

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-008397**Date Inspected:** 03-Aug-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1100**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** Steve Barnett, Jose Salazar**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 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 Base Assembly 102A-1:

a111-1 forging to a110-1 base plate

The QA Inspector intermittently monitored OIW welders Bui Liem (WID B10), Mikhail Bannikov (WID B28) and Vincent Vu (WID V7) during in progress Submerged Arc Welding (SAW) at weld joints W1-140 joining b108 radial stiffener to a111-4 forging, W1-138 joining f108 radial stiffener to a111-4 forging and W1-125 joining a108 radial stiffener to a111-4 forging respectively. 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 joints referenced above. Mr. Barnett stated that he had located no rejectable indications. The QA Inspector subsequently performed 100% VT & 50% MT verification at the noted locations finding the 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 welders B10, B28 & V7 continued to deposit SAW fill and cover passes in the horizontal (2G) 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

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preheat/interpass temperature appeared to be in general compliance with the contract requirements -- (W1-138: 35 volts, 585 amperes, 432mm/min travel speed).

Hinge-K Pipe Beam Base Assembly 102A-3:

a111-3 forging to a110-3 base plate

The QA Inspector was notified by OIW QC Inspector Jose Salazar that he was preparing to perform Magnetic Particle Testing (MT) at three back gouged areas of weld joint W1-12/13 where rejectable inclusions were located by Ultrasonic Testing and subsequently identified as CWR-006. The QA Inspector observed as Mr. Salazar 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. Salazar'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 Craig Jacobsen (WID J6) 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. QA Inspector intermittently observed as welder J6 continued to deposit FCAW fill passes in the 3G position in accordance with approved welding procedure and noted that continuous preheat was maintained utilizing a torch. SAW was still in-process at CWR-006 during shift turnover and the QA Inspector noted that approved OIW welder Yuriy Bannikov (WID B61) took over welding during swing shift. The QA Inspector observed OIW QC Inspectors Jose Salazar and Steve Barnett regularly monitoring and recording the in process FCAW parameters during day and swing shifts respectively. 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. Welding on CWR-006 was still underway when the QA Inspector departed for the day at 1930 hours.

OIW Fabrication Shop-Bay 6

Hinge-K Pipe Beam Fuse Assembly 120A-1:

a124-6 to a124-7

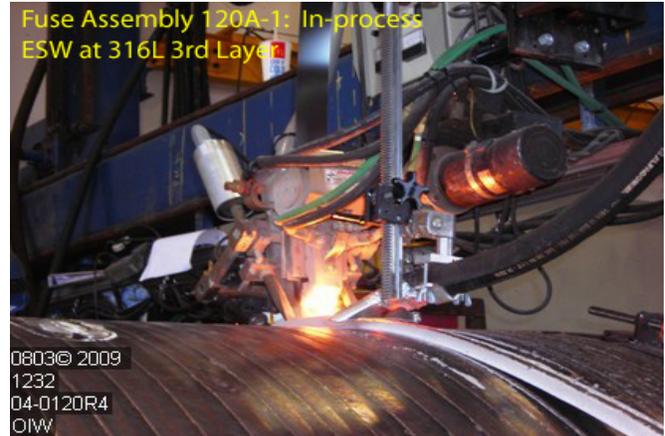
The QA Inspector intermittently observed OIW qualified welder Bounheune Savanh (WID S74) during in-process welding of Soudotape 316L stainless steel overlay to hinge k pipe beam fuse sub-assembly 120A-1. The weld joint is identified as 316L 3rd layer. Mr. Savanh was observed welding in the flat position 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 S74 during ESW activity. The 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 (1200 amps, 25.7 volts, 216mm/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.

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 5 OIW production personnel and 1 Quality Control Inspector present on this date.

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Summary of Conversations:

As noted in the body of the 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.

Inspected By: Henke,Clete

Quality Assurance Inspector

Reviewed By: Adame,Joe

QA Reviewer