

**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-007061**Date Inspected:** 04-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2230**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, Oregon**CWI Name:** Steve Barnett**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 3 (sub-assembly):**

QA Inspector Brannon randomly observed OIW qualified welder's Mr. Mikhail Bannikov ID#B28 and Mr. Liam Bui ID#B10 welding root/fill pass's joining stiffener ring MK #a125 (HPS 485 W) to hinge K pipe beam half section MK#a124-5 (HPS 485 W). The partial joint penetration (PJP) groove weld is identified as weld joint #WM3-05. Mr. Bannikov and Mr. Bui 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 Mr. Steve Barnett verifying that the pre-heat of 350°F and welding parameters were in accordance with the Welding Procedure Specification (WPS). Welding parameters measured by QA are as follows for root/fill: 360/585 amps, 26.9/35.6 volts and a travel speed of 406/457mm per minute respectively appear to be in conformance with approved welding procedure specification WPS 4020 revision number 1.

**OIW Fabrication Shop-Bay 3 (sub-assembly):**

QA Inspector Brannon randomly observed OIW qualified welder's Phoung Huynh ID#H4 welding joining hinge K pipe beam half section MK#a124-1 (HPS 485 W) to hinge K pipe beam half section MK#a124-9 (HPS 485 W) for sub assembly MK#120A-6. The complete joint penetration (PJP) groove weld is identified as weld joint #WM3-18. Mr. Huynh 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

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Inspector Brannon observed the OIW QC CWI Inspector Mr. Steve Barnett verifying that the pre-heat of 350°F and welding parameters were in accordance with the Welding Procedure Specification (WPS). Welding parameters measured by QA are as follows: 586 amps, 34.7 volts and a travel speed of 457mm per minute appear to be in conformance with approved welding procedure specification WPS 4020 revision number 1.

QC/QA Inspection (VT/MT) Bay 3:

QA Inspector Brannon observed QC Inspector Mr. Steve Barnett perform visual inspection (VT) and magnetic particle testing (MT) at hinge k pipe beam sub assembly fuse section 120A-4 after rough machining (HPS 485 W) and complete joint penetration (CJP) sub assembly section 120A-4 inside and outside diameter weld joint WM3-18. QA Inspector Brannon performed visual inspection (VT) and magnetic particle testing (MT) at hinge k pipe beam sub assembly fuse section 120A-4 after rough machining (HPS 485 W) and complete joint penetration (CJP) weld sub assembly section 120A-4 inside and outside diameter weld joint WM3-18. See Caltrans Magnetic Particle Test Report, TL-6028 dated June 4, 2009 for additional information.

QC/QA Inspection (VT/MT) Bay 3:

QA Inspector Brannon observed QC Inspector Mr. Steve Barnett perform visual inspection (VT) and magnetic particle testing (MT) on the root pass at hinge k pipe beam fuse section a124-5 (HPS 485 W) to ring stiffener MK#a125 weld joints WM3-05 partial joint penetration (PJP) weld. QA Inspector Brannon also, performed visual inspection (VT) and magnetic particle testing (MT) root pass at hinge k pipe beam fuse section a124-5 (HPS 485 W) to ring stiffener MK#a125 weld joints WM3-05 partial joint penetration (PJP) weld. See Caltrans Magnetic Particle Test Report, TL-6028 dated June 4, 2009 for additional information.

OIW Fabrication Shop-Bay 3 (sub-assembly):

QA Inspector Brannon observed no production activity on Hinge K Pipe Beam sub assemblies noted below for the duration of the shift.

Hinge-K Pipe Beam Sub Assembly, MK#102A-1 - MK#a111-1 forging to MK#a110-1 base plate idle.

Hinge-K Pipe Beam Sub Assembly, MK#102A-4 - MK#a111-4 forging to MK#a110-4 base plate idle.

Hinge-K Pipe Beam Sub Assembly, MK#120A-2 – MK#a124-3 half fuse to MK#a124-11 half fuse.

Hinge-K Pipe Beam Sub Assembly, MK#120A-2 Repair

Note: QA Inspector Brannon was informed by QA Leas Inspector Mr. Joe Adame that OIW had repaired (CWR-2244-005R3) at hinge k pipe beam fuse splice Mk#120A-2 weld joint WM3-18. Mr. Adame stated that OIW had used the incorrect welding procedure specification and had made the repair in the 3G vertical position and that OIW will be writing an internal NCR.

OIW Fabrication Shop-Bay 6 (sub-assembly):

QA Inspector Brannon randomly observed OIW qualified welder's Mr. Bounheune Savanh ID#S74 and Vincent Vu ID#V7 welding soudotape 316L stainless steel overlay to hinge k pipe beam fuse sub-assembly 120A-3. The weld joint is identified as 316L 2nd layer. Mr. Savanh and Mr. Vu was observed welding in the flat position utilizing automatic electro slag welding (ESW) overlay process with a .5mm x 60mm soudotape 309L stainless electrode, filler metal brand Soudotape class EQ316L automatic. QA Inspector Brannon observed the OIW QC CWI Inspector Mr. Steve Barnett verifying that the pre-heat of 20°C and welding parameters were in accordance with the Welding Procedure Specification (WPS). Welding parameters observed by QA Inspector Brannon are as follows: 1140 amps, 25.6 volts and a travel speed of 267mm per minute appear to be in conformance with

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approved welding procedure specification (WPS 7003) revision number 0.

### OIW Storage Yard

Hinge-K Pipe Beam Sub Assembly, MK#102A-2 - MK#a111-2 forging to MK#a110-2 base plate idle.

Hinge-K Pipe Beam Sub Assembly, MK#102A-3 - MK#a111-3 forging to MK#a110-3 base plate idle.

Note: QA Inspector Brannon also, observed pending repairs for MK#102A-2 weld joint W2-13 and MK#102A-3 weld joint W2-13 both have pending 1st time UT repairs.

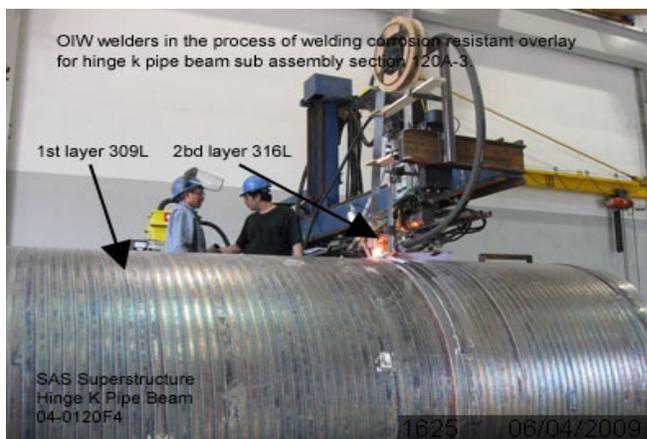
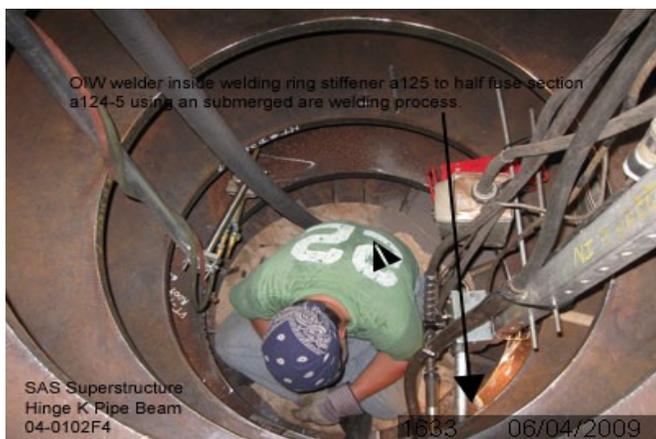
### Caltrans Status and Production Tracking:

QA Inspector Brannon also updated Caltrans status and production tracking logs for tracking of check samples, procedure qualification record (PQR), critical weld repairs (CWR), non-critical welding repairs (WRR), completed and in process welding, QC/QA non-destructive testing.

### Material, Equipment, and Labor Tracking:

QA Inspector Brannon performed a verification of personnel at OIW. QA Inspector Brannon observed 1 Supervisor, 1 Quality Control and 5 production personnel on this date.

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



### Summary of Conversations:

As noted 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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**Inspected By:** Brannon, Sherri

Quality Assurance Inspector

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**Reviewed By:** Adame, Joe

QA Reviewer