

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-006344**Date Inspected:** 22-Apr-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: 4/22/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed this assembly 102A-1 remained idle, with a pending non-critical weld repair, on the a111-1 to a110-1 base plate CJP weld.

Hinge-K Pipe Beam Assembly 102A-2: 4/22/09

a111-2 Forging to a110-2 Base Plate

QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-2 pipe forging to a110-2 base plate, for pipe beam assembly 102A-2 was complete.

QA Inspector noticed the heat straightening of the a110-2 base plate was complete, per OIW's approved heat straightening procedure SP-006, Rev.2 and QC Inspector Rob Walters had performed a Brinell hardness check on random areas of base plate a110-2.

QA Inspector also noticed that 100% preliminary ultrasonic weld testing was performed by QC Inspector Rob

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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Walters on 4/17/09 and no rejectable indications were found, as noted on the part by Mr. Rob Walters.

Hinge-K Pipe Beam Assembly 102A-3: 4/22/09

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.

Hinge-K Pipe Beam Assembly 102A-4: 4/22/09

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.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 4/22/09

a124-6 Half Fuse to a124-7 Half Fuse

A & G Machining:

QA Inspector arrived at A & G Machining on this date, to randomly witness the in-process machining of this fuse assembly 120A-1.

A & G Machinist explained to QA Inspector that no machining would be performed on this fuse assembly 120A-1, on this date and machining would resume on 4/23/09, due to another project that A & G Machining was completing. See idle fuse assembly 120A-1 below.....

Hinge-K Pipe Beam Fuse Assembly 120A-2: 4/22/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed the submerged arc welding (SAW) on the fuse splice (a124-3 to a124-11) was complete and QC Inspector Rob Walters had completed 100% preliminary ultrasonic weld inspection on this CJP (AWS D1.5 B-U3c-S) weld joint.

QC Inspector Rob Walters explained to QA Inspector that one rejectable indication was found, approximately 75mm long, at a depth of approximately 50mm and this rejectable indication would require a non-critical weld repair.

Mr. Rob Walters also explained that an applicable ultrasonic testing report would be completed and that an approved OIW welder would attempt this weld repair, per OIW approved weld repair procedure (WPS 3046), on this date.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 4/22/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector noticed the submerged arc welding (SAW) was complete on this CJP (AWS D1.5 B-U3c-S) fuse splice and fuse assembly 120A-3 was sitting idle, pending 100% ultrasonic weld inspection.

Hinge-K Pipe Beam Sub-Assembly a124-4: 4/22/09

a125 Ring Stiffener to a124-4 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) internal ring stiffener, (piece mark identified as a125), to half fuse pipe sub-assembly,

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# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

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(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 #06, was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020).

QA Inspector 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, which is in compliance with the OIW welding procedure specification (WPS 4020).

### 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 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.

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<b>Inspected By:</b>	Vance, Sean	Quality Assurance Inspector
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<b>Reviewed By:</b>	Adame, Joe	QA Reviewer
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