

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-002779**Date Inspected:** 02-Jun-2008**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:** Changxing Island**CWI Name:** See below**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:** Skin plates**Summary of Items Observed:**

The name of ABF Certified Welding Inspector (CWI) are Mr. Wang Cheng Jun, Mr. Yang Yi Heng, Mr. Kong Xian Hui and Mr. Dai Zing Wen.

Heat straightening on skin plate (Tower Bay#1) Caltrans Quality Assurance Inspector (QAI) observed few Zhenhua Port Machinery Co (ZPMC) heat straightening operators performed heat straightening with ZPMC Heat Straightening Report (HSR) on plate numbered P397B (S), P397B (W) and P393B. The heating temperature is maximum 650 C (1200 F) and cool in still air. All the plates have been monitored and recorded and inspected by ZPMC QC required within from 0.5mm to 1mm off set after heat straightening to cool to ambient temperature.

Based on Caltrans QAI observation, no discrepancies were noted.

Submerged Arc Welding (SAW) process on longitudinal stiffener plate and skin plate (Tower Bay#1 and Bay#2): Caltrans QAI observed ZPMC welding operators performed semi-automatic SAW on the splice weld of ASTM 709 345 longitudinal stiffener plate numbered P71 to P76 with 90mm wall thickness, weld# SSD1-SA179D/E-7A. (Bay#1), longitudinal stiffener plate numbered P79 to P83 with 90mm wall thickness, weld# SSD1-SA180A/E-43A. (Bay#1), skin plate numbered P793 to SA216 to P1303 to P789 to P91 to P609 with 45mm to 65mm wall thickness, weld# ESD1-SA216 A/K-14A. (Bay#2), skin plate numbered P1028A to P1028B with 45mm wall thickness, weld# ESD1-SA237A/J-24A (Bay#2) and skin plate P316 to P759 with 65mm wall thickness weld# SSD1-SA17A/G-18A (Bay#1), skin plate numbered P351, P147, P146 and P144 with 75mm wall thickness, weld# SSD1-SA173J/K-5, SD1-SA173J/K-11A, SD1-SA173J/K-9A, SD1-S A173J/K-513A, SD1-SA173K/K-12, and SD1-SA173K/K-13A (Bay#1). The weld designed is a double -V-groove with welding conducted in the in flat position (1G) with proper 4.8mm diameter wire feed electrode JW3 and flux/J1-B, made by China Company and completed with approximate five pass. The parameters used for SAW welding of splice weld was conducted in accordance with Caltrans approved WPS-B-T-2221-B-U3. The semi-automatic SAW was

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monitored and recorded by ZPMC QC and ABF Certified Welding Inspector (CWI). Based on Caltrans QAI observations, no discrepancies were noted.

Flux Cored Arc Welding (FCAW) welding process on longitudinal stiffener plate (Tower Bay#1): Caltrans QAI observed a welder was performing FCAW process on splice weld of longitudinal stiffener for numbered P326 to P328 with 65mm wall thickness, weld# SSD1-SA159G/J-28B and P328 to P291A with 65mm wall thickness, weld# SSD1-SA159D/J-27B. The parameters used for FCAW process of splice welds were conducted in accordance with Caltrans approved WPS-B-T-2231-B-U3-F. The electrode being used is super cored 71.H with 0.14mm diameter made by China Company. The FCAW process was monitored and recorded by ZPMC QC Inspector and ABF CWI. Base on Caltrans observation, no discrepancies were noted.

Ultrasonic Testing (UT) on repair butt joint weld of skin plate (Tower Bay#2): Caltrans QA observed Zhenhua Port Machinery Co (ZPMC) two NDT level II technician performed straight beam and angle beam UT on splice welds of skin plate. The weld numbered # ESD1-SA107F/J-9B, ESD1-SA107F/J-2B, ESD1-SA107E/J-22A and ESD1-SA107F/J-14B. The metrical of skin plate is ASTM 709 345 wall thickness from 45mm to 65mm and the test surface has been cleaned. First processes, an 250mm range reflection has calibrated on "A scan" digital display instrument Parametric model Epoch XT was used, a straight beam search unit, is a 25mm diameter x 2.5 MHz single transducer applied a source of compression waves, and penetrated into both side head affected zone of splice weld for laminar discontinuities scanning. Second processes, an angle beam search unit, are an angle wedge 45, 60 and 70 degrees applied a source of shear waves, and passes through base weld for the detection of discontinuities. The distance and sensitivity of straight beam and angle beam are calibrated with the International Institute of welding (IIW) ultrasonic reference block. All the test welds have been accepted by ZPMC technicians. The SWUT test operated and recorded by ZPMC technicians appeared to be in general compliance with requirements of AWS Structural Welding Code D1.5 2002.

Summary of Conversations:

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

Inspected By:	Pau,Wai	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer
