

**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-011494**Date Inspected:** 14-Jan-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR

<b>CWI Name:</b>	M. Gregson, J. Salazar, G. Mundt	<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>
<b>Inspected CWI report:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
		<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Bridge No:</b>	34-0006	<b>Component:</b>	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 6 (ESW Overlay Process)

Hinge-K Pipe Beam Fuse Assembly 120A-8

The QA Inspector witnessed welder WID #F17, Mr. Igor Frolov performing electro slag welding (ESW) on the first layer welding passes, in the flat position. The QA Inspector noted that the first layer was approximately 75% complete and the 309L stainless steel consumable strip, was being utilized. The QA Inspector randomly noticed QC Inspector Jose Salazar was present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QC Inspector Salazar explained to the QA Inspector that welding amperage was previously recorded at 1200 amps/25.2 volts, travel speed at 279mm/min. and a pre-heat temperature recorded at 225 degrees Fahrenheit (100 C). The QA Inspector verified the welding parameters and the minimum pre-heat temperatures were in compliance with the applicable WPS 7003. The QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process and position. The QA Inspector noted that the ESW being performed appeared to be in compliance with WPS 7003. See attached picture below.

The QA Inspector was present on this swing shift and witnessed WID#V7, Mr. Vincent Vue continuing to perform electro slag welding (ESW) on the 1st layer ESW welding passes, utilizing the 309L stainless steel consumable strip, in the flat position. The QA Inspector randomly noticed QC Inspector Gary Mundt was present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QC

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Inspector Mundt explained to the QA Inspector that welding amperage was previously recorded at 1275 amps/24.5 volts, travel speed of 279mm/min. and a pre-heat temperature recorded at 225 degrees Fahrenheit (100 C). The QA Inspector noted that the ESW being performed appeared to be in compliance with WPS 7003.

## AG Machining (Boring, OR)

### Hinge-K Pipe Beam Fuse Assembly 120A-4:

On this date, the QA Inspector arrived at AG Machine shop to observe OIW perform the FARO laser measurements, on the Fuse 120A-4. The QA Inspector arrived at approximately 0800 and met with the OIW Machinist. OIW explained to the QA Inspector that he was currently in process of performing the set up, on the FARO laser equipment. The OIW Machinist explained that the final outside diameter and cylindricity (concentricity) of this fuse assembly 120A-4, will be measured, per the contract requirements. The QA Inspector witnessed OIW performing these measurements and noted that at approximately 1200, the measurements were complete. OIW explained to the QA Inspector that the finished outside diameter was measured at 1920.26mm and the cylindrical deviation was measured at .36mm. The QA Inspector was informed by the OIW Machinist that the length of the Fuse was also measured with the FARO laser equipment. OIW explained that the length of the Fuse was 3516.1mm. OIW explained to the QA Inspector that these measurements were calculated, based upon a theoretical surface temperature of 68 degrees Fahrenheit (20 C) and that the actual temperature of the fuse assembly was measured at approximately 40 degrees Fahrenheit (4 C). QA Inspector noted that the contract requires a finished outside diameter of 1920mm (+/- 1mm) and cylindricity (+/1 mm). QA Inspector noted that the above mentioned FARO measurements, on this Fuse 120A-1, appeared to be in compliance with the specified tolerances, per the contract requirements. OIW explained to the QA Inspector that a final FARO test report will be completed and a copy will be provided to QA Inspector. See attached picture of the Fuse 120A-4 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: 5 OIW production personnel and 2 QC Inspectors. The QA Inspector observed at AG Machine shop: 1 AG machinist, 1 OIW Machinist and 1 AG supervisor. The QA Inspector noted that no work was performed at OIW Vancouver paint shop.



## Summary of Conversations:

As noted above.

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## 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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