

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-000914**Date Inspected:** 11-Nov-2007**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:** Cui Ri Yu**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-up and OBG**Summary of Items Observed:**

CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

Item Description	WBS	Dwg No.	Status
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1	OBG Mock-up deck U-ribs		
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The QA inspector observed that the U-ribs U-01 thru U-05 from the OBG mock-up were turned outside down. The QA inspector had a conversation with ABF representative Zhang Xu Liang. The QA inspector asked Mr. Zhang Xu Liang what had ZPMC resolved regarding the root face less than 1 mm located at 13158 mm U-ribs for the OBG Mock-up. Mr. Zhang Xu Liang relayed that ZPMC had not informed him about that issue. The QA inspector observed ZPMC grinding the paint off the deck plate at the locations where the U-ribs were going to be installed.

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2 OBG Fracture Critical Members (FCM) Electrode Consumables

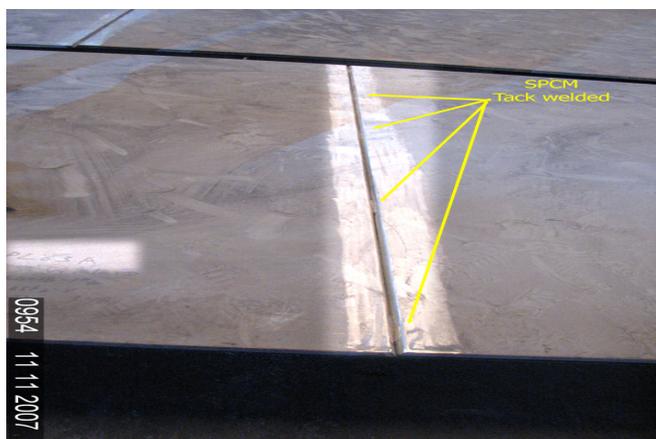
The QA inspector observed on the OBG shop # 3 that ZPMC was going to start welding using the flux cored arc welding process fracture critical members bottom, plates PL 35A to 35B and 33A and 33 B with consumable that was not identified as per section 12 AWS D1.5(2002). The QA inspector had a conversation with ZPMC representative Xu Jun (Eric). The QA inspector asked Mr. Xu Jun how the flux cored arc welding (FCAW) spool of wire that was almost empty (questionable atmosphere exposure time) comply with ZPMC fracture critical control plan. Mr. Xu Jun, QC personnel and production were not aware of the limitations of the exposure time on section 12 for FCM at that time. The QA inspector recommended Mr. Xu Jun that ZPMC follows the AWS D1.5 subsection 12.6.7.4 Electrode Storage. Mr. Xu Jun agreed after verifying that the electrode did not comply with AWS D1.5 section 12 and instructed to the QC and production personnel to follow subsection 12.6.7.4 requirement. ZPMC agreed to change the spool of wire from another coming directly from the manufacturer packaging. Mr. Xu Jun added that ZPMC would write the time and date on the electrode spool and would not used for welding FCM after the exposure time expired. The digital photographs below show the identified spool of wire that ZPMC intend to use to weld FCM and the spool of wire used for welding FCM.

Later, the QA inspector observed three plates designated for FCM marked as PL63A to PL63B side plate, PL36A to PL36B and PL37A to PL37B that were already tack welded. The QA inspector asked Mr. Xu Jun and ABF representative Zhan Xu Liang when and how the plates were tack welded. Mr. Xu Jun relayed to the QA inspector that the plates were tack welded on November 10 but he did not know which electrode was used for tack weld those FCM plates. The QA inspector relayed to Mr. Xu Jun that ZPMC needed to demonstrated that the mentioned plates were welded in compliance with section 12.

Later on the second shift, the QA inspector had a phone conversation with Caltrans QA inspector Mr. Charlie Franco. Mr. Charlie Franco relayed to the QA inspector that he reviewed ZPMC records with Mr. Xu Jun and ABF representative Mr. Huang Li who translated the log for him (tracking log were in Chinese characters). Mr. Charlie Franco said that according with ABF and ZPMC representatives ZPMC's tack welder Mr. He Yu Mei (tack welder observed by Caltrans QA inspector Mr. Rosco Dixson around 1600 hours performing tack welding operations on the FCM material) signed out for new spool of electrode(15 Kgs)at 1230 hours. Mr. Charlie Franco added that Mr. Xu Jun relayed to him that "luckily the tack welder took a spool of wire from packaging according with their records".

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- 3 Tower Mock-up 77 Ultrasonic Testing (UT) at the Flange reinforcement ring SA274
- The QA inspector witnessed UT examination to the flange reinforcement ring SA-274 weld joints # 1 thru 5. The QA inspector observed Mr. Li Li Ming and Xue Hai Yong performing UT verifications. The QA inspector found that ZPMC UT verifications appeared to be in general compliance with the contract documents.
- The QA inspector performed 10 % random UT verifications to the flange reinforcement ring SA-274 weld joints # 1 thru 5 the QA inspector found that welds appeared to in compliance with the contract documents. See TL_6027 generated on this date.



- 4 Tower 114 M Elevation Interior Splice A-58 and A-75

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The QA inspector observed ZPMC performing welding operations with the flux cored arc welding process on the 1G flat position to the interior splices A-58 weld joint # 3A, welder Xu Bo, welder ID # 040427 and interior splice A-75, weld joint # 4B, welder Tao Quian, ID # 040457. The QA inspector performed random verifications of the welding parameters, preheat and interpass temperatures. The QA inspector found that the welding parameters, preheat and interpass temperatures appeared to be in accordance with the contract documents.



5 Welding FCM Shear Link Subassembly MA-26

The QA inspector observed ZPMC performing welding operations with the submerged arc welding process on the 1G (flat) position at the shear link bottom flange splice p114 to mp517, welder operator Gu Caihong. The QA inspector performed random verifications of the welding parameters, preheat and interpass temperature. The QA inspector found that the welding parameters, preheat and interpass temperatures appeared to be in accordance with the welding procedure specification WPS-B-T-4221-B-U3-S.

Summary of Conversations:

As noted 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 for your project.

Inspected By: Acuna, Alfredo

Quality Assurance Inspector

Reviewed By: Cuellar, Robert

QA Reviewer