

**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-006414**Date Inspected:** 28-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: 4/28/09

a111-1 Forging to a110-1 Base Plate

QA Inspector randomly witnessed OIW welder #S53, Mr. Jerry Shepherd perform submerged arc welding (SAW), multi-pass 25mm fillet welds, on 75mm thick a107 stiffener plate to 100mm thick a110-1 base plate, weld joint identified as W2-14, in the flat position (1F).

QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that Mr. Jerry Shepherd was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020) and QA Inspector noticed QC Inspector Rob Walters was present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures.

QA Inspector verified Mr. Jerry Shepherd was currently qualified for this welding process/position and performed a random pre-heat temperature verification and recorded approximately 350 degrees Fahrenheit, which is in accordance with the applicable welding procedure specification.

QA Inspector noticed Mr. Jerry Shepherd would complete this weld joint #W2-14, by end of shift.

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Hinge-K Pipe Beam Assembly 102A-2: 4/28/09

a111-2 Forging to a110-2 Base Plate

QA Inspector noticed this assembly 102A-2 was sitting idle, pending welding on the tack welded stiffener plates, piece marks identified as a107 and b106.

Hinge-K Pipe Beam Assembly 102A-3: 4/28/09

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: 4/28/09

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: 4/28/09

a124-6 Half Fuse to a124-7 Half Fuse

A & G Machining

QA Inspector did not arrive at A&G Machining on this date. QA Inspector previously noticed this fuse assembly 120A-1 was complete and sitting idle, pending transport to OIW fabrication shop.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 4/28/09

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 previously performed 100% preliminary ultrasonic weld inspection on this CJP (AWS D1.5 B-U3c-S) weld joint and found one rejectable indication.

QA Inspector noticed Mr. Rob Walters had previously marked this rejectable area for a non-critical weld repair and the weld repair was complete, on this date.

QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder was in compliance with the applicable welding procedure specification (WPS 4020) and QC Inspector Steve Barnett was present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures.

QA Inspector noticed that the preliminary ultrasonic weld inspection on this completed weld repair, was performed by QC Inspector Steve Barnett and Mr. Barnett found no rejectable indications. This weld joint will also be checked after 72 hrs waiting period as described in AWS D1.5 Section 12.

\* Note final UT inspection of this fuse splice 120A-2, will be performed after rough machining. Due to machining of exterior surfaces, OIW will have A&G Machine- machine the weld reinforcement off the butt joint. OIW has submitted a revision to the fabrication procedure, that is currently pending a formal approval.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 4/28/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector noticed this completed fuse assembly 120A-3 was sitting idle, pending transport to A&G Machining, for the rough machining process.

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Hinge-K Pipe Beam Fuse Assembly 120A-4: 4/28/09

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 Mr. Mike Gregson and QC Inspector 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, which is in compliance with the OIW welding procedure specification (WPS 4020). See pre-heating picture below.

Hinge-K Pipe Beam Sub-Assembly a124-2: 4/28/09

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) internal ring stiffener, (piece mark identified as b125), 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 the OIW welder #O6, 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 personnel at Oregon Iron Works, Inc. and witnessed 6 OIW production personnel and 2 QC.

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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.

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

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