

**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-010790**Date Inspected:** 21-Dec-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** M. Gregson, J. 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:

Hinge-K Pipe Beam Assembly 102A-3: 12/21/09

a111-3 Forging to a110-3 Base Plate

The QA Inspector noted that OIW welder # O6, Mr. Tim O'Brian was continuing to blend the weld start/stops, removing weld spatter and grinding all areas, which were previously marked by OIW QC Inspectors. The QA Inspector noted that these areas were on the previously completed submerged arc welded (SAW), HPS 485W stiffeners, designated as weld joints #W1-01 thru W1-163. The QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that the visual clean-up that was being performed by Mr. O'Brian, was intermittently monitored and areas that were completed, were then visually re-inspected.

Hinge-K Pipe Beam Assembly 102A-1: 12/21/09

a111-1 Forging to a110-1 Base Plate

The QA Inspector witnessed welder #T23, Mr. John Tellone, performing the submerged arc welding (SAW) on the a110-3 Base plate to a106 HPS 485W stiffener. The QA Inspector noted that this weld joint was designated as a partial joint penetration (AWS D1.5 TC-P4-S), weld joint #W2-20 and Mr. Tellone was performing the SAW in the flat (1G) position. The QA Inspector noted that Mr. Tellone was currently performing the SAW root pass and noted that OIW approved welding procedure specification (WPS 4020), was being utilized. The QA Inspector

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noted that QC Inspector Jose Salazar, was present and Mr. Salazar explained to the QA Inspector that the in-process welding parameters/pre-heat temperatures, were intermittently verified. Mr. Salazar explained that average welding parameters for the SAW root pass, was recorded at 412 amps/32.1 volts, with a pre-heat of approximately 350 degrees Fahrenheit (177 C). The QA Inspector randomly verified pre-heat of approximately 350 degrees Fahrenheit (177 C) and welding parameters of 412 amps/32.1 volts. Mr. Salazar later explained to the QA Inspector that the SAW root pass had been completed by Mr. Tellone and 100% Visual/ Magnetic particle testing had been performed. Mr. Salazar explained that no rejectable indications were found. The QA Inspector later witnessed Mr. Tellone performing the SAW cover passes and noted that QC Inspector Jose Salazar was present. Mr. Salazar explained to the QA Inspector that welding parameters were recorded at 563amps/35 volts, with a consistent pre-heat temperature of approximately 350 degrees Fahrenheit (177 C). The QA Inspector verified the welding parameters and pre-heat temperatures, to be in-compliance with the applicable WPS 4020. See attached picture below.

Hinge-K Pipe Beam Assembly 102A-4: 12/21/09

a111-4 Forging to a110-4 Base Plate

The QA Inspector randomly noticed that the 12 each. 1 3/4", threaded rods had been inserted back into the a109 Post Tension Cap Plate. The QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that welder #J6, Mr. Craig Jacobson, had inserted the rods earlier in the a.m. Mr. Salazar explained that the 12 rods were then tightened, utilizing an air impact wrench. The QA Inspector randomly took measurements on the completed HPS 485W stiffeners to a109 Post Tension Cap Plate. The QA Inspector noted that gaps were still present, with maximum gaps of 2mm, utilizing a taper gauge, closest to the a111-3 forging. The QA Inspector noted that OIW had previous gaps, up to 4mm, between the above mentioned stiffeners and Cap Plate, with the rods removed. The QA Inspector was informed by Mr. Salazar that OIW intends to torque the rods further, utilizing a torque wrench, to possibly eliminate the gaps. The QA Inspector noted that the contract requires a mill to bear surface on the HPS 485W stiffeners to a109 Cap Plate. See attached picture below.

Material, Equipment, and Labor Tracking (MELT)

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project.

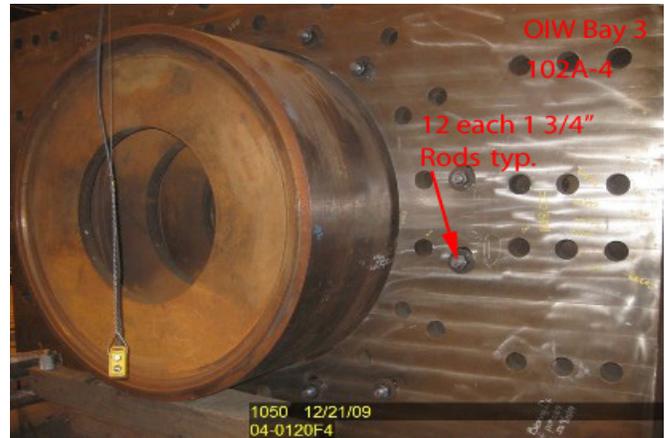
The QA Inspector observed at Oregon Iron Works: 2 OIW production personnel and 2 QC Inspectors.

The QA Inspector noted that the following personell were present at AG Machine shop: 1AG machinist and 1 AG supervisor.

The QA Inspector noted that no work was performed at OIW Vancouver paint shop.

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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