

**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-007398**Date Inspected:** 19-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, OR

<b>CWI Name:</b>	Steve Barnett		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	Yes	No	N/A

**Bridge No:** 34-0006**Component:** Hinge-K Components**Summary of Items Observed:**

Summary of Items Observed: On this date, Caltrans Quality Assurance Inspector (QA) Clete Henke was present at Oregon Iron Works, Inc. (OIW) in Clackamas, OR for observation of fabrication of the Hinge K Pipe Beams and related activities including in process welding and OIW Quality Control (QC) visual and nondestructive testing. The following observations were recorded:

OIW Fabrication Shop-Bay 3

Hinge-K Pipe Beam Fuse Sub-Assembly 120A-7:

a125 stiffener ring to a124-15 Fuse

The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Fuse Assembly 120A-2:

a124-3 to a124-11

The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Fuse Assembly 120A-4:

a124-13 to a124-4

The QA Inspector intermittently observed OIW qualified welder Vincent Vu (WID V7) during in-process welding of Soudotape 316L stainless steel overlay to hinge k pipe beam fuse sub-assembly 120A-4. The weld joint is identified as 316L 2nd layer. Mr. Vu was observed welding in the flat position utilizing automatic electro slag welding (ESW) overlay process with a .5mm x 60mm Soudotape 316L stainless electrode, filler metal brand Soudotape class EQ316L automatic. An OIW helper was observed assisting welder V7 during ESW activity. The

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## WELDING INSPECTION REPORT

( Continued Page 2 of 4 )

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QA Inspector observed OIW QC Inspector Steve Barnett regularly monitoring and recording the in process ESW parameters. The QA Inspector also intermittently observed in process welding parameters and determined that the ESW parameters (1175 amps, 26 volts, 254mm/min travel speed) and minimum preheat temperature of 70° F appeared to be in general compliance with the contract requirements and approved OIW Welding Procedure Specification (WPS) 7003.

Hinge-K Pipe Beam Fuse Assembly 120A-5:

a124-14 to a124-2

The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Fuse Sub-Assembly 120A-6:

A124-9 to a124-1

The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Hinge-K Pipe Beam Base Assembly 102A-1:

a111-1 forging to a110-4 base plate

The QA Inspector was notified by OIW QC Inspector Steve Barnett that he was preparing to perform Magnetic Particle Testing (MT) at back gouged area of weld joint W1-12/13 where a rejectable inclusion was located by Ultrasonic Testing and subsequently identified as CWR-003-R3. The QA Inspector observed as Mr. Barnett performed Visual Inspection (VT) and MT at the location noted above, locating no indications. The QA Inspector performed 100% VT & MT at the location as well and concurred with Mr. Barnett's assessment that the excavated area contained no relevant indications and had been appropriately prepared for Critical Weld Repair (CWR) in accordance with approved CWR procedure. Please reference TL-6028 report for this date for details. The QA Inspector intermittently monitored OIW welder Mikhail Bannikov (WID B28) as he initiated repair welding at the prepared location utilizing Flux Core Arc Welding (FCAW) in the Vertical (3G) position in accordance with approved OIW Welding Procedure Specification (WPS) 3048. The QA Inspector observed as Mr. Barnett performed MT on the completed root pass at CWR-003-R3 and noted that Mr. Barnett located no rejectable indications. The QA Inspector also performed 100% VT at the location noted above finding the root pass to be in general compliance with contract documents. The QA Inspector intermittently observed as welder B28 continued to deposit FCAW fill and cover passes in the 3G position in accordance with approved welding procedure and noted that welder B28 was maintaining continuous preheat utilizing a torch. The QA Inspector observed OIW QC Inspector Steve Barnett regularly monitoring and recording the in process FCAW parameters. The QA Inspector also intermittently observed in process welding parameters and determined that the FCAW parameters and minimum preheat/interpass temperature appeared to be in general compliance with the contract requirements – (25 volts, 250 amperes, 203mm/min travel speed). The QA Inspector subsequently verified that specified two hour post-heat of 230°C to 315°C was achieved and maintained.

Hinge-K Pipe Beam Base Assembly 102A-4:

a111-4 forging to a110-4 base plate

The QA Inspector intermittently monitored OIW welder Bui Liem (WID B10) during in progress Submerged Arc Welding (SAW) at weld joint W1-151 joining e107 stiffener to a111-4 forging. The QA Inspector observed as OIW QC Inspector Steve Barnett performed Magnetic particle Testing (MT) and Visual Inspection (VT) of completed root pass at weld joint W1-151. Mr. Barnett stated that he had located no rejectable indications. The QA Inspector subsequently performed 100% VT & 50% MT verification at the location noted above finding the

# WELDING INSPECTION REPORT

( Continued Page 3 of 4 )

root passes to be in general compliance with contract documents. Please reference TL-6028 report for this date for details. The QA Inspector intermittently observed as welder B10 continued to deposit SAW fill and cover passes in the flat (1G) position in accordance with approved welding procedures 4016. The QA Inspector noted the OIW welder was maintaining continuous preheat utilizing a torch. The QA Inspector observed OIW QC Inspector Steve Barnett regularly monitoring and recording the in process SAW parameters. The QA Inspector also intermittently observed in process welding parameters and determined that the SAW parameters and minimum preheat/interpass temperature appeared to be in general compliance with the contract requirements -- (W1-151 - Root: 31 volts, 410 amperes, 381mm/min travel speed/Fill: 35 volts, 585 amperes, 432mm/min travel speed).

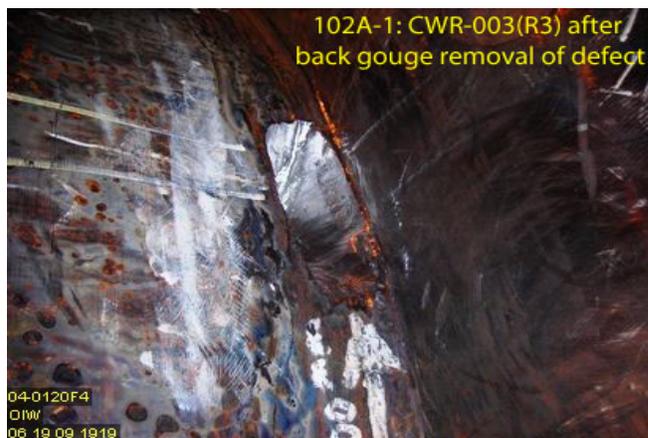
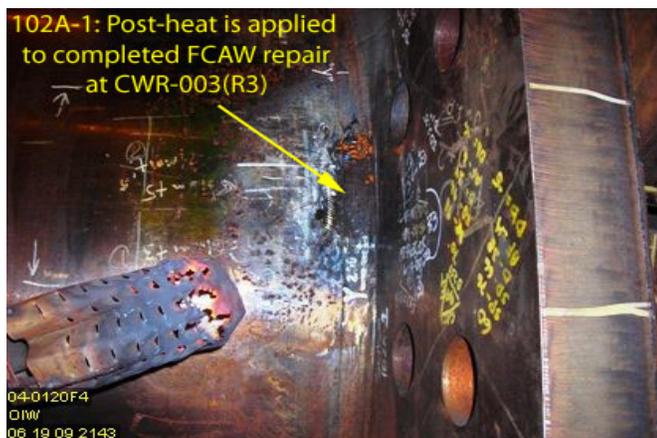
OIW Fabrication Shop-Bay 6

Hinge-K Pipe Beam Fuse Assembly 120A-3:

The QA Inspector observed no production activity on the assembly noted above for the duration of the shift.

Material, Equipment, and Labor Tracking:

The QA Inspector performed verification of personnel involved with this project and equipment in use. The QA Inspector accounted for 4 OIW production personnel and 1 Quality Control Inspector present on this date.



## Summary of Conversations:

As noted in the body of the report.

## Comments

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## WELDING INSPECTION REPORT

*( Continued Page 4 of 4 )*

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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>	Henke,Clete	Quality Assurance Inspector
<b>Reviewed By:</b>	Adame,Joe	QA Reviewer

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