

**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-005486**Date Inspected:** 20-Feb-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, Oregon**CWI Name:** See below**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:**

On this date, Caltrans Quality Assurance Inspector (QA) Sherri Brannon is present at the Oregon Iron Works, Inc. (OIW) jobsite in Clackamas, Oregon for the purpose of observing fabrication of the Hinge K Pipe Beams.

**OIW Fabrication Shop-Bay 1:**

QA Inspector Brannon randomly observed OIW personnel continuing in Bay 1 at the CNC mill for facing hinge k pipe beam post tension cap plate (A825M) MK#a109 in preparation for welding.

**OIW Fabrication Shop-Bay 1 (sub-assembly):**

QA Inspector Brannon randomly observed two OIW personnel continuing prepping internal ring stiffeners round plate MK# a125 – 40mm x 1720mm x 1720mm and round plate MK#b125- 50mm x 1720mm x 1720mm (HPS 485 W) for fit-up and welding. Internal ring stiffeners will be welded inside the hinge k pipe beam fuse half sections. Ring stiffeners plates are being beveled to 55 degrees on both sides with a 4mm land. See OIW fabrication drawing 2244-123 sheet 1 of 2 for bevel profile and weld detail.

**OIW Fabrication Shop-Bay 1 (sub-assembly):**

QA Inspector Brannon randomly observed OIW personnel continuing cutting internal ring stiffeners round plate MK# a125 – 40mm x 1720mm x 1720mm and round plate MK#b125- 50mm x 1720mm x 1720mm (HPS 485 W).

QA Inspector Brannon observed OIW personnel using an oxy-fuel programmable CNC machine to remove the center portion of the ring stiffener plates.

**OIW Shop-Bay 1 (PQR):**

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QA Inspector Brannon arrived at the time requested 0800 to witness OIW Procedure Qualification Record (PQR) number CS064. QA Inspector observed that the test plate had been set up at 45 degrees. At approximately 0830 QA Inspector Brannon spoke with Quality Control Manager Mr. Thomas Tomovick in regards to the (PQR) that was going to start at 0800. Mr. Tomovick stated to QA Inspector Brannon that the PQR has been delayed and that OIW would contact Caltrans when they are ready to start the test. QA Inspector Brannon informed QA Lead Inspector Mr. Joe Adame of the above.

## OIW Shop-Bay 1 (PQR):

QC Inspector Mr. Gregson informed QA Inspector Brannon at approximately 1050 hour that OIW is ready to start the PQR test CS064. QA Inspector observed that the test plate is now set up at 80 degrees. QA Inspector Brannon asked OIW Mr. Vern Taute for copies of the material test records (MTR's) and welding wire certificate of conformance (COC) to verify the material OIW is using to perform the PQR test. Mr. Taute stated that he would make a copy for Caltrans. On receipt of the material MTR's and the welding wire COC QA Inspector Brannon verified the MTR's to the material test plate and found no discrepancy. QA Inspector Brannon did find discrepancy's in the welding wire COC and the actual welding wire. The welding wire COC shows Select 920-Nil classification E91T1-NilM and the tag on the welding wire and box the welding wire was in shows Select 920-Nil classification E81T1-NilM and the welding wire COC does not state the weld metal diffusible hydrogen as stated in the Special Provisions. QA Inspector Brannon informed Mr. Taute of QA Inspector Brannon's finding. Mr. Taute stated that he would call the manufacture Select-Arc, Inc. and inquire on the above finding. Mr. Taute canceled the PQR test for the day. QA Inspector Brannon informed QA Lead Inspector Mr. Joe Adame of the above.

## OIW Fabrication Shop-Bay 2 (Post Weld Heat Straightening):

QA Inspector Brannon randomly observed OIW welder Mr. Rick Hinkle ID#H49 continuing heat straightening on hinge k pipe beam fuse half section a124-12 (HPS 485 W) into acceptable tolerances. Mr. Hinkle was observed using a temperature indicator of 1050°F to insure that the heat straightening process did not exceed 1100 °F. Cause for heat straightening is due to the rolling process and welding distortion. Heat straightening is performed by flame straightening using a portable torch mounted on a traveler. Heat straightening randomly observed by QA Inspector Brannon appeared to comply with OIW's Upset Shortening Procedure (Heat Straightening) Procedure SP-006 revision 2. QA Inspector Brannon observed OIW QC CWI Inspector's Mr. Mike Gregson, Mr. Jose Salazar and Mr. Rob Walters randomly monitoring the heat straightening process. QA observed 14 heat passes on this date. Heat straightening completed on section A124-12 on this date. Total heat straightening passes 18.

## OIW Fabrication Shop-Bay 2 (sub-assembly):

QA Inspector Brannon randomly observed OIW qualified welder Mr. Tim O'Brien ID#O6 groove welding a hinge k pipe beam fuse section a124-13 (HPS 485 W). The complete joint penetration (CJP) weld is identified as weld joint #W3-01M. Mr. O'Brien was observed welding in the 1G (flat) position utilizing submerged arc welding (SAW) process with a 2.4mm diameter electrode, filler metal brand Lincoln Electric LA85 class F9A4-Eni5-G-H2. QA Inspector Brannon observed the OIW QC CWI Inspector's Mr. Mike Gregson, Mr. Jose Salazar and Mr. Rob Walters verifying that the pre-heat and welding parameters were in accordance with the Welding Procedure Specification (WPS). Welding parameters measured by QA are as follows: 598 amps and 32.9 volts and a travel speed of 457mm per minute appear to be in conformance with welding procedure specification (WPS) 4020 revision number 0.

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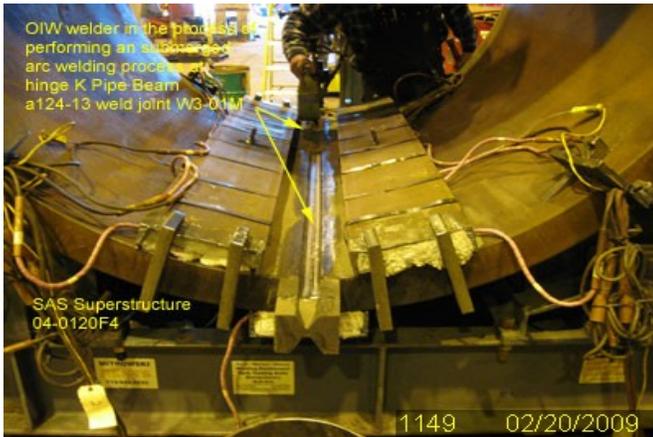
## Quality Assurance Inspection (VT/MT):

QA Inspector Brannon performed visual inspection (VT) and magnetic particle testing (MT) on WRR-2244-002 repair. See Caltrans Magnetic Particle Test Report, TL-6028 dated January 20, 2009 for additional information.

## Material, Equipment, and Labor Tracking:

QA Inspector Brannon performed a verification of personnel at OIW. QA Inspector Brannon observed 1 Supervisor, 3 Quality Control and 8 production personnel on this date.

The following digital photograph below illustrates observation of the activities being performed.



## Summary of Conversations:

As stated within this report.

## 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>	Brannon, Sherri	Quality Assurance Inspector
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<b>Reviewed By:</b>	Adame, Joe	QA Reviewer
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