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-012848
Date Inspected: 25-Mar-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			**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 OIW QC Inspector Rob Walters continuing to perform Ultrasonic Testing (UT) on the previously completed submerged arc welding (SAW) joint, # WM4-1. The QA Inspector noted that this was a Complete Joint Penetration (CJP), AWS D1.5 B-U7-S, piece mark Fuse 120A-1 to Forging 102A-1. QC Inspector Walters explained that he had previously performed a calibration utilizing an AWS IIW Type 2 Reference Block, in preparation for the angle beam ultrasonic testing of the weld, with a 60 and 70 degree Lucite wedge, coupled to 2.25 MHz frequency transducers. QC Inspector Walters explained that the testing was currently being performed on Face “B”, of the 102A-1 fuse side and 2 rejectable indications were found. QC Inspector Walters explained that the rejectable indications were previously discovered during the testing on Face “A” on the Forging side and the rejectable areas were marked on the weld joint. QC Inspector Walters explained that the information, i.e. depth, location etc., currently has not been written next to the rejectable areas yet and the information will be written on the part, after the inspection is complete. QC Inspector Walters explained that the indications were at depths requiring an excavation from the outside of the weld joint, and one from the inside of the weld joint. QC Inspector Walters then explained that the testing will continue with the 60 degree testing angle until complete and he will then perform the testing with a 70 degree angle. The QA Inspector noted that the UT performed by QC Inspector Walters, appeared to be in compliance with AWS D1.5 and the applicable testing procedure NP-2244-(13)-01.

The QA Inspector was later informed by Lead QC Inspector Mike Gregson that the UT was complete on the WJ # WM4-1 and no additional rejects were found. QC Inspector Gregson explained that UT testing will not be performed on Face “B”,on the forging side. QC Inspector Gregson explained that the testing will not be performed on this side, due to a full volumetric already performed from face “A”, on the forging side and Face “B", on the Fuse side. The QA Inspector informed QC Inspector Gregson that per AWS D1.5, all welds be tested by passing sound through the entire volume of the weld an d the HAZ, in two crossing directions, wherever practical.
QC Inspector Gregson also explained that the root face interpretation during the UT performed on the WJ#WM4-1, was calculated as the depth of the measured backgouge, plus 6 mm out for the root face. QC Inspector Gregson explained that this measurement is between 65 mm and 72 mm deep from Face “A” and the additional 4 db, will be subtracted from the indication rating, per AWS D1.5.
The QA Inspector notified Lead QA Inspector Joe Adame of the above mentioned discrepencies and QA Inspector Adame explained that these discrepancies, will be investigated further.

AG Machining (Boring, OR)
On this date, the QA Inspector arrived at AG Machine shop, to witness OIW switch out Fuse 120A-7 and Fuse 120A-6, for final machining. Upon arrival, the QA Inspector witnessed METRO personell place two slings around the Fuse 120A-6, which had previously arrived at AG on a flatbed trailer. The QA Inspector then witnessed METRO personell attach the slings to a forklift, with a hydraulic lifting boom and hook and placing the Fuse on two 4 x 4 lengths of wood, previously placed on the ground. The QA Inspector then witnessed METRO personell remove these slings from the Fuse 120A-6 and place them around the Fuse 120A-7, currently positioned in a horizontal machining lathe. The QA Inspector noted that a thermal blanket and 2 yellow banded shrouds, had been previously placed on this Fuse, to protect the exterior machined surface, during the rigging activities and transport. The QA Inspector then witnessed Metro Machinery placing this Fuse on a flatbed trailer equipped with two saddles with rubber cushions, which had been placed. The QA Inspector then witnessed Metro personell using two come-a-longs to anchor the Fuse to the trailer and placing rubber cushions on the interior of the Fuse, securing with additional come-a-longs. The QA Inspector noted that the Fuse 120A-7 was being transferred to OIW Vancouver, WA, in preparation for the primer repair areas on the interior portion of the Fuse. The QA Inspector then witnessed Metro picking up the Fuse 120A-6, utilizing the forklift and slings and position into the horizontal lathe. The QA Inspector then witnessed the AG Machinist tighten the lathe chucks, to secure the Fuse in place. The AG Machinist then explained that the first cut pass, for final machining, will start on 3/26/10. See attached pictures below.

Hinge-K Pipe Beam Assembly 120A-8:
The QA Inspector was present on this swing shift and witnessed WID #V7 (Vincent Vue), setting up to continue the Electroslag Welding (ESW), on the Fuse 120A-8. WID #V7 explained to the QA Inspector that the pre-heat was currently being applied, utilizing a rosebud torch, to heat the fuse prior to submerged arc welding (SAW). The QA Inspector noted that per Welding Procedure Specification (WPS) 7003, the minimum required temperature is 70 degrees Fahrenheit (21). WID #V7 explained to the QA Inspector that the flux recovery system, was currently not functioning and he is working on this.
The QA Inspector noted that QC Inspector Gary Mundt, was currently present on this swing shift and QC Inspector Mundt explained he will monitor the welding activities on the project, if any.

Material, Equipment, and Labor Tracking (MELT)
QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project.

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The QA Inspector observed at Oregon Iron Works: 2 OIW production personnel and 2 QC Inspectors.
The QA Inspector observed at AG Machine shop: 2 METRO, 1Driver, 1 Machinist and 1 Machinist supervisor.

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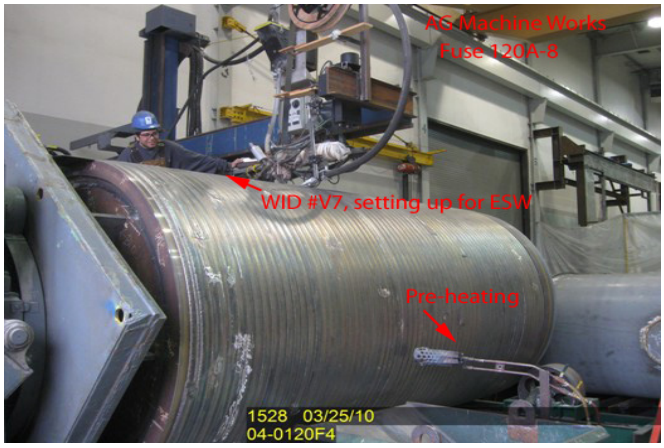

Summary of Conversations:

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