

**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-010788**Date Inspected:** 17-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: 12/17/09

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. Mr. Salazar explained to the QA Inspector that during the 100% magnetic particle testing on the following weld joints # W1-127 (e108/a110), W1- 161 (b108/a110), W1-162 (c107/a110) and W1-163 (c107/a110), linear indications were found in the a110 forging base metal. Mr. Salazar explained that the indications appeared to be cracks and would require critical weld repairs. Mr. Salazar explained that the areas will be excavated out by Mr. O'Brian, utilizing a mechanical grinder and 100% magnetic particle testing will then be performed on the excavations. The QA Inspector was informed by Mr. Salazar that no welding would occur prior to OIW submittal paperwork and state approval of these CWR's #2244-011, 012, 013 and 014.

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Hinge-K Pipe Beam Assembly 102A-1: 12/17/09

a111-1 Forging to a110-1 Base Plate

The QA Inspector noted that the partial penetration weld joints, designated as weld joint #W2-23 and #W2-24, were previously completed and OIW was rotating this assembly 180 degrees. The QA Inspector noted that OIW welder #J6, Mr. Craig Jacobson and a helper, were utilizing the overhead shop crane and slings, attached to lifting eyes, on the assembly 102A-1. The QA Inspector noted that once the assembly is rotated, OIW will begin setting up the cooperheat, prior to the submerged arc welding (SAW), on the partial penetration weld joints, designated as weld joints #W2-19 and #W2-20.

AG Machining (Boring, OR) 12/17/09

On this date, the QA Inspector arrived at AG Machine shop, to witness OIW switch out Fuse 120A-1 and Fuse 120A-4, for final machining. The QA Inspector arrived at approximately 1000 and witnessed Metro Machinery Rigging picking up the Fuse 120A-1, from the horizontal lathe. The QA Inspector witnessed Metro place two slings around the Fuse 120A-1 and attach to a forklift, with a hydraulic lifting boom. The QA Inspector witnessed Metro Machinery then placing this Fuse 120A-1, on a flatbed trailer. The QA Inspector noted that two saddles with rubber cushions had been previously placed on the flatbed trailer. The QA Inspector then witnessed Metro personell using two come-a-longs to anchor the Fuse to trailer. The QA Inspector witnessed Metro Personell placing rubber cushions on the interior of Fuse 120A-1 and securing with more come-a-longs. The QA Inspector noted that the Fuse 120A-1 was being transferred back to OIW, after final machining and 100% penetrant testing was complete and OIW accepted. The QA Inspector then witnessed Metro picking up the Fuse 120A-4 from a separate trailer, utilizing two chokers. The QA Inspector then witnessed Metro placing the Fuse 120A-4, into the horizontal lathe. The QA Inspector noted that the AG Machinist tightened the lathe chucks, to secure the Fuse 120A-4 in place. The QA Inspector spoke with the AG Machinist and AG explained that the 1st cut pass, for final machining, on this Fuse 120A-4, should start on 12/18/09 or 12/21/09. See attached sequence of pictures 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 1 QC Inspector.

The QA Inspector observed the following personell at AG Machine shop: 1AG machinist, 1 AG supervisor, 4 Metro Rigging.

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.

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**Inspected By:** Vance, Sean

Quality Assurance Inspector

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**Reviewed By:** Adame, Joe

QA Reviewer