

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-004820**Date Inspected:** 25-Nov-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:** Shanghai, China**CWI Name:** Sun Wei**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:** OBG**Summary of Items Observed:**

The Caltrans (CT) Quality Assurance (QA) Inspector Charlie Franco was present at the time requested to randomly observe welding and associated operations being performed for the Tower and Orthotropic Box Girders (OBG).

OBG Sub-Assembly Bay 1:

The QA Inspector randomly observed ZPMC welders ID Numbers 201788/059421, utilizing the Submerged Arc Welding (SAW) Process in 2G/2F Positions on Gantry 1 with ZPMC Weld Procedure Specification (WPS) WPS-B-T-2342-U1(U-Rib)-4, to weld the U-Ribs to Deck Plate DP500-001 (Location 9AZ), at Weld Joint (WJ) Numbers 003/004. The QA Inspector randomly observed ZPMC QC monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 685/682 amps, 25/24.9 volts with a travel speed of 513 millimeters (mm) per minute. Weld parameters appeared to comply with contract requirements.

OBG Sub-Assembly Bay 2:

The QA Inspector randomly observed 7 Magnetic Drill Operators drilling bolt holes in Skin Plate Stiffeners A709 HPS 485 piece mark A571 (E), A572 (E) and A574 (E).

OBG Sub-Assembly Bay 3:

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The QA Inspector randomly observed ZPMC welders Wei Da Shuai ID Number 051246 and Li Zhao Qian ID 048810, utilizing the Flux Cored Arc Welding (FCAW) Process in 2F Position on Gantry 1 with ZPMC WPS WPS-B-T-2132-3, to weld the I-Ribs simultaneously to Edge Plate EP080-001 WJ's 003/004 and Edge Plate EP068-001 WJ's 001/002. The QA Inspector randomly observed ZPMC QC monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 295/312 amps, 29.8/29.6 volts WJ's (003/004) and 311/306 amps, 29.5/29.8 volts with a travel speed of 446 mm per minute. Weld parameters appeared to comply with contract requirements.

OBG Bay 4:

The QA Inspector randomly observed ZPMC Non-Destructive Testing (NDT) Technician Xu Hai, utilizing the Magnetic Particle Testing (MT) Method to perform a final MT examination on the cover pass of the fillet welds on Bottom Plate Sub-Assembly BP40A Yellow Tag 001729 (BP040-001) WJ's 007 through 018 and 043 through 054.

Mr. Xu and the QA Inspector observed linear indications in WJ's 014 and 016. Mr. Xu directed ZPMC welding personnel to grind the areas containing the linear indications. The QA Inspector randomly observed ZPMC welding personnel grind both WJ 014 and 016 to depths of 2 mm revealing slag inclusions which generated the linear indications. The QA Inspector then observed Mr. Xu reject the MT Inspection on BP040-001 and noted on the steel "2 Slag". The attached photographs provide additional detail.

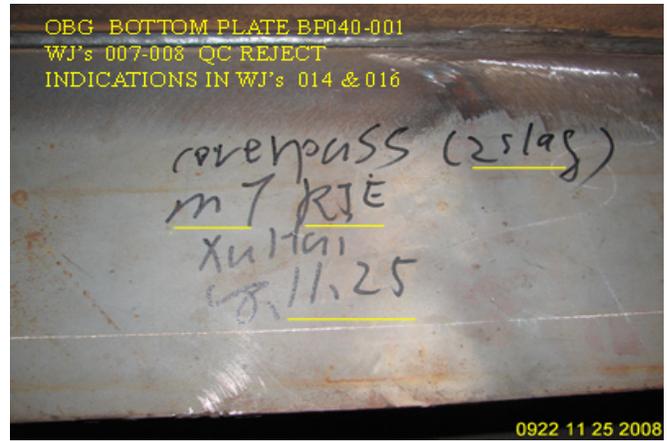
The QA Inspector randomly observed ZPMC NDT Technician Xu Hai, utilizing the MT Method to perform a final MT examination on the cover pass of the fillet welds on Bottom Plate Sub-Assembly BP175A Yellow Tag 001711 (BP175-001) WJ's 007 through 018 and 043 through 054. There appeared to be no indications and ZPMC QC accepted all the above listed welds.

The QA Inspector performed a 10% final Visual Testing (VT) and MT verification on the cover pass of the fillet welds on Bottom Plate Sub-Assemblies BP69A Yellow Tag 001712/Green Tag 001740 – BP069-001 (8CE-D6) WJ's 007 through 018 & 037 through 048; and BP96A Yellow Tag 001711 Green Tag 001741 – BP096-001 (8CW-D6) WJ's 007 through 018 & 037 through 048.

The QA Inspector randomly observed ZPMC NDT Technician Bo Tin Rui, utilizing the MT Method to perform a final MT examination on the cover pass of the fillet welds on Side Plate SP448B Yellow Tag 001925 (SP040-001) WJ's 001 through 010 and 076 through 085. Mr. Bo and the QA Inspector observed a linear indication in WJ 002. Mr. Bo directed ZPMC welding personnel to grind the area containing the linear indication. The QA Inspector randomly observed ZPMC welding personnel grind WJ 002 to depths of 2 mm revealing in line porosity which generated the linear indications. The QA Inspector then observed Mr. Bo direct welding personnel to preheat the excavation. The QA Inspector asked ZPMC CWI Chen Chih Chien if the excavated area was accepted and could be repaired. Mr. Chen informed the QA Inspector that it was not acceptable and Mr. Bo then rejected the MT Inspection on SP448-001.

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Summary of Conversations:

As noted in the above body of this report.

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 Joshua Ishibashi, 13764710411, who represents the Office of Structural Materials for your project.

Inspected By: Franco,Charlie

Quality Assurance Inspector

Reviewed By: Wright,Mark

QA Reviewer