scatter radiation which could affect film contrast and definition. It was also observed that there were no American Society of Welding D1.5 Bridge Welding Codes or a written radiographic procedure for reference on site. Actual radiography was performed inside a concrete vault but was not witnessed, as there were no set up for safe viewing such as windows or mechanical monitoring systems. A manually controlled rotating red light will be used as a warning signal while radiation is not in the shielded position. Caltrans Quality Assurance (QA) Inspector Timothy McClendon did use a hand held ND-2000 survey meter with serial number 57186 calibrated on August 08, 2007 and a direct reading pocket dosimeter serial number GF163960 calibrated July 30, 2007 in order to verify no radiation was present while setup was being witnessed. At no point did QA Inspector Timothy McClendon observe radiation present on the radiation safety equipment.



### Summary of Conversations:

QA Inspector Timothy McClendon questioned ZPMC QA Mr. Shen Xue Jun as to which Radiographic Testing (RT) procedure was being used and where it was located. ZPMC QA Mr. Shen Xue Jun informed the RT procedure would be furnished to QA Inspector Timothy McClendon at a later date. On 10-25-07 ZPMC QA Mr. Lu Jain hua informed QA Inspector Timothy McClendon all the RT procedures were approved and given to Caltrans and can be found in the ZPMC Quality Assurance Manual.

### 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.

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<b>Inspected By:</b>	McClendon, Timothy	Quality Assurance Inspector
<b>Reviewed By:</b>	Cuellar, Robert	QA Reviewer

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