

**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-009715**Date Inspected:** 20-Oct-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

<b>CWI Name:</b>	Mike Gregson		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	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-3: 10/20/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed this assembly 102A-3 had been previously placed in position and welder #06, Mr. Tim O'Brian, was in process of performing submerged arc welding, on the b107 stiffener plate to ab106 stiffener, designated as weld joint # W1-108, in the flat position. QA Inspector noted that this weld joint was designated as a partial joint penetration (AWS D1.5 TC-P5-S) and QA Inspector verified Mr. O'Brian was currently qualified for this process/position. QA Inspector noted that Mr. O'Brian was utilizing OIW approved welding procedure specification (WPS 4020) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit (177 C). QA Inspector noticed QC Inspector Mike Gregson was present to monitor in-process welding parameters (amps/volts) and Mr. Gregson had previously recorded in-process welding parameters of 405 amps and 32 volts, on the in-process welding root pass.

QA Inspector noticed that welder #J6, Mr. Craig Jacobson, was in process of performing submerged arc welding, on the b108 stiffener plate to a107 stiffener, designated as weld joint # W1-94, in the flat position. QA Inspector noted that this weld joint was designated as a partial joint penetration (AWS D1.5 TC-P5-S) weld and QA Inspector verified Mr. Jacobson was currently qualified for this process/position. QA Inspector noted that Mr.

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Jacobson was utilizing OIW approved welding procedure specification (WPS 4020) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit (177 C). QA Inspector noticed QC Inspector Mike Gregson was present to monitor in-process welding parameters (amps/volts) and Mr. Gregson had previously recorded in-process welding parameters of 570 amps and 35 volts, on the in-process welding cover passes.

QA Inspector noted that 100% magnetic particle testing was performed on the above mentioned root passes and no rejectable indications were found, per AWS D1.5 and contract requirements.

Note: QA Inspector later noted that the following weld joints were completed by Mr. O'Brian and Mr. Jacobson, by end of shift: WJ #W1-108, W1-110 and W1-94.

Hinge-K Pipe Beam Assembly 102A-4: 10/20/09

a111-4 Forging to a110-4 Base Plate

QA Inspector witnessed welder #T23 Mr. John Tellone, was currently in-process of performing submerged arc welding, on the a109 Post Tension Cap Plate to b106 stiffener, designated as weld joint #W2-18, in the flat (1G) position, utilizing OIW approved welding procedure specification (WPS 4020). QA Inspector noted that QC Inspector Mike Gregson, was present on this day and had previously verified the in-process welding parameters and pre-heat temperatures, to insure compliance with the applicable welding procedure specifications and AWS D1.5. QA Inspector reviewed Mr. Gregson's applicable documentation and noted that Mr. Gregson had previously recorded in-process welding parameters of 570 amps/34 volts, with a pre-heat temperature of approximately 350 degrees Fahrenheit (177 C). QA Inspector noted that Mr. Tellone appeared to be in compliance with the applicable welding procedure specification and AWS D1.5, on this date.

A&G Machining

Hinge-K Pipe Beam Fuse Assembly 120A-2 and 120A-8: 10/20/09

a124-3 Half Fuse to a124-11 Half Fuse and a124-8 Half Fuse to a124-16 Half Fuse

QA Inspector arrived at AG Machine shop, on this date and witnessed OIW removing fuse assembly 120A-8, from the horizontal shop lathe and placing fuse assembly 120A-2 in the lathe, in preparation for final machining, on the exterior overlay. QA Inspector noted that the above mentioned fuse assembly 120A-2, had arrived from OIW Vancouver, WA painting facility and the interior ring stiffeners and base material had been previously blasted and inorganic zinc had been applied. QA Inspector spoke with AG Machine and AG explained that the final machining will begin after initial setup/measurements in the lathe are performed and OIW is present to verify these and release to AG, to begin the final machining process, possibly on 10/21/09 or 10/22/09. See attached pictures below.

Note: 120A-8- QA Inspector noted that the rough machining on the above mentioned 120A-8 had previously been completed by AG on 9/11/09 and had remained idle, until this date and was in-process of being transferred back to OIW fabrication shop. QA Inspector later noticed that fuse assembly 120A-8 had later arrived back to OIW Fabrication shop and had been placed in Bay 6. QA Inspector noted that 100% magnetic particle testing, by OIW QC Inspectors, on the exterior rough machined surface, would be performed at a later date. QA Inspector noted that once OIW QC Inspectors complete and accepts the magnetic particle testing results, QA Inspector will then perform approximately 10% magnetic particle testing, to verify OIW testing results.

120A-2- QA Inspector noted that after AG completes final machining/measurements, OIW will arrive to verify final outside diameter measurements of 1920 mm (960 mm radius) and a final finish profile of 0.8  $\mu$ m. QA Inspector noted that OIW will perform these final measurements utilizing a FARO laser tracker/profilometer and OIW QC Inspectors will then perform 100% liquid penetrant testing on the finished, exterior machined surface, prior to shipping back to OIW fabrication shop.

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## 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: 5 OIW production personnel and 2 QC Inspectors.

The QA Inspector observed at AG Machine shop: 1 Machinist and 1 Supervisor.



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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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**Inspected By:** Vance, Sean

Quality Assurance Inspector

**Reviewed By:** Adame, Joe

QA Reviewer

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