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

Bay Area Branch
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Contract #: 04-0120F4
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-006206
Date Inspected: 13-Apr-2009

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

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Rob Walters			**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:

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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:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-4:
a111-4 Forging to a110-4 Base Plate
QA Inspector randomly noticed the submerged arc welding (SAW) on CJP (AWS D1.5 TC-U9a-S) pipe beam base plate, (piece mark identified as a110-4) to pipe forging, (piece mark identified as a111-4), was completed on this date.
QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that this assembly 102A-4 would me moved, in preparation for heat straightening of the a110-4 base plate, due to plate distortion caused by the submerged arc welding (SAW) operations. Mr. Mike Gregson explained that the heat straightening process would be performed in accordance to OIW approved heat straightening procedure (SP-006 Rev.2) and AWS D1.5 (sect. 3.7.3).
Mr. Mike Gregson also explained that the QA Inspector will be notified prior to commencing heat straightening and QC Inspector Rob Walters will be present at all times to verify heat applied does not exceed 1100F (600 C),

per AWS D1.5 and OIW approved procedure.
Mr. Mike Gregson explained to QA Inspector that Brinell hardness readings will be taken at random locations, for metallurgical control of material properties and a detailed heat straightening report would follow, after completion of the heat straightening process.

Hinge-K Pipe Beam Assembly 102A-3:
a111-3 Forging to a110-3 Base Plate
QA Inspector randomly noticed the submerged arc welding (SAW) on CJP (AWS D1.5 TC-U9a-S) pipe beam base plate, (piece mark identified as a110-3) to pipe forging, (piece mark identified as a111-3), was complete and this assembly 102A-3 was in-process of being heat straightened, of the a110-3 base plate, due to plate distortion, caused by the submerged arc welding (SAW) operations.
QA Inspector spoke with QC Inspector Mike Gregson and Mr. Mike Gregson explained that the heat straightening process was being performed in accordance with the OIW approved heat straightening procedure (SP-006 Rev.2) and AWS D1.5 (sect. 3.7.3).
QA Inspector witnessed QC Inspector Rob Walters was present at all times to verify heat applied does not exceed 1100F (600 C), per AWS D1.5 and OIW approved procedure.
QA Inspector performed a random check of heat applied and verified a temperature of approximately 900F (482 C), which is in compliance with AWS D1.5 and the OIW applicable heat straightening procedure.
Mr. Mike Gregson explained to QA Inspector that Brinell hardness readings will be taken at random locations, for metallurgical control of material properties and a detailed heat straightening report would follow, after completion of the heat straightening process.

Hinge-K Pipe Beam Fuse Sub-Assembly 120A-10:
a125 Stiffener Ring to a124-10 Half Fuse
QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian perform submerged arc welding (SAW) on PJP (AWS D1.5 TC-P5-S) internal ring stiffener, (piece mark identified as a125), to half fuse pipe sub-assembly, (piece mark identified as a124-10), in the flat position (1G).
QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder #O6, was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020).
QA Inspector noticed Mr. Mike Gregson and QC Inspector Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Tim O'Brian was in compliance with the applicable welding procedure specification (WPS 4020).
QA Inspector verified Mr. Tim O'Brian was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 375 degrees Fahrenheit, which is in compliance with the OIW welding procedure specification (WPS 4020).

Hinge-K Pipe Beam Fuse Assembly 120A-2:
a124-3 Half Fuse to a124-11 Half Fuse
QA Inspector randomly witnessed welder #S53, Mr. Jerry Shepherd, perform submerged arc welding (SAW) on CJP (AWS D1.5 B-U3c-S), half fuse pipe assembly, (piece mark identified as a124-3), to half fuse pipe assembly, (piece mark identified as a124-11), in the flat position (1G).
QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder #S53, was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS

4020).

QA Inspector noticed Mr. Mike Gregson and QC Inspector Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Jerry Shepherd was in compliance with the applicable welding procedure specification (WPS 4020).

QA Inspector verified Mr. Jerry Shepherd was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 375 degrees Fahrenheit, which is in compliance with the OIW welding procedure specification (WPS 4020). See pre-heating pictures below…..

QA Inspector measured a weld joint bevel angle of 30 degrees, (60 degrees included angle), which is in compliance with this AWS D1.5 B-U3c-S weld joint configuration.

Material, Equipment, and Labor Tracking

QA Inspector Sean Vance performed a verification of personnel at Oregon Iron Works, Inc. and witnessed 6 OIW production personell and 2 QC.

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