

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

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-007935**Date Inspected:** 24-Jul-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-1: 7/24/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed that all stiffener plates were tack welded and this assembly 102A-1 was sitting idle, pending transfer to the welding positioner for submerged arc welding on these PJP and fillet welds.

Hinge-K Pipe Beam Assembly 102A-2: 7/24/09

a111-2 Forging to a110-2 Base Plate

QA Inspector witnessed welder #H49, Mr. Rick Hinkle, performing FCAW "inter tacking" of various stiffeners on the PJP and fillet weld stiffeners to the a111-2 forging and a107/b106 stiffeners, in the vertical position. QA Inspector noticed QC Inspector Jose Salazar was present to monitor pre-heat temperatures and had recorded in-process welding parameters of 235 amps and 25.2 volts. QA Inspector randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit and noted that Mr. Hinkle appeared to be in compliance with the applicable welding procedure specifications (WPS 3048 & 3050).

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Hinge-K Pipe Beam Assembly 102A-3: 7/24/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed this assembly 102A-3 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-4: 7/24/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed that OIW production personell were resuming grinding and weld clean-up, on the PJP and fillet welds stiffeners to a111-2 forging and a107/b106 stiffeners. QA Inspector previously spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that OIW production personell were blending the weld start/stops, removing weld spatter and repairing undersize welds in specific areas. Mr. Gregson also previously explained that once production personell were complete, OIW QC Inspector Jose Salazar will perform 100% visual examination of the PJP and fillet welds on these completed stiffeners and potentially mark up additional areas of these welds for cleaning, including excessive undercut, overlap, weld spatter, etc., in accordance with AWS D1.5. QA Inspector noted that once the visual testing is complete and acceptable, OIW QC Inspectors will be performing 100% magnetic particle testing, in accordance with AWS D1.5 and contract requirements.

Hinge-K Pipe Beam Fuse Assembly 120A-7: 7/24/09

a124-5 Half Fuse to a124-15 Half Fuse

QA Inspector noticed the submerged arc welding on the CJP (AWS D1.5 B-U3c-S) weld splice, sub-assemblies identified as (a124-5/a124-15), weld joint identified as WM3-18, for fuse assembly 120A-7, had been previously completed and QC Inspector Rob Walters had previously performed 100% final ultrasonic weld inspection and found no rejectable indications, per AWS D1.5. QA Inspector noticed this assembly 120A-7 had been previously transferred to OIW storage yard and was sitting idle, pending transfer to AG Machining, for rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-8: 7/24/09

a124-8 Half Fuse to a124-16 Half Fuse

QA Inspector randomly witnessed welder #F17, Mr. Igor Frolov, perform submerged arc welding (SAW) on CJP (AWS D1.5 B-U3c-S), half fuse pipe assembly, (piece mark identified as a124-8), to half fuse pipe assembly, (piece mark identified as a124-16), weld joint #WM3-18, in the flat position (1G). QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder #F17 was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020).

QA Inspector noticed QC Inspector's Mike Gregson and Jose Salazar were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Frolov was in compliance with the applicable welding procedure specification (WPS 4020). QA Inspector noted that QC Inspector Jose Salazar had recorded in-process welding parameters of 585 amps and 35.5 volts.

QA Inspector verified Mr. Frolov was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 350 degrees Fahrenheit, which is in compliance with the OIW welding procedure specification (WPS 4020). QA Inspector noted that the submerged arc welding cover pass on the I.D. portion of the weld was completed at approximately 1100, on this date and OIW production personell were setting up, in preparation for the weld root backgoue. See attached picture below.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)

Hinge-K Pipe Beam Fuse Assembly 120A-1: 7/24/09

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a124-6 Half Fuse to a124-7 Half Fuse

QA Inspector noticed that the first ESW stainless steel overlay passes were 100% complete and this fuse assembly 120A-1 was sitting idle. QA Inspector noted the first layer passes were 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. See attached picture below.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 7/24/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed this fuse assembly 120A-2 was sitting idle, pending the ESW overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 7/24/09

a124-13 Half Fuse to a124-4 Half Fuse

QA Inspector noticed that the stainless steel overlay welding (ESW) was previously completed on this fuse assembly 120A-4 and was sitting idle, pending transport to AG Machining for final machining.

Hinge-K Pipe Beam Fuse Assembly 120A-5: 7/24/09

a124-2 Half Fuse to a124-14 Half Fuse

QA Inspector noticed this fuse assembly 120A-5 was sitting idle, pending the ESW overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-6: 7/24/09

a124-1 Half Fuse to a124-9 Half Fuse

QA Inspector noticed this fuse assembly 120A-6 was sitting idle, pending the ESW overlay process.

AG Machining:

Hinge-K Pipe Beam Fuse Assembly 120A-3: 7/24/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that OIW had previously loaded fuse assembly 120A-3 on a trailer and was in process of transferring fuse assembly to AG Machining, for final machining on the exterior ESW overlay. QA Inspector arrived at AG Machining at approximately 1000 hrs. and noticed that the fuse assembly 120A-3 had previously arrived and had been placed in the horizontal lathe. QA Inspector spoke with AG Machinist and AG explained that machining would begin on 7/27/09 and end result machining would be completed, to a finished outside diameter measurement of 1925mm, per OIW Project Manager Bill Pender. See attached pictures below.

Note: QA Inspector noted that this fuse assembly 120A-3 will be transferred back to OIW, after machining to a diameter of 1925mm and the ESW overlay weld passes will be preliminary inspected by OIW. Once accepted by OIW, this fuse assembly 120A-3 will be eventually transferred back to AG Machining and AG will machine a final outside diameter of 1920mm (+/- 1mm), per contract requirements and OIW approved drawings.

Material, Equipment, and Labor Tracking

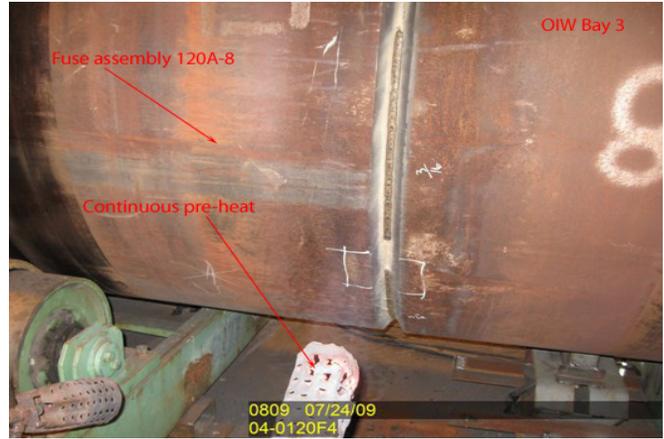
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project.

The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors.

The QA Inspector observed at AG Machining: 1 Machinist.

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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