

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-006682**Date Inspected:** 11-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: 5/11/09

a111-1 Forging to a110-1 Base Plate

QA Inspector randomly witnessed welder #J6, Mr. Craig Jacobsen had completed the submerged arc welding repair on this a111-1 forging to a110-1 base plate, designated as weld joint #W2-12/ W2-13 and QC Inspector Rob Walters had completed 100% preliminary ultrasonic testing and found 2 rejectable and 1 recordable indications.

QA Inspector reviewed the applicable ultrasonic testing report (UT-2244-29) and noticed the first rejectable indication was a class B indication with a length of 70mm, depth of 61mm and a decibel rating of +3 (4db was subtracted from original db rating, due to the location at the weld root face). QA Inspector noticed the second rejectable indication was a Class B indication with a length of 19mm, depth of 21mm and a decibel rating of +3 and the recordable indication was a Class C indication with a length of 25mm, depth of 31mm and a decibel rating of +5. QA Inspector noticed that Mr. Rob Walters had marked locations and applicable ultrasonic testing information on the weld joint and these would be critical weld repairs, due to a second time repair attempt. QA Inspector noted that Mr. Rob Walters appeared to be in compliance with AWS D1.5 UT Acceptance-Rejection

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Criteria, Table 6.3 and contract requirements.

Hinge-K Pipe Beam Assembly 102A-2: 5/11/09

a111-2 Forging to a110-2 Base Plate

QA Inspector noticed this assembly 102A-2 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-3: 5/11/09

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: 5/11/09

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: 5/11/09

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: 5/11/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed this assembly 120A-2 was sitting idle, with a pending critical weld repair.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 5/11/09

a124-12 Half Fuse to a124-10 Half Fuse

A & G Machining

QA Inspector arrived at A&G Machining and noticed the fuse assembly 120A-3 rough machining was completed on this date and A&G machinist had measured outside diameter at seven random locations, as shown below.

End- 74.912" (1902.76mm)

2' from end- 74.914" (1902.81mm)

4' from end- 74.922" (1903.01mm)

6' from end- 74.920" (1902.97mm)

8' from end- 74.910" (1902.71mm)

10' from end- 74.909" (1902.68mm)

12' from end- 74.900" (1902.46mm)

QA Inspector noted that A&G appeared to be in compliance with the contract requirements requiring a final rough machining outside diameter of 1900mm, with a tolerance of (+/- 3mm).

A&G explained to QA Inspector that OIW project manager Bill Pender & OIW machinist supervisor Ross

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Accuardi would be arriving the following day on 5/12/09 to verify these readings and transport this assembly 120A-3 back to OIW fabrication shop, for 100% magnetic particle testing, on the exterior machined surface. See attached picture below of rough machined fuse assembly 120A-3.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 5/11/09

a124-13 Half Fuse to a124-4 Half Fuse

QA Inspector noticed the submerged arc welding was complete on a124-13 half fuse to a124-4 half fuse, joint designated as AWS D1.5 B-U3c-S, weld joint #WM3-18 and QC Inspector Rob Walters had previously performed 100% preliminary weld inspection and no rejectable indications were found. QA Inspector performed approximately 10% preliminary ultrasonic weld inspection on a124-13 half fuse to a124-4 half fuse, joint designated as AWS D1.5 B-U3c-S, weld joint #WM3-18 and found no rejectable indications. QA Inspector completed an applicable TL6027 and notified lead QC Inspector Mike Gregson of the ultrasonic testing results.

Hinge-K Pipe Beam Sub-Assembly a124-2: 5/11/09

a125 & b125 Ring Stiffeners to a124-2 Half Fuse

QA Inspector noticed that the welding on the internal ring stiffeners was complete and this sub-assembly a124-2 was sitting idle, pending final non-destructive testing by OIW QC personell.

Hinge-K Pipe Beam Sub-Assembly a124-9: 5/11/09

a125 & b125 Ring Stiffeners to a124-9 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: 5/11/09

a125 & b125 Ring Stiffeners to a124-14 Half Fuse

QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian, perform initial pre-heat on sub-assembly a124-14, in preparation for tack welding the first internal ring stiffener, designated as weld joint #WM3-17.

QA Inspector noticed that QC Inspector Rob Walters was present to verify pre-heat temperature, prior to submerged arc weld tacking and to verify 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, prior to tacking and QC Inspector Mike Gregson explained that a OIW QC Inspector would be present to monitor in-process welding parameters (amps/volts) and continuous pre-heat temperatures.

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 personell were present at A & G Machine: 1 A&G supervisor and 1 A&G machinist using a horizontal lathe.

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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
