

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-015393**Date Inspected:** 28-Jun-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Chen Shi Gang**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:** Bay 9, Bay4**Summary of Items Observed:**

On this day Caltrans OSM Quality Assurance (QA) Inspector Christopher D'souza was present during the times noted above for observations relative to the fabrication of the SAS Superstructure being performed by Zhen Hua Port Machinery Company (ZPMC) at Chang Xing Island in Shanghai, China. QA Inspector observed and/or found the following:

Bay 9, Gantry 2

DP 3092 – 001 (PL 3199A, PL 3199B)

This Inspector performed In- Process inspections of production welding of deck panels in Bay 9. Welding was being performed on panel DP 3092 – 001 (PL 3199A, PL 3199B). The weld procedure was found to be WPS-B-T-2342-U1-(U-rib)-5. The welding operators were identified as follows:

Weld 1, Weld 171 – 201788

Weld 2, Weld 172 – 059416

Weld 3, Weld 173 – 059421

Weld 4, Weld 174 – 059418

Weld 5, Weld 175 – 059421

Weld 6, Weld 176 – 059418

Weld 7, Weld 177 – 059378

Weld 8, Weld 178 – 203805

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Weld 9, Weld 179 – 059378

Weld 10, Weld 180 – 203805

During FCAW root welding process, the welding parameters were verified by this inspector and were as follows:

Head 1 ~ Head 6

Pass 1

Current 360 ~ 388 Amps

Voltage 30.5 ~ 31.1 Volts

Travel Speed 530 mm/min

Pass 2

Current 360 ~ 385 Amps

Voltage 30.4 ~ 31.0 Volts

Travel Speed 528 mm/min

During SAW welding process, the welding parameters were verified by this inspector and were as follows:

Head 1 ~ Head 6

Pass 1

Current 676 ~ 688 Amps

Voltage 24.9 ~ 25.3 Volts

Travel Speed 510 mm/min

Pass 2

Current 672 ~ 686 Amps

Voltage 24.6 ~ 25.1 Volts

Travel Speed 508 mm/min

ZPMC and ABF QC were present during the welding process and identified as Zhu Zhong Jie and Ye Jie Qian respectively. The ZPMC CWI was present during the welding process and identified as Chen Shi Gang.

Tack Welding

This QA Inspector observed ZPMC welding personals identified as 059440 performing Gas Metal Arc welding (GMAW) tack welding on DP3103-001(PL3199 A/B/C) deck plate to U-rib. ZPMC QC is identified as Zhu Zhong Jie. The welding variables recorded by QC appeared to comply with the WPS-345-B-T-2342 U5b (U-Rib).

Bay 4

DP3073-001 - 13AE (Weld repair on PAUT reject areas)

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This QA Inspector observed ZPMC welding personals identified as 062265 performing Flux Cored Arc welding (FCAW) on DP3073-001 U-rib to deck plate PJP weld. ZPMC QC is identified as Zhang Qiao ABF QC Inspector is identified as Lv Yin. The welding variables recorded by QC appeared to comply with the WPS – 345 – FCAW – 2G(2F) – FCM - Repair

Single pass root welding was performed on the following locations

Y-location of repairs were

Weld 1 – 900mm, 2700mm

Weld 2 – 6300mm, 6900mm, 1050mm and 9900mm

Weld 3 – 900mm, 8100mm, 8700mm, 9300mm, 11000mm, 11600mm

Weld 4 – 2100mm, 3900mm

Weld 5 – 3900mm, 8700mm, 11000mm and 11600mm

Weld 6 – 3900mm, 4500mm, 5700mm 8700mm, 9900mm, 13900mm

This QA Inspector verified the depth of the excavations and was found to be compliant with the repair requirement. Preheat was in complaint with the approved WPS

Weld 6 – Y 11600mm

QA Inspector observed that excavation depth exceeded thickness of U-rib. Repair procedure available on shop does not cover “Open Root” repair where root gap exceeds 3.5mm

Root gap measured at the above location was 6mm

Length of excavation was 120mm

Excavations on DP3147-001 (PL3343A)

This QA Inspector witnessed ZPMC excavating U-Rib to deck plate PJP weld rejected by phased array ultrasonic testing on DP3147-001-007 at Y – 2450mm.

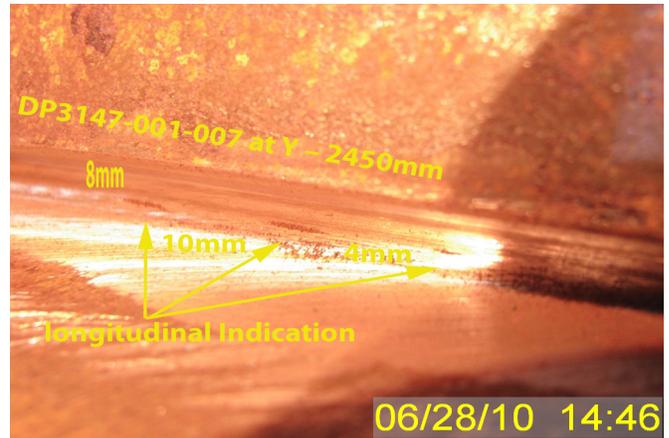
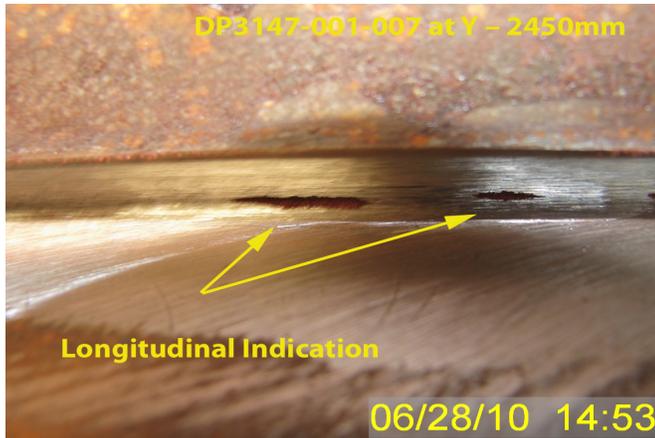
Approximately 58% of this weld was rejected by PAUT, excavation was performed to identify if indications were due to poor fit up. Magnetic particle Testing (MT) was performed on these excavations, Three (3) longitudinal indications approximately 10mm, 8mm and 4mm in length were observed.

This QA Inspector was involved in PAUT (Phased Array Ultrasonic Testing) training for detection of cracked tacks in Deck Panels as per the following procedure “UT 04-0120F4 PJP Rib Weld Phased Array Ultrasonic Testing for the Detection and Sizing of Suspected Planar Discontinuities (Cracks) in PJP Welds”

Unless otherwise noted, all work observed on this date appeared to be in general compliance with the applicable contract documents.

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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 Eric Tsang 15000422372, who represents the Office of Structural Materials for your project.

Inspected By: Dsouza,Christopher

Quality Assurance Inspector

Reviewed By: Carreon,Albert

QA Reviewer