

**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-012796**Date Inspected:** 23-Mar-2010**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

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|------------------------------------|------------------------------------|----------------------------------|--------------------|----------------------|
| <b>CWI Name:</b>                   | M. Gregson, J. Salazar, R. Walters | <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:

**Hinge-K Pipe Beam Assembly 102A-2:**

The QA Inspector witnessed WID #B62 (Marcus Belgarde), performing the submerged arc welding (SAW) on the a109 Post Tension Cap plate to b106 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 (WJ) #W2-18 and WID #B62 was performing the SAW in the flat (1G) position. The QA Inspector noted that the SAW fill passes were currently in-process and noted that the OIW approved welding procedure specification (WPS 4020), was being utilized. The QA Inspector noted that QC Inspector Jose´ Salazar, was present and QC Inspector Salazar explained that the in-process welding parameters/pre-heat temperatures, were intermittently verified. QC Inspector Salazar explained that WID #B62, had previously completed the SAW root passes and the welding parameters and pre-heat temperature was in accordance to the applicable WPS 4020. QC Inspector Salazar explained that he had performed 100% Visual and Magnetic Particle (VT/MT), testing on the root passes. QC Inspector Salazar explained that he had performed the VT/MT per AWS D1.5 and OIW approved MT procedure QC-113, Rev. #1 and found no rejectable indications.

QC Inspector Salazar explained that the average welding parameters for the SAW fill passes, currently in process, were recorded at 620 amps/33.5 volts, with a pre-heat of approximately 350 degrees Fahrenheit (177 C) and travel speed of 25 inches per minute (i.p.m). The QA Inspector randomly verified pre-heat of approximately 350 degrees

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Fahrenheit (177 C) and welding parameters to be in compliance with the applicable WPS 4020. The QA Inspector noted that the SAW appeared to be in compliance with AWS D1.5 and the applicable WPS.

### Hinge-K Pipe Beam Assembly 101A-1:

The QA Inspector witnessed OIW QC Inspector Rob Walters performing Ultrasonic Testing (UT) on the previously completed submerged arc welding (SAW) joint, # WM4-1. The QA Inspector noted that this was a Complete Joint Penetration (CJP), AWS D1.5 B-U7-S, piece mark Fuse 120A-1 to Forging 102A-1. QC Inspector Walters explained that he was currently performing the straight beam ultrasonic testing for laminar reflectors, per AWS D1.5 and that he had previously performed a calibration on the straight beam search unit. QC Inspector Walters later explained that the straight beam testing had been performed and completed on the entire base metal area that the weld will be tested and no rejectable indications were found. QC Inspector Walters explained that he was currently setting up for calibration, in preparation for the angle beam ultrasonic testing of the weld, with a 60 degree Lucite wedge coupled to a 2.25 MHz frequency transducer. 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 the following personell were present at AG Machine shop. 1 AG Machinist and 1 Supervisor.



### 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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| <b>Inspected By:</b> | Vance,Sean | Quality Assurance Inspector |
| <b>Reviewed By:</b>  | Adame,Joe  | QA Reviewer                 |

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