

**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-010606**Date Inspected:** 02-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

<b>CWI Name:</b>	M. Gregson, J. Salazar, S. Barnett	<b>CWI Present:</b>	Yes	No
<b>Inspected CWI report:</b>	Yes No N/A	<b>Rod Oven in Use:</b>	Yes	No N/A
<b>Electrode to specification:</b>	Yes No N/A	<b>Weld Procedures Followed:</b>	Yes	No N/A
<b>Qualified Welders:</b>	Yes No N/A	<b>Verified Joint Fit-up:</b>	Yes	No N/A
<b>Approved Drawings:</b>	Yes No N/A	<b>Approved WPS:</b>	Yes	No N/A
		<b>Delayed / Cancelled:</b>	Yes	No N/A
<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:

Hinge-K Pipe Beam Assembly 102A-3: 12/2/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed that the partial joint penetration and fillet welds were previously completed, on the HPS 485W stiffeners and OIW production personell were in-process of performing weld clean-up, on the above mentioned stiffeners. QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained 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. Mr. Salazar also explained that the completed fillet and PJP welds on above mentioned stiffeners, which were found to be visually acceptable per AWS D1.5 and contract requirements, will then be 100% magnetic particle tested by qualified OIW QC Inspectors. QA Inspector noted that the in-process visual testing by OIW QC Inspector Jose Salazar, appeared to be in compliance with AWS D1.5 and contract requirements.

QA Inspector also witnessed swing shift QC Inspector Steve Barnett performing 100% magnetic particle testing on the above mentioned stiffeners, on this assembly 102A-3.

Note: QA Inspector later spoke with QC Inspector Steve Barnett and Mr. Barnett explained that the magnetic particle testing was performed on the following weld joints and no rejectable indications were found: WJ # W1-47, W1-55, W1-60, W1-71, W1-72, W1-75, W1-76, W1-80, W1-92, W1-94, W1-96, W1-98, W1-100, W1-103,

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W1-105, W1-138, W1-140, W1-142, W1-144, W1-148 and W1-150. Mr. Barnett explained that the above mentioned weld joints were previously visually inspected and weld areas that were marked up for repairs and/or clean-up, were completed and then visually re-inspected and were in conformance with AWS D1.5, visual testing requirements. Mr. Barnett explained that the applicable visual/magnetic particle testing reports were completed and Mr. Barnett had written VT/MT ok next to each weld joint, to notify production personell that QC Inspection was complete and acceptable. Mr. Barnett explained to QA Inspector that graveyard shift, QC Inspector John Nikolich, will continue to perform the visual/magnetic particle testing on these completed stiffeners. QA Inspector will not be present on this scheduled graveyard shift.

Hinge-K Pipe Beam Assembly 102A-1: 12/2/09

a111-1 Forging to a110-1 Base Plate

QA Inspector witnessed welder #J6, Mr. Craig Jacobson performing the flux core arc welding (FCAW) "intertacking", on the previously fit up a109 Post Tension Cap plate, to the ab106/a106/b106, HPS 485W stiffeners. QA Inspector noted that these weld joints were designated as #'s W2-19, W2-20, W2-23 and W2-24. QA Inspector noted that Mr. Jacobson was performing the "intertacking" in the horizontal position (2G) and was currently qualified for this process/position. QA Inspector spoke with OIW QC Inspector Jose Salazar and Mr. Salazar explained that welding procedure specification 3049 (WPS 3049) was being utilized by Mr. Jacobson for the tack welding. Mr. Salazar explained to QA Inspector that in-process welding parameters were recorded at 263 amps/26.6 volts with a preheat temperature of 400 degrees Fahrenheit. QA Inspector randomly verified the pre-heat temperature to be 400 degrees Fahrenheit. QA Inspector noted that the FCAW performed by Mr. Jacobson appeared to be in compliance with the approved WPS 3049 and AWS D1.5.

Hinge-K Pipe Beam Assembly 102A-4: 12/2/09

a111-4 Forging to a110-4 Base Plate

See summary of conversations 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: 2 OIW production personnel, 2 QC Inspectors on day shift and 1 QC Inspector on swing shift.

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

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

Summary of Conversations:

Lead QA Inspector Joe Adame notified QA Inspector that there were bearing gaps present, between the completed HPS 485W stiffeners and the a109 Post Tension Cap plate, on forging assembly 102A-4. QA Inspector randomly measured the bearing gaps, utilizing a taper gauge and noted that the gaps measured from 0-4mm, with the 4mm gaps present on the radial stiffeners, closest to the forging. See attached pictures below.

Note: QA Inspector noted that these gaps occurred after and/or during the completion of weld joints #W2-19 (a109/a106), W2-20 (a110/a106), W2-23 (a110/ab106) and W2-24 (a109/ab106). QA Inspector and QC Inspector Jose Salazar had previously measured the mill to bear surface, after the above mention weld joints were fit-up/ FCAW tack welded with multiple threaded rods in place, (to prevent movement and distortion of the a109 Cap plate), during welding. QA Inspector previously noted that there was approximately 100% contact between the

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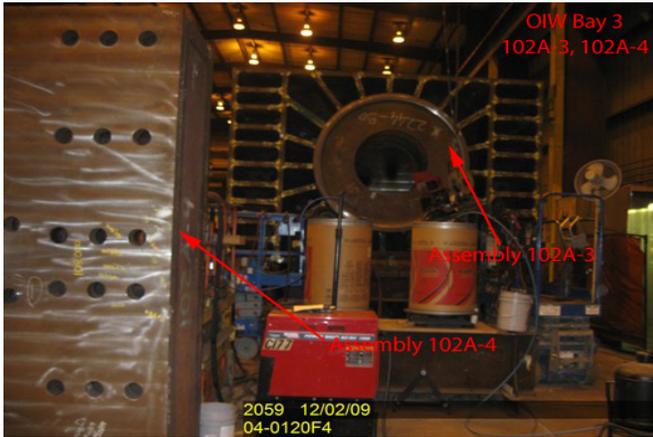
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stiffeners and Cap Plate, in accordance with AWS D1.5 and contract requirements. Mr. Adame explained that OIW PM Bill Pender was notified of this and a resolution is still pending.



## 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