

**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-007065**Date Inspected:** 03-Jun-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: 6/3/09

a111-1 Forging to a110-1 Base Plate

QA Inspector witnessed welder #J6, Mr. Craig Jacobsen, perform initial backgouging on the CJP AWS D1.5 TC-U9a-S, base plate to forging assembly, (a111-1/a110-1). QA Inspector noted that OIW had been previously informed by METS QA Representative Robert Mertz and had been given a verbal approval to proceed with the critical weld repair on the forging assembly 102A-1 (a111-1/a110-1), designated as CWR-003 (Rev. #1). QA Inspector witnessed Mr. Craig Jacobson performing pre-heat on the weld repair area, prior to backgouging and recorded random temperatures of approximately 150 degrees Fahrenheit. QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that once the excavation was complete, a qualified OIW QC Inspector would verify length/depth of the excavated area and Mr. Gregson also explained that 100% magnetic particle testing would be performed on the excavation, which is in compliance with the applicable welding procedure specification (WPS 3048).

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Hinge-K Pipe Beam Assembly 102A-2: 6/3/09

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: 6/3/09

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: 6/3/09

a111-4 Forging to a110-4 Base Plate

QA Inspector witnessed welder #H49, Mr. Rick Hinkle, FCAW tacking of various stiffener plates, to the base plate, piece mark identified as a110, for assembly 102A-4, in the vertical position. QA Inspector noted Mr. Rick Hinkle was performing pre-heat, utilizing a single torch and recorded temperatures of approximately 400F(204C). QA Inspector noticed QC Inspector Rob Walters was present to monitor in-process welding parameters (amps/volts) and continuous pre-heat temperatures. QA Inspector noted Mr. Rick Hinkle appeared to be tack welding in accordance with the applicable approved welding procedure specification (WPS 3048).

Hinge-K Pipe Beam Fuse Assembly 120A-1: 6/3/09

a124-6 Half Fuse to a124-7 Half Fuse

QA Inspector noticed this fuse assembly 120A-1 was sitting idle in OIW Bay 6, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 6/3/09

a124-3 Half Fuse to a124-11 Half Fuse

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

Hinge-K Pipe Beam Fuse Assembly 120A-3: 6/3/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector noticed that the stainless steel overlay welding was in-process, on this fuse assembly 120A-3. QA Inspector witnessed welder #J6, Mr. Craig Jacobson performing electro slag welding (ESW) in the flat position, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip. QA Inspector noted the first ESW welding passes were approximately 95% complete and the remaining two layers would be welded utilizing Soudotape 316L consumable strip. QA Inspector noticed QC Inspector's Mike Gregson and Rob Walters were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Rob Walters and Mr. Rob Walters explained that welding amps were recorded as 1250 amps/25 volts, with and a pre-heat temperature of approximately 225 Fahrenheit. QA Inspector verified Mr. Craig Jacobson was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 250 Fahrenheit. QA Inspector noted that Mr. Craig Jacobson appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See picture below of fuse assemble 120A-3. See assembly 120A-3 picture below.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 6/3/09

a124-13 Half Fuse to a124-4 Half Fuse

QA Inspector spoke with A&G Machining on this date and A&G explained that the rough machining was

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complete on this fuse assembly 120A-3 and OIW machinist would be arriving on 6/4/09 to verify final outside diameter measurements and possibly transfer back to OIW fabrication shop. QA Inspector noted that once this fuse assembly arrives at OIW fabrication shop, 100% magnetic particle testing will be performed on the exterior machined surface, by qualified OIW QC personnel and 100% final ultrasonic weld inspection will be performed by qualified OIW QC Inspectors on the CJP weld splice.

Hinge-K Pipe Beam Fuse Assembly 120A-5: 6/3/09

a124-14 Half Fuse to a124-2 Half Fuse

QA Inspector noticed that welder # T6, Mr. Craig Jacobsen had previously completed the submerged arc welding on the a124-14 half fuse to a124-2 half fuse, CJP weld splice, designated as weld joint #WM3-18 and QC Inspector Rob Walters had performed 100% preliminary ultrasonic weld inspection on this CJP weld splice. QA Inspector noticed this fuse assembly 120A-5 was previously transferred to the OIW storage yard and was sitting idle, in preparation for transfer to A&G Machining, for rough machining on the exterior.

Hinge-K Pipe Beam Fuse Assembly 120A-6: 6/3/09

a124-1 Half Fuse to a124-9 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 a124-1), to half fuse pipe assembly, (piece mark identified as a124-9), 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 390 amps and 25 volts, which is in compliance with the OIW welding procedure specification (WPS 4020).

Hinge-K Pipe Beam Sub-Assembly a124-5: 6/3/09

a125 & b125 Ring Stiffeners to a124-5 Half Fuse

QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian, performing submerged arc welding cover pass, on the b125 internal ring stiffener to a124-1 half fuse, designated as weld joint #WM3-02. QA Inspector noticed the submerged arc welding was being performed in the flat position and verified Mr. Tim O'Brian was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 350 F, which is in accordance with the applicable welding procedure specification (WPS 4020). QA Inspector spoke with Mr. Tim O'Brian and Mr. O'Brian explained that this weld joint #WM3-08 would be soon completed and the next stiffener ring, designated as weld joint #WM3-06, would be fit and possibly tack welded in place, by end of shift. QA Inspector randomly recorded in-process welding parameters of 380 amps and 26 volts and noticed that QC Inspector Rob Walters was present to randomly verify in-process welding parameters (amps/volts) and pre-heat temperatures. QA Inspector noted that the submerged arc welding being performed by Mr. Tim O'Brian, appeared to be in compliance with the applicable welding procedure specification (WPS 4020). See pre-heating picture below.

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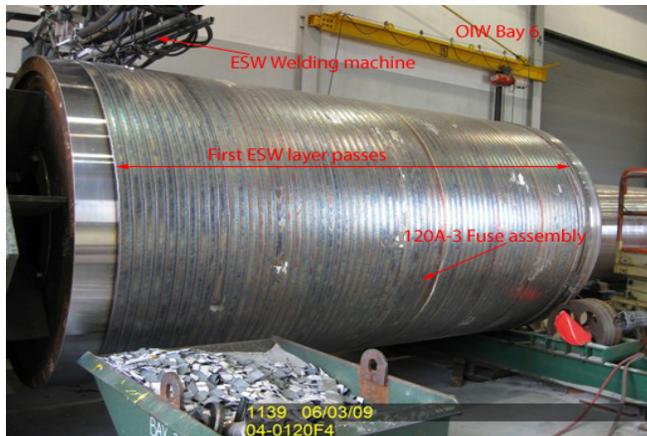
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OIW South Storage Yard: 6/3/09

QA Inspector noticed the following half-fuse sub assemblies were sitting idle, pending submerged arc welding on the internal stiffener rings, piece marks identified as a125 & b125: a124-8, a124-15 and a124-16.

## 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.



## 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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