

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-010725**Date Inspected:** 09-Dec-2009**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:**

Quality Assurance Inspector Sean Vance arrived 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:

AG Machining (Boring, OR)

Hinge-K Pipe Beam Fuse Assembly 120A-1: 12/9/09

a124-6 Half Fuse to a124-7 Half Fuse

On this date the QA Inspector arrived at AG Machine to observe the informal PT inspection of Fuse 120a-1 to verify indications presently visible on the overlay surface. The QA Inspector met with OIW QC Inspector Jose Salazar, OIW welder (WID# C34) Mark Craig & an OIW Machinist. The QC Inspector had previously arrived to perform 100% "informational" penetrant (PT) testing on the overlay and any possible weld repairs. QC Inspector Salazar informed the QA Inspector that per the approved OIW Liquid Penetrant testing (PT) procedure QC-114 the piece to be examined should be at a minimum of 70 degrees Fahrenheit. For this inspection OIW are attempting to locate any discrepancy that would need to be repaired prior to final inspection. Once all repairs are complete OIW will later perform a formal PT inspection on 100% of the Fuse overlay per the approved PT procedure. The QA Inspector witnessed QC Inspector Jose Salazar in process of cleaning "sections" on the overlay with acetone/cleaner and also later applying penetrant and developer. The QA Inspector spoke with Mr. Salazar who explained that any surface indications that were present during the informational PT testing would be marked for repairing and OIW welder Mark Craig would then grind out and perform GTAW on the repairs. The QA Inspector later noted that after the first "section" of penetrant testing had been completed. Mr. Salazar stated that

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multiple indications were present which appeared to be small clusters of slag inclusions. The QA Inspector also witnessed Mr. Craig grinding out these indications, to a depth of .5-2 mm and then later setting up to perform the GTAW.

The QA Inspector noted that Mr. Craig was currently qualified to perform these repairs and would be utilizing welding procedure specification (WPS 8022). The QA Inspector witnessed Mr. Craig performing the pre-heat required, utilizing a torch and then observed a temperature of approximately 150 degrees Fahrenheit, after the pre-heat was complete. The QA Inspector noted that 125 degrees Fahrenheit minimum was required, per WPS 8022. The QA Inspector witnessed AG Machinist rotating the fuse assembly to access the weld repair areas in the flat position. The QA Inspector then observed Mr. Mark Craig performing the GTAW on the previously excavated repair areas. The QA Inspector also observed QC Inspector Jose Salazar recording the in-process welding parameters of 121 amps and 15.5 volts. The QA Inspector also verified these welding parameters. The QA Inspector noted that after completion of these weld repair areas, the OIW Machinist performed the grinding with a buffer wheel on the completed weld repair to "flush" with the finished overlay surface. The QA Inspector observed that the Fuse was then rotated and the QC Inspector performed 100% informational PT Inspection on another section of the finished overlay. The QA Inspector also observed several more indications that would need to go through the above mentioned repair procedure.

The QA Inspector later spoke with QC Inspector Salazar and Mr. Salazar explained that the informational PT testing is complete and there were approximately 19 weld repair "areas", with some cluster of small indications per "area". The QA Inspector observed that Mr. Salazar was present the entire time in which the GTAW welding was being performed.

(See attached pictures below)

*Note: During the GTAW, the QA Inspector noted that Mr. Craig attached the welding ground clamp, to an attached C-clamp, to eliminate the possibility of arc striking on the assembly. OIW had previously encountered an issue with an improper ground which resulted in arc strikes on the interior ring stiffeners of the previous Fuse(120A-2).

Material, Equipment, and Labor Tracking(MELT):

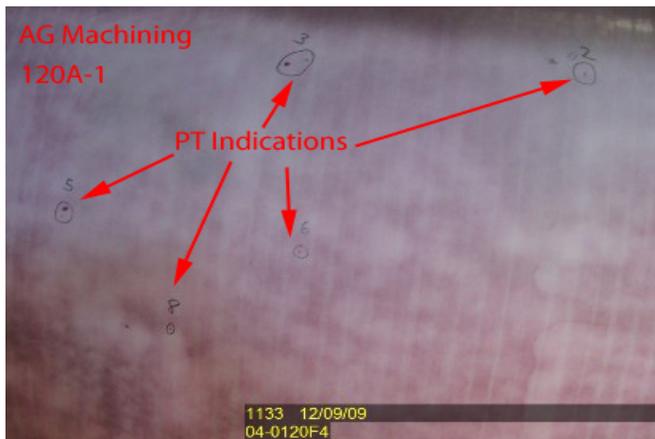
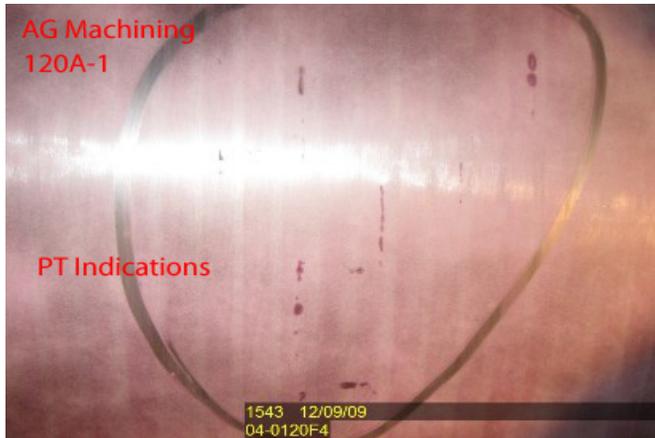
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project.

The QA Inspector observed at Oregon Iron Works: 2 OIW production personnel and 1 QC Inspector.

The QA Inspector observed at AG Machine shop: 1 AG machinist, 1 OIW machinist, 1 OIW welder and 1 OIW QC. The QA Inspector noted that no work was performed at OIW Vancouver paint shop.

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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.

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