DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-016946
Date Inspected: 04-Sep-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 700
OSM Departure Time: 1900
Location: Shanghai, China

CWI Name:	Qiu Wen			**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 Components

Summary of Items Observed:

On this date Caltrans Office of Structural Materials Quality Assurance Inspector, Sandeep Kumar (QA) was present during the times noted above for observations relative to the work being performed.

TOWER JETTY

The following Non Destructive Testing (NDT) inspection carried out as per the ZPMC submitted Notification No. 006581
Ultrasonic Testing (UT)
This QA inspector performed UT of the area previously tested and accepted by ZPMC Quality Control personnel. This QA Inspector generated an UT report for this date. The member is identified as Tower Component. The weld designation reviewed as follows:
LIFT-3 TOWER CROSS BRACING GUSSET PLATE AT 89 M ELEVATION
WD1 – GUSA3 – 3 – 89M – E – 3A/B; 4A/B
WD1 – GUSA3 – 3 – 89M – W – 3A/B; 4A/B

The following Non Destructive Testing (NDT) inspection carried out as per the ZPMC submitted Notification No. 006575
Ultrasonic Testing (UT)
This QA inspector performed UT of the area previously tested and accepted by ZPMC Quality Control personnel. This QA Inspector generated an UT report for this date. The member is identified as Tower Component. The

weld designation reviewed as follows:
LIFT-3 TOWER CROSS BRACING GUSSET PLATE AT 99 M ELEVATION
WD1 – GUSA3 – 3 – 99M – E – 3A/B; 4A/B
WD1 – GUSA3 – 3 – 99M – W – 3A/B

This QA Inspector observed the following work not in compliance:
Description of Incident:
During random 10% verification Ultrasonic Testing (UT) of Cross Bracing Gusset plate, this Quality Assurance Inspector (QA) discovered the following issues:
-Two (2) Class “A” non conforming longitudinal indication’s in one weld.
- First UT discontinuity rating was -2 db; Class “A” non-conformable indication.
-Depth of the discontinuity from face “B” is approximately 18mm.
-Length of the discontinuity is approximately 15mm in length.
-Y location is 70 mm from Skin D/E corner of the weld.
-Second UT discontinuity rating was +0 db; Class “A” non-conformable indication.
-Depth of the discontinuity from face “B” is approximately 24mm.
-Length of the discontinuity is approximately is 10 mm in length.
-Y location is 80 mm from Skin D/E corner of the weld.
-This weld is a complete joint penetration (CJP) T- joint, joining the West Tower Skin ‘E’ to the Cross Bracing Gusset plate.
This weld is identified as WD1-GUSA3-3-99M-W#4B.
-Scanning was performed from face “B” using 2.25 MHz, 3/8 inch transducer to cover the full volumetric scan of the weld.
-The material thickness is 40 mm.
-This member is identified as Seismic Performance Critical Member (SPCM).

Applicable reference:
Special Provisions Section 8.3; “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”
AWS D1.5 Section 6.26.3.1; “Welds that are subject to UT in addition to visual inspection shall be acceptable if they meet the following requirements:…(1) Welds subject to tensile stress under any condition of loading shall conform to the requirements of Table 6.3.
AWS D1.5-02 Table 6.2; “General Note 5: On tension welds on bridges, the top quarter of thickness shall be tested with the final leg of sound progressing from Face B towards Face A, the bottom quarter of thickness shall be tested with the final leg of sound progressing from Face A towards Face B; ie., the top quarter of thickness shall be tested either from Face A in Leg II or from Face B in Leg I”.

This QA notified ZPMC QC identified as Mr. Sun Zi Wang and ABF inspector identified as Mr. Bi Dewei of the above issue and that an incident report will be generated.
For further information see below pictures:-

This QA Inspector observed the following work in progress

Shielded Metal Arc Welding (SMAW):
Weld joint # 32 located on North tower Lift-3, 99 M cross bracing gusset plate to small doubler plate NSD1 – FASA3 – 1B/E. Welder is identified as 040582. ZPMC Quality Control (QC) Inspector is identified Zhao Chen Sun. The welding variables recorded by QC appeared to comply with the WPS – B – P – 4213– Tc – P4.

Weld joint # 23 located on South tower Lift-3, 99 M cross bracing gusset plate to small doubler plate SSD1 – FASA3 – 1B/E. Welder is identified as 053049. ZPMC Quality Control (QC) Inspector is identified Zhao Chen Sun. The welding variables recorded by QC appeared to comply with the WPS – B – P – 3212– B – U2a – 2.

Weld joint # 33 located on North tower Lift-3, 109 M cross bracing gusset plate to small doubler plate NSD1 – FASA3 – 1B/E. Welder is identified as 052910. ZPMC Quality Control (QC) Inspector is identified Zhao Chen Sun. The welding variables recorded by QC appeared to comply with the WPS – B – P – 4213– Tc – U4c – 1.

Weld joint # 29 located on North tower Lift-3, 109 M cross bracing gusset plate to small doubler plate ND1 – FASA3 – 1B/E. Welder is identified as 052910. ZPMC Quality Control (QC) Inspector is identified Zhao Chen Sun. The welding variables recorded by QC appeared to comply with the WPS – B – P – 4314 – Tc –U4c.

BAY#10

This QA Inspector observed the following work in progress
Shielded Metal Arc Welding (SMAW):
Weld joint # 09 located on North tower Lift-5 Grillage Assembly NSD1 – TL5 – 3B/F. Welder is identified as 066165. ZPMC Quality Control (QC) Inspector is identified as Li Peng Fei. The welding variables recorded by QC appeared to comply with the WPS – B – T – 3213 – TC –U4c.

Weld joint # 16 located on South tower Lift-5 Grillage Assembly SSD1 – TL5 – 1B/F. Welder is identified as 052930. ZPMC Quality Control (QC) Inspector is identified as Li Peng Fei. The welding variables recorded by QC appeared to comply with the WPS – B – T – 3213 – TC –U4c.

Weld joint # 04 located on North tower Lift-5 Grillage Assembly NSD1 – TL5 – 3B/F. Welder is identified as 066165. ZPMC Quality Control (QC) Inspector is identified as Li Peng Fei. The welding variables recorded by QC appeared to comply with the WPS – B – T – 3213 – TC –U4c.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

WELDING INSPECTION REPORT

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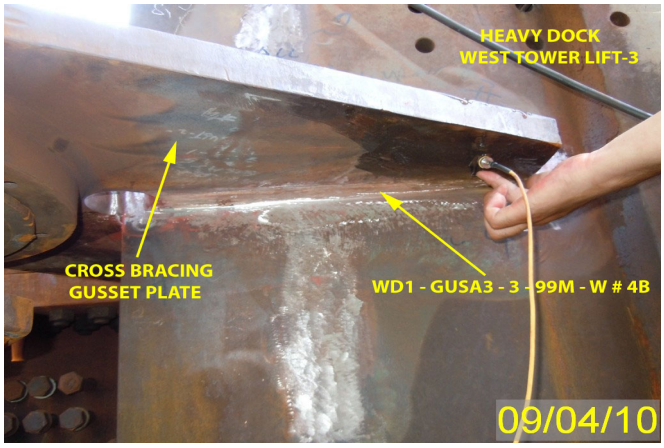

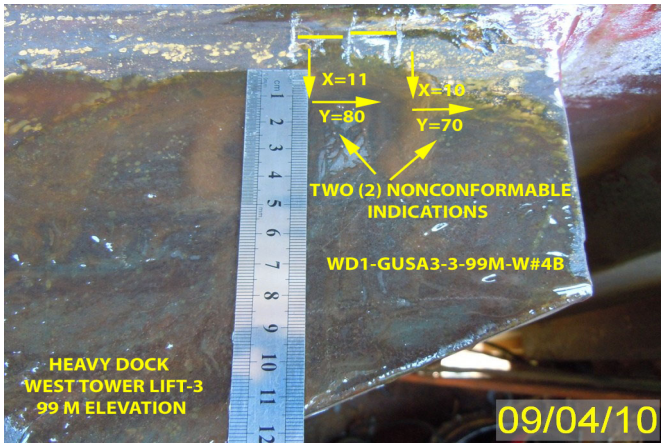

Summary of Conversations:

No Relevant Conversations.

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 Michael Ng - 15921845703, who represents the Office of Structural Materials for your project.

Inspected By:	Kumar,Sandeep	Quality Assurance Inspector
Reviewed By:	Clifford,William	QA Reviewer