

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-012849**Date Inspected:** 29-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**CWI Name:** M. Gregson, J. 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 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 101A-1:

The QA Inspector witnessed WID #S53 (Jerry Shepherd) performing backgouging, on the Weld Joint #WM4-1. The QA Inspector noted that this was the Complete Joint Penetration (CJP), AWS D1.5 B-U7-S, Fuse 120A-1 to Forging 102A-1. The QA Inspector noted that this area was previously rejected, during the Ultrasonic Testing (UT), by QC Inspector Rob Walters. The QA Inspector reviewed the applicable UT report, provided by Lead QC Inspector Mike Gregson and noted that the report showed this as Class "A" rejectable indication (+1), with a recorded depth of 13 mm and length of 13 mm.

The QA Inspector witnessed WID #S53 perform the backgouge utilizing the air carbon arc process and then utilizing a mechanical grinder with a attached burr bit, to smooth the backgouged area to shiny metal. During the air carbon arcing process, the QA Inspector randomly witnessed WID #S53 randomly pre-heat the area with a oxygen/acetylene torch and perform the pre-heat verification with a 150 degree Fahrenheit (66C) Tempilstick. The QA Inspector also randomly verified the temperature to be a minimum of 150 degrees Fahrenheit.

The QA Inspector was later informed by Lead QC Inspector Mike Gregson that this excavation was complete and that he had performed 100 % Visual and Magnetic Particle Testing (VT/MT). QC Inspector Gregson explained that no rejectable indications were found at the time of testing and the excavated area was acceptable. The QA Inspector then witnessed WID #S53 in process of performing the Flux Core Arc Welding (FCAW) on the repair

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and noted that QC Inspector Gregson was present. QC Inspector Gregson explained to the QA Inspector that he had previously recorded in-process welding parameters of 24.7 amps/226 volts and a travel speed of 7 inches per minute (i.p.m). QC Inspector Gregson explained that he had recorded pre-heat temperature of approximately 350 degrees Fahrenheit (66C) and that Welding Procedure Specification (WPS) 3048 was being utilized, for the repair. The QA Inspector randomly recorded a pre-heat temperature of approximately 350 degrees Fahrenheit (66 C) and noted that the welding parameters appeared to be in compliance with the applicable WPS 3048. At approximately 1600, the QA Inspector witnessed WID #S53 applying post heat to the completed weld repair, utilizing an oxygen-acetylene torch. WID #S53 explained to the QA Inspector that the FCAW was completed at 1500 and the post-heat will be applied to the area until end of this shift and swing shift will continue. The QA Inspector noted that the FCAW and VT/MT testing appeared to be in compliance with AWS D1.5 and the applicable WPS. The QA Inspector was present on this swing shift and noted that an OIW helper was continuing the post-heat, until 1700 and that QC Inspector Gary Mundt was present. QC Inspector Mundt then explained that WID #V7 (Vincent Vue) will start the excavation, on the second repair area, in the same manner as mentioned above. QC Inspector Mundt explained he will be present the entire shift, to monitor welding activities and perform the in-process VT/MT testing.

Hinge-K Pipe Beam Assembly 102A-2:

The QA Inspector witnessed WID #B62 (Marcus Belgarde), performing the submerged arc welding (SAW) on the a110 Base 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) #W2-17 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 the average welding parameters for the SAW fill passes, currently in process, were recorded at 580 amps/32.6 volts, with a pre-heat of approximately 350 degrees Fahrenheit (177 C) and travel speed of 21 inches per minute (i.p.m). The QA Inspector randomly verified pre-heat of approximately 350 degrees 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 102A-3:

The QA Inspector witness an OIW Machinist continuing to machine the completed HPS 485W, mill-to-bear stiffeners. See attached picture below.

Hinge-K Pipe Beam Assembly 120A-8:

The QA Inspector witnessed welder WID #F17 (Igor Frolov) performing Flux Core Arc Welding (FCAW), on the completed stainless steel overlay, in the flat position and occasional grinding. The QA Inspector noted that QC Inspector Jose´ Salazar was present and QC Inspector Salazar explained that WID #F17 was performing the FCAW to repair the underfilled areas and undercut, present in the overlay after the ESW was complete. QC Inspector Salazar explained that the grinding was being performed, to remove excessive high spots and misc. visual discrepancies present in the overlay. QC Inspector Salazar explained that welding parameters were previously recorded during the FCAW, at 175 amps/25.7 volts, travel speed of 355 mm/min. and a pre-heat temperature recorded at approximately 150 degrees Fahrenheit (66 C). The QA Inspector verified the welding parameters and the minimum pre-heat temperatures were in compliance with the applicable WPS 7003. The QA

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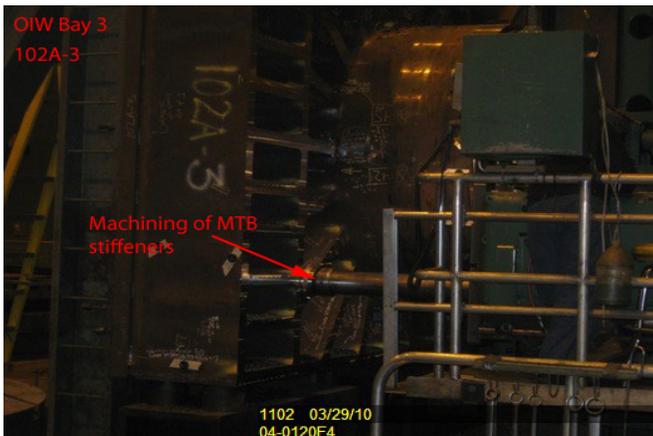
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Inspector verified WID #F17 was currently qualified for this welding process and position and that the FCAW being performed, appeared to be in compliance with the applicable WPS 3293.

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: 4 OIW production personnel and 2 QC Inspectors on day shift- 2 OIW production and 1 QC on swing shift .

The QA Inspector noted that the following personell were present at AG Machine shop:1 Machinist and 1 Machinist supervisor.



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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.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer
