

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 #: 13.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-009197**Date Inspected:** 23-Sep-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** Mike Gregson, Jose Salazar**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:** Hinge K Pipe Beams**Summary of Items Observed:**

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3

Hinge-K Pipe Beam Assembly 102A-2: 9/23/09

a111-2 Forging to a110-2 Base Plate

QA Inspector noticed that welder #O6, Mr. Tim O'Brian and #J6, Mr. Craig Jacobson, were in-process of grinding and performing weld clean-up, on the PJP and fillet welds stiffeners to a111-2 forging and a107/b106/ab106 stiffeners. QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that the blending and weld clean-up was being performed on the weld transitions and weld spatter/undersize welds were being repaired, which were previously marked by QC Inspector Jose Salazar. Mr. Gregson also explained that the completed fillet and PJP welds on the radial stiffeners, which were found to be visually acceptable per AWS D1.5 and contract requirements, were in process of 100% magnetic particle inspection by QC Inspector Jose Salazar. QA Inspector noted that the in-process visual and magnetic particle testing by OIW QC Inspectors appeared to be in compliance with AWS D1.5 and contract requirements. See attached picture below.

Hinge-K Pipe Beam Assembly 102A-3: 9/23/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed that welder #J6, Mr. Craig Jacobson was performing flux core arc welding, in the vertical

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position, on the base metal of forging a111-3, for assembly 102A-3. QA Inspector noted that this was a non-critical weld repair (WRR #2244-28) and QA Inspector noted that Mr. Jacobson was currently performing the FCAW on weld joints #W1-126 and #W1-127. QA Inspector spoke with QC Inspector Jose Salazar, on this date and Mr. Salazar explained that the in-process welding parameters were recorded as 221 amps/24.5 volts and a pre-heat temperature of approximately 300 degrees Fahrenheit (149 C), in accordance to the applicable welding procedure specification (WPS 3048).

Note: QA Inspector previously noted that this non-critical weld repair was submitted by OIW after QC Inspector Jose Salazar had found multiple linear indications, utilizing magnetic particle testing, on the full length FCAW tacks and into the a111-3 forging base metal, on the following stiffeners: e108 (WJ #126, 127), f108 (WJ #138, 139), c107 (WJ #142, 143), e108 (WJ #146, 147) and d108 (WJ #148, 149). QA Inspector later spoke with QC Inspector Jose Salazar and Mr. Salazar explained that the FCAW on weld joints #126 and #127, had been completed by Mr. Jacobson and post heat was applied to the weld repair areas, at approximately 0900-1100 hrs., with a recorded temperature of approximately 450 degrees Fahrenheit (232 C), which appears to be in compliance with AWS D1.5 and the approved weld repair procedure.

Hinge-K Pipe Beam Assembly 102A-4: 9/23/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed that Mr. Troy Smith had completed the grinding (utilizing a mechanical grinder), the bevel prep, on the b106/ab106 stiffener plates, in preparation for fitting the a109 Post Tension Cap plate. QA Inspector previously reviewed the applicable OIW approved drawings and noted that this was a partial joint penetration (PJP AWS D1.5 TC-P4-S), 60 degree bevel prep angle, zero root opening, with a 30mm weld size. QA Inspector randomly measured the completed bevel prep angle on the b106 stiffener plate, utilizing a bridge cam gauge and noted the angle to be 60 degrees, with a 30mm weld size, which appears to be in compliance with AWS D1.5 and contract requirements. See attached pictures below.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)

Hinge-K Pipe Beam Fuse Assembly 120A-6: 9/23/09

a124-14 Half Fuse to a124-2 Half Fuse

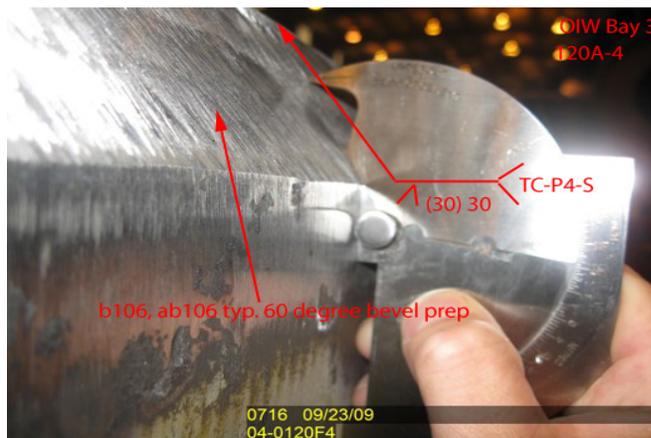
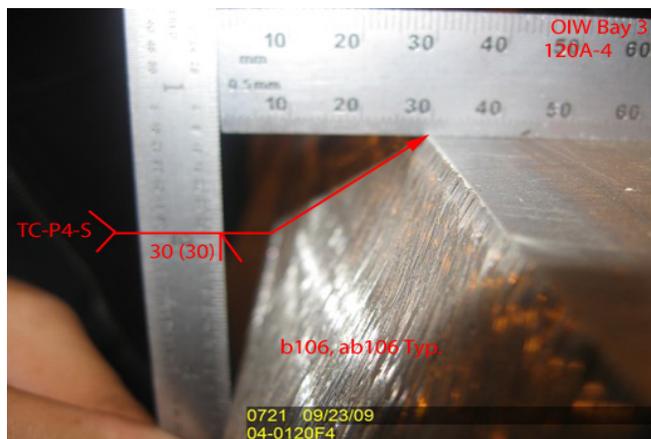
QA Inspector noticed that the first ESW stainless steel overlay passes were in-process, on this fuse assembly 120A-6. QA Inspector witnessed welder #F17, Mr. Igor Frolov performing electro slag welding (ESW) on the first layer welding passes, (approximately 10% complete), in the flat position, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip. QA Inspector noted the first layer passes would be completed utilizing the 309L consumable strip and the remaining second & third layer passes would be completed utilizing Soudokay brand Soudotape 316L stainless steel consumable strip, per contract requirements. QA Inspector randomly noticed QC Inspector's Mike Gregson and Jose Salazar were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that welding amps were recorded as 1200 amps/25.2 volts, travel speed at 269mm/min. and a pre-heat temperature recorded at 225 Fahrenheit (107 C). QA Inspector verified in-process welding parameters of 1200 amps/25.2 volts and recorded pre-heat temperatures of approximately 225 Fahrenheit (107 C) QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 225 degrees Fahrenheit (107 C). QA Inspector noted that Mr. Igor Frolov appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See attached picture below.

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Material, Equipment, and Labor Tracking

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 5 OIW production personnel and 2 QC Inspectors.



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 Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By: Vance, Sean

Quality Assurance Inspector

Reviewed By: Adame, Joe

QA Reviewer