DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-014023
Date Inspected: 14-May-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 1000
OSM Departure Time: 1830
Location: Clackamas, OR

CWI Name:	M. Gregson, J. Salazar, G. Mundt		**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-4:
The QA Inspector observed WID # S53 (Jerry Shepherd), performing backgouging on the weld joint, designated as # W4-01. The QA Inspector noted that this weld joint was the 120A-4 Fuse to 102A-4 Forging and was designated as an AWS D1.5 B-U7-S, Complete Joint Penetration (CJP). The QA Inspector noted that the Weld Repair Report (WRR-10-03) was previously completed by OIW QC, prior to the backgouging being performed. The QA Inspector observed Mr. Shepherd was performing the backgouge in the vertical position, utilizing the Carbon Arc process and that pre-heat was intermittently applied, utilizing a previously set-up stationary torch or rosebud. The QA Inspector observed that the backgouge was being performed on the non-critical weld repair, which was previously ultrasonically tested and rejected by OIW QC Inspectors. The QA Inspector observed that Mr. Shepherd was currently performing this backgouge on “Indication #1”, as recorded on OIW’s Ultrasonic Examination Report (# 2244-10-UT-04) and that Mr. Shepherd was performing this, from the exterior of the weld joint. The QA Inspector spoke with Jerry Shepherd and Mr. Shepherd explained that he had previously completed the backgouge, from the interior side of the Weld Joint # W4-01. The QA Inspector noted that this was reported as “Indication # 2”, on OIW’s completed Ultrasonic Examination Report (# 2244-10-UT-04). Mr. Shepherd explained to the QA Inspector that during the backgouging process on # 2, he had visually discovered a slag pocket or inclusion and then a trailing slag line from this pocket, approximately 6 inches long. Mr. Shepherd

explained to the QA Inspector that he had completely removed this visible slag, utilizing Carbon arcing and then grinding to a depth of approximately 40 mm. Mr. Shepherd then explained that he will continue backgouging on the current weld repair # 1 and was currently at a depth of approximately 50 mm. Mr. Shepherd explained that at this time, no defect was visually discovered.
The QA Inspector observed that QC Inspector Jose´ Salazar was present and QC Inspector Salazar explained that the pre-heat was verified, prior to starting the Carbon Arcing on these two non-critical weld repairs. QC Inspector Salazar explained that he was currently informed that the backgouged excavation was now at a depth of approximately 50 mm. QC Inspector Salazar explained to the QA Inspector that he was aware of the 65 % maximum depth limit for a non-critical weld repair and he will closely monitor the depth on the excavation and that it will not exceed 58 mm deep. The QA Inspector noted that 58 mm is 65 % of the weld depth and that the minimum temperature required, prior to carbon arcing, is 150 degrees Fahrenheit. QC Inspector Salazar explained that the Flux Core Arc welding (FCAW) will probably start on 5/17/10 and OIW approved Welding Procedure Specification (WPS) 3048 will be utilized, for the two repairs. The QA Inspector noted that the above mentioned in process backgouging on the two non-critical repairs, appears to be in compliance with AWS D1.5.
The QA Inspector later observed that QC Inspector Salazar had completed the VT/MT on the previously excavated weld repair # 2 and found no rejectable indications, as noted next to the area by QC Inspector Salazar. The QA Inspector then performed VT/MT on the excavation and found no rejectable indications. The QA Inspector measured the excavation utilizing a 150 mm long pocket steel ruler and recorded the measurements as follows: 260 mm Long x 25 mm Wide x 45 mm Deep, including the approximate 3 mm weld reinforcement on the depth. The QA Inspector then completed an applicable Magnetic Testing report (TL 6028), on this date. See attached pictures below.

Hinge-K Pipe Beam Assembly 102A-3:
The QA Inspector observed WID #B62 (Marcus Belgarde) performing submerged Arc Welding (SAW) on weld joint (W2-19). The QA Inspector observed that WID #B62 was performing the SAW in the flat position and was currently qualified for this. The QA Inspector noted that this weld joint was a partial penetration, AWS D1.5 TC-P4-S, a109 Post Tension Cap plate to a106 HPS 485 W stiffener. The QA Inspector observed that OIW QC Inspector Jose' Salazar was present at the time of welding and QC Inspector Salazar explained that he was intermittently checking the welding parameter amps, volts, travel speed and pre-heat temperatures. The QA Inspector randomly observed QC Inspector verify welding amperage of 585 amps, 33 volts and a travel speed of 18 inches per minute. The QA Inspector observed that the fill passes were currently in process and that the parameters were in compliance with the applicable Welding Procedure Specification (WPS) 4020. The QA Inspector then randomly performed a pre-heat check and noted that the temperature was approximately 350 degrees Fahrenheit.
The QA Inspector observed that OIW Production Lead Troy Smith was present on this shift and Lead Troy Smith explained that the SAW will continue throughout the entire shift. The QA Inspector noted that the above mentioned SAW appears to be in compliance with the applicable WPS.
The QA Inspector was present on this swing shift and observed no work performed on this assembly.

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.

WELDING INSPECTION REPORT

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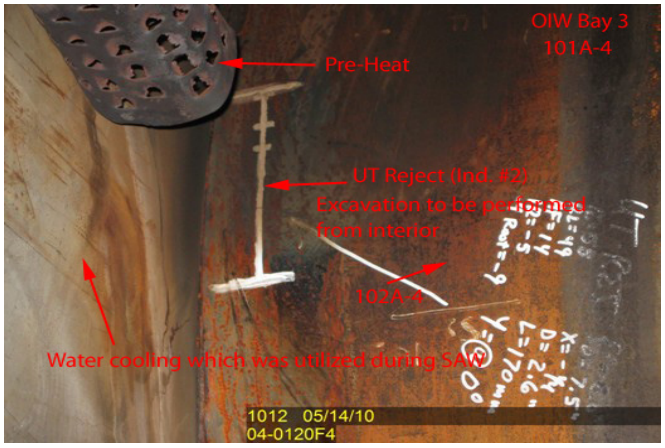

Summary of Conversations:

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