

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-006635**Date Inspected:** 06-May-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, Rob Walters**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: 5/06/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed the weld repair backgouge was completed by OIW welder #T23, Mr. John Tellone, on this CJP (AWS D1.5 TC-U9a-S) a111-1 forging to a110-2 base plate, designated as weld joint #W2-12 & W2-13 and was sitting idle, pending SAW welding. QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that he wasn't sure when the SAW would begin on this weld repair.

Hinge-K Pipe Beam Assembly 102A-2: 5/06/09

a111-2 Forging to a110-2 Base Plate

QA Inspector randomly witnessed welder #T23, Mr. John Tellone, perform submerged arc welding (SAW) multi-pass 25mm fillet welds on plate stiffener (a107) to base plate (a110-2), weld joint designated as #W2-04, in the flat position (1F). QA Inspector noticed QC Inspector's Mike Gregson and Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. John Tellone was in compliance with the applicable welding procedure specification (WPS 4020).

QA Inspector verified Mr. John Tellone was currently qualified for this welding process/position and performed a

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random pre-heat check and recorded temperatures of approximately 350 degrees Fahrenheit. QA Inspector also recorded random, in-process welding parameters (amps/volts) of 580 amps and 29 volts, which is in compliance with the OIW welding procedure specification (WPS 4020).

Hinge-K Pipe Beam Assembly 102A-3: 5/06/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-3 pipe forging to a110-3 base plate, for pipe beam assembly 102A-3 was complete and sitting idle in the OIW South storage yard, pending 100% final ultrasonic weld inspection. QA Inspector noticed 100% preliminary ultrasonic weld inspection was completed by OIW QC Inspectors and no rejectable indications were found.

Hinge-K Pipe Beam Assembly 102A-4: 5/06/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-4 pipe forging to a110-4 base plate, for pipe beam assembly 102A-4 was complete and was sitting idle in the OIW South storage yard, pending 100% final ultrasonic weld inspection. QA Inspector noticed 100% preliminary ultrasonic weld inspection was completed by OIW QC Inspectors and no rejectable indications were found.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 5/06/09

a124-6 Half Fuse to a124-7 Half Fuse

QA Inspector noticed this fuse assembly 120A-1 was sitting idle in OIW Bay 3, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 5/06/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that the non-critical weld repair was previously completed on this fuse assembly 120A-2 (a124-3 Half Fuse to a124-11 Half Fuse), designated as weld joint #WM3-18 on 4/28/09 and 100% preliminary ultrasonic weld inspection was previously performed by QC Inspector Rob Walters on the weld repair, after cooling to ambient temperature. QA Inspector noted that no rejectable indications were found by Mr. Rob Walters on 4/28/09, as noted next to the completed weld repair and QA Inspector noted that the 72 hour wait time, per AWS D1.5 section 12.16.4 (Cooling Times Prior to Inspection), had previously expired. QA Inspector spoke with lead QC Inspector Mike Gregson on this date and Mr. Gregson explained that additional preliminary ultrasonic inspection would not be performed on this completed weld repair and the final 100% ultrasonic weld inspection would be performed by OIW QC personell after the rough machining process was complete.

QA Inspector performed 100% ultrasonic weld inspection on the completed weld repair for fuse assembly 120A-2 (a124-3 Half Fuse to a124-11 Half Fuse), designated as weld joint #WM3-18 and 1 rejectable/1 recordable indication was found, on this date. QA Inspector marked out the location of the rejectable/recordable indications and wrote the applicable ultrasonic testing information next to the indications (location, depth, sound path, etc.). See applicable ultrasonic testing report (TL6027), for additional details.

QA Inspector notified QC Inspector Mike Gregson of the ultrasonic testing results and suggested that a qualified OIW QC Inspector should verify the results and compare to QA Inspector's results. Mr. Mike Gregson explained that swing shift QC Inspector Steve Barnett would perform the ultrasonic weld testing on the areas in the weld repair that QA Inspector previously marked up. QA Inspector noted QA Inspector Clete Henke would also be

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present with QC Inspector Steve Barnett to also compare results, on the scheduled swing shift. QA Inspector Clete Henke called QA Inspector on this date, in the evening and confirmed that the indications were present and ultrasonic testing results were similar. See attached picture below.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 5/06/09

a124-12 Half Fuse to a124-10 Half Fuse

A & G Machining

QA Inspector arrived at A&G Machining on this date to witness the in-process rough machining of fuse assembly 120A-3. QA Inspector noticed the first cut pass was started on 5/5/09, was approximately 50% complete on this date and A&G Machinist explained to QA Inspector that the depth was set at .160" (4.06mm) and would probably be complete by end of shift. A&G Machinist explained that the second cut pass would be started the following day on 5/7/09 and should be completed by 5/8/09. A&G explained that the third and possibly final pass, to achieve desired results of a final 1903mm diameter, should start on 5/8/09, with a possible completion date of 5/11/09. See attached machining pictures below.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 5/06/09

a124-13 Half Fuse to a124-4 Half Fuse

QA Inspector randomly witnessed welder #S53, Mr. Jerry Shepherd, perform submerged arc welding (SAW) on CJP (AWS D1.5 B-U3c-S), half fuse pipe assembly, (piece mark identified as a124-13), to half fuse pipe assembly, (piece mark identified as a124-4), in the flat position (1G). QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder #S53, 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 Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Jerry Shepherd was in compliance with the applicable welding procedure specification (WPS 4020).

QA Inspector verified Mr. Jerry Shepherd was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 350 degrees Fahrenheit. QA Inspector also recorded random, in-process welding parameters (amps/volts) of 590 amps and 29 volts, which is in compliance with the OIW welding procedure specification (WPS 4020).

Hinge-K Pipe Beam Sub-Assembly a124-2: 5/06/09

a125 & b125 Ring Stiffeners to a124-2 Half Fuse

QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian, perform submerged arc welding (SAW) on PJP (AWS D1.5 TC-P5-S) weld joint #WM3-02 internal ring stiffener, (piece mark identified as a125), to half fuse pipe sub-assembly, (piece mark identified as a124-2), in the flat position (1G).

QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that Mr. Tim O'Brian was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020).

QA Inspector also noticed Mr. Mike Gregson and QC Inspector Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Tim O'Brian was in compliance with the applicable welding procedure specification (WPS 4020).

QA Inspector verified Mr. Tim O'Brian was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 350 degrees Fahrenheit. QA Inspector also recorded random, in-process welding parameters (amps/volts) of 580 amps and 30.2 volts, which is in compliance

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with the OIW welding procedure specification (WPS 4020).

QA Inspector noted that this weld joint #WM3-02 should be completed by end of shift and this was the final welding on the internal ring stiffeners for this sub-assembly a124-2.

Hinge-K Pipe Beam Sub-Assembly a124-9: 5/06/09

a125 & b125 Ring Stiffeners to a124-14 Half Fuse

QA Inspector noticed this a fuse sub-assembly a124-09 had been previously transferred from the OIW South storage yard to OIW fabrication shop and was sitting idle, pending SAW of the internal ring stiffeners, a125 and b125.

Hinge-K Pipe Beam Sub-Assembly a124-14: 5/06/09

a125 & b125 Ring Stiffeners to a124-14 Half Fuse

QA Inspector noticed this a fuse sub-assembly a124-14 had been previously transferred from the OIW South storage yard to OIW fabrication shop and was sitting idle, pending SAW of the internal ring stiffeners, a125 and b125.

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 following was observed at A & G Machine: 1 A&G supervisor and 1 A&G machinist using a horizontal lathe.



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

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Reviewed By: Adame,Joe

QA Reviewer