

**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-008682**Date Inspected:** 26-Aug-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, Jose Salazar**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: 8/26/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed that OIW production personell were grinding and performing weld clean-up, on the PJP and fillet welds stiffeners to a111-1 forging and a107/b106 stiffeners. QA Inspector spoke with lead QC Inspector Mike Gregson and Mr. Gregson explained that OIW production personell continuing to blending the weld start/stops, removing weld spatter and repairing undersize welds in specific areas, which were previously marked by QC Inspector Jose Salazar. Mr. Gregson also explained that the completed fillet and PJP welds on the radial stiffeners, which were found to be visually acceptable per AWS D1.5 and contract requirements, were in process of 100% magnetic particle inspection by QC Inspector Jose Salazar. QA Inspector noted that the in-process visual and magnetic particle testing by OIW QC Inspectors appeared to be in compliance with AWS D1.5 and contract requirements.

Hinge-K Pipe Beam Assembly 102A-3: 8/26/09

a111-3 Forging to a110-3 Base Plate

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QA Inspector witnessed welder #H49, Mr. Rick Hinkle, was in process flux core arc welding (FCAW) “intertacking”, on the various stiffener plates, in the vertical (3G) position. QA Inspector noted that these weld joints were designated as partial joint penetrations (AWS D1.5 TC-P5-S) and QA Inspector verified Mr. Hinkle was currently qualified for this process/position. QA Inspector noted that Mr. Hinkle was utilizing OIW approved welding procedure specification (WPS 3050) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit. QA Inspector noticed QC Inspector Jose Salazar was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Salazar had previously recorded in-process welding parameters of 230 amps and 25.2 volts. QA Inspector recorded random welding parameter measurements of 235 amps and 25 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.

Hinge-K Pipe Beam Assembly 102A-4: 8/26/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed that OIW had previously placed this forging assembly 102A-4 in position and was in-process of machining the completed stiffeners, utilizing a mechanical machining bit. QA Inspector had previously measured the stiffener heights to be approximately 662mm and noted that approximately 12mm of material (485W) was in process of being removed, to achieve a desired result of 650mm (+3mm/-10mm), which is in accordance to contract requirements. QA Inspector spoke with OIW machinist and OIW explained that the mechanical machining bit was set to remove approximately 1/32” (.8mm) of material (485W), per each cutting pass. QA Inspector noted that once the machining process is complete, OIW will perform dimensional measurements utilizing a laser tracker, prior to fitting the a109 (Post Tension Cap) plates.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)

Hinge-K Pipe Beam Fuse Assembly 120A-7: 8/26/09

a124-5 Half Fuse to a124-15 Half Fuse

QA Inspector noticed that the first ESW stainless steel overlay passes were in-process, on this fuse assembly 120A-7. QA Inspector witnessed welder #F17, Mr. Igor Frolov performing electro slag welding (ESW) on the first layer welding passes, (approximately 90% complete), in the flat position, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip. QA Inspector noted the first layer passes would be completed utilizing the 309L consumable strip and the remaining second & third layer passes would be completed utilizing Soudokay brand Soudotape 316L stainless steel consumable strip, per contract requirements. QA Inspector randomly 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 Mike Gregson and Mr. Gregson explained that welding amps were recorded as 1200 amps/25.3 volts, travel speed at 269mm/min. and a pre-heat temperature recorded at 225 Fahrenheit (100 C). QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 225 Fahrenheit. QA Inspector noted that Mr. Igor Frolov appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See attached picture below.

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 QA Inspector observed at AG Machining: 1 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.

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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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