

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-009279**Date Inspected:** 24-Sep-2009**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 Xi**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 Crossbeams**Summary of Items Observed:**

On this day CALTRANS OSM Quality Assurance Inspector (QA) Steve Hall was present during the times noted above for observations relative to the fabrication of the SAS Superstructure being performed by Zhenhua Port Machinery Company (ZPMC) at Changxing Island, in Shanghai, China. QA observed and/or found the following:

OBG CROSS BEAM CB1

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB2

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB3

This crossbeam has been loaded on the ship.

OBG CROSS BEAM CB4

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This QA observed ZPMC personnel installing cat walk in this crossbeam. No other significant work was observed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB5

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB6

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB7

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB8

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB9

This QA observed ZPMC qualified welding personnel identified as 220688 perform FCAW welding on weld joint identified as FB204-022-087. ZPMC QC identified as Mr. Zhou Jie was present to monitor the welding process. The welding parameters as measured using QC's calibrated instruments appeared to be in general compliance with WPS-B-T-2233-B-U2-F.

This QA observed ZPMC qualified welding personnel identified as 053609 perform FCAW welding on weld joint identified as FB205-022-032. ZPMC QC identified as Mr. Zhou Jie was present to monitor the welding process. The welding parameters as measured using QC's calibrated instruments appeared to be in general compliance with WPS-B-T-2232-B-U2-F.

This QA observed ZPMC qualified welding personnel identified as 220688 perform FCAW welding on weld joint identified as FB204-021-058. ZPMC QC identified as Mr. Zhou Jie was present to monitor the welding process. The welding parameters as measured using QC's calibrated instruments appeared to be in general compliance with WPS-B-T-2232-B-U2-F.

OBG CROSS BEAM CB10

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB11

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This QA observed ZPMC qualified welding personnel identified as 204342 perform FCAW welding on weld joint identified as CB202G-031-001 and 002, CB202G-029-030 and 031, CB202G-030-001 and 002. ZPMC QC identified as Mr. Zheng Zhi Wei was present to monitor the welding process. The welding parameters as measured using QC's calibrated instruments appeared to be in general compliance with WPS-B-T-2233-Tc-U4b-F.

This QA observed ZPMC qualified welding personnel identified as 205390 perform FCAW welding on weld joint identified as CB202G-030-021 and 023. ZPMC QC identified as Mr. Zheng Zhi Wei was present to monitor the welding process. The welding parameters as measured using QC's calibrated instruments appeared to be in general compliance with WPS-B-T-2233-Tc-U4b-F.

This QA observed that the contractor appears to have deviated from the weld joint design specified on the approved drawings. The contractor appears to have changed the weld joints from fillet welds to Complete Joint Penetration (CJP) welds without the Engineers approval. According to the contractors QC inspector, the weld design was changed in order to compensate for a joint root opening in excess of 5mm. The QA inspector observed that the contractors welding personnel have welded the following weld joints from one side with the backing still in place: CB202G-030-021 and 023, CB202G-031-001 and 002, CB202G-029-030 and 031, CB202G-030-001 and 002. AWS D1.5 2002 section 3.3.1 states "The parts to be joined by fillet welds shall be brought into as close contact as practicable. The root opening shall not exceed 5 mm"... AWS D1.5 2002 section 3.7.4 states "Prior approval of the Engineer shall be obtained for repairs to base metal (other than those required by 3.2), repair of major or delayed cracks, repairs to ESW and EGW welds with internal defects, or for a revised design to compensate for deficiencies". State letter No. 05.03.01-004548 dated July 01, 2009 Submittal 200, Rev. 2-Update 1 specifies; "Submit weld maps of all locations where "The out of tolerance assembly gap of T-shaped joint" procedure has been previously utilized for the Engineer to evaluate their suitability" and "Repair procedures require the Engineer's approval prior to each case of repair". This QA notified ABF inspector identified as Mr. Kelvin Cheung and ZPMC QA identified as Mr. Zhang Wei that an incident report would be generated for this issue. See attached photos.

OBG CROSS BEAM CB12

During random in process Visual Testing (VT) of the above mentioned crossbeam this Quality Assurance Inspector (QA) observed that the contractors welding personnel appears to have performed 7 vertical weld repairs in a downward progression. The repair welds appeared to exhibit typical visual characteristics of a weld performed in a downward progression. The welds are identified as CB201G-034-161, CB201G-035-143, 161, 145 and CB201G-036-163. AWS D1.5 2002 section 4.6.8 states "The progression for all passes in the vertical position shall be upward, unless a downward progression is qualified by tests approved by the Engineer". This QA notified ABF inspector identified as Mr. Kelvin Cheung and ZPMC QA identified as Mr. Zhang Wei that an incident report would be generated for this issue. VT of this crossbeam also revealed numerous welds that appeared to be non compliant to the contract documents. See attached photos for details.

OBG CROSS BEAM CB13

This QA observed ZPMC QC Magnetic particle Testing (MT) technician performing Mt on various floor beam corner sections. No other significant work was observed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB14

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This QA observed that the contractor appeared to be “cold bending” Seismic Performance Critical Material (SPCM) and a Fracture Critical Weld (FCW). This QA observed two eight (8) ton weights had been placed on the material near the FCW. The weights appeared to be for the purpose of correcting excessive weld distortion of the material. The SPCM is identified as FB202A. The FCW joint is identified as CB202E-014-002. This QA previously issued two incident reports concerning this same condition for the same component and weld dated 09/18/09 and 09/20/09. AWS D1.5 2002 section 12.12 states “Cold bending shall be prohibited for all fracture critical steels”. This QA notified ABF inspector identified as Mr. Wang Wen Bin and ZPMC QC CWI identified as Mr. Chen Xi of the above mentioned issue and that an incident report would be generated. See attached photos for details.

OBG CROSS BEAM CB15

This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

OBG CROSS BEAM CB16

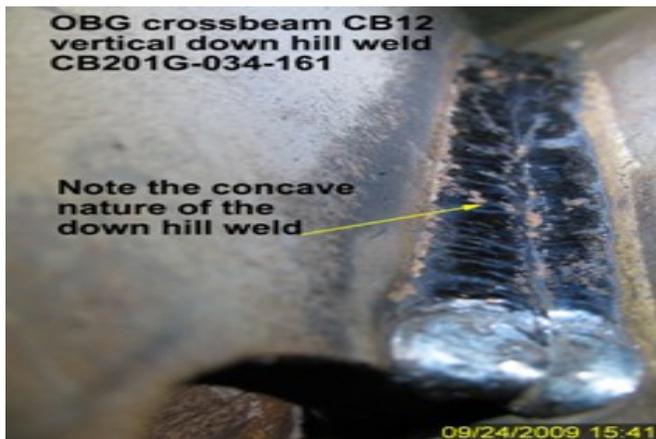
This QA observed that no significant work was being performed on this crossbeam during the time QA was present.

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:

As mentioned 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 Eric Tsang (15000422372), who represents the Office of Structural Materials for your project.

Inspected By:	Hall,Steven	Quality Assurance Inspector
Reviewed By:	Patterson,Rodney	QA Reviewer
