

**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-001627**Date Inspected:** 19-Feb-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 600**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:** Zhin Zhong Hai**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-ups**Summary of Items Observed:****89m Mock up**

This Quality Assurance (QA) inspector arrived at ZPMC for observation at the tower shop for the 89m mock-up and witnessed ZPMC welding personnel Wang Hong Lei using the Flux Cored Arc (FCAW) under Welding procedure Specification (WPS) numbers WPS-B-T-2132 (2F) and WPS-B-T-2133(3F) for the triangular diaphragm plate to face B of the corner stiffener plate Sa 185 (as shown in photo # 2 below) placing multi pass fillet welds in both the 2F and 3F position. This QA inspector verified the welding parameters along with ZPMC Quality Control personnel with the following parameters for the 3F position as ; 200 amps, 26.2 volts and a travel speed of 117 mm/min. The welder appeared to be using proper interpass cleaning with a chipping hammer and brush. The work continued for the remainder of this QA inspector shift and appeared to be within the general requirements of the contract documents.

**114m Mock up**

This Quality Assurance (QA) inspector arrived at ZPMC for observation in bay 3 for the 114m mock-up and witnessed ZPMC using the oxygen acetylene cutting process to remove the temporary diaphragm plate. ZPMC were cutting the plate into manageable sections and removing them one piece at a time. ZPMC were witnessed at periodic times throughout the shift as continuing this process.

**77m mock up**

This Quality Assurance (QA) inspector arrived at ZPMC for observation at the tower shop for the 89m mock-up and witnessed ZPMC personnel performing Critical Weld Repairs (CWR) On CWR numbers 44(see photo #3 below) and 45(see digital photo #1 below). The CWR's were for cracks in the welds discovered by grinding after the welds were completed by ZPMC. The weld number for each CWR's are CWR-44; MUSA-SA105A/B-36 and CWR-45; MUSA-SA104A/B-22. This QA Inspector witnessed ZPMC preheat the areas prior to excavation to 65°C

# WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

as required by the CWR documentation and then proceeded with the complete removal both depth and length for the repairs with air carbon arc gouging. Once removed ZPMC proceeded to grind the areas smooth and perform a Magnetic particle inspection of the areas to ensure complete removal of the cracks as performed MT technician Zhou Dong Yun and witnessed by this QA inspector. ZPMC QC/CWI Inspector relayed to this QA Inspector that both areas were acceptable and ready for welding. ZPMC then applied preheat with thermal electric couplers to achieve a minimum temperature of 200°c as verified by this QA inspector. ZPMC welding personnel Yang Lei performed the repair welding under WPS numbers; WPS-345-SMAW-2G (2F)-FCM-Repair 5 mm electrode and WPS-345-SMAW-3G (3F)-FCM-Repair 4mm electrode and the parameters were verified by this QA Inspector as follows; 2G position-200amps , 26.7 volts and a travel speed of 121mm/min. the 3G position 187 amps,24.3 volts and a travel speed of 104mm/min. which were within the required tolerances of both WPS's. The welder was observed using the proper interpass cleaning using a wire brush and chipping hammer. ZPMC QC Chen Tan relayed that the final MT inspection would be performed until after ZPMC has completed the final pick-up had been completed on skin C so all locations needing MT would be performed together. The above work appeared to be within the general requirements of the contract documents.



## Summary of Conversations:

As Noted in the contents 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

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## WELDING INSPECTION REPORT

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for your project.

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<b>Inspected By:</b>	Riley, Ken	Quality Assurance Inspector
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<b>Reviewed By:</b>	Cochran, Jim	QA Reviewer
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