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

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

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-014476
Date Inspected: 24-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:	S. Barnett, 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:
See Summary of Conversations below.

Hinge-K Pipe Beam Assembly 101A-2:
The QA Inspector observed OIW QC Inspector Steve Barnett performing Visual and Magnetic Particle Testing (VT/MT), on the previously completed Critical Weld Repair (CWR) # 2244-026. The QA Inspector noted that this CWR was a base metal gouge repair on the forging, which was caused by an OIW painter, who had inadvertently left a sandblasting hose on during lunch break.
The QA Inspector noted that prior to QC Inspector Barnett performing the testing, that the 48 hrs cooling time had expired and that Mr. Barnett was performing the testing from the interior of the assembly, on the area which was repaired and then surrounding base metal areas which were ground clean to base metal. After the testing was complete, QC Inspector Barnett explained that he had found no rejectable or relevant indications on these areas.
The QA Inspector observed that QC Inspector Barnett had performed the testing in accordance to OIW approved procedure QC-113 Rev. # 3.
The QA Inspector then performed 100% VT/MT on the above mentioned CWR, in the same manner as mentioned above and found no rejectable or relevant indications during the testing. See attached picture and completed

Magnetic Testing Report (TL 6028), for additional details.
After the above mentioned final VT/MT was complete, the QA Inspector then observed Mr. Barnett perform an ultrasonic calibration utilizing a USN 58L testing instrument. The QA Inspector observed QC Inspector Barnett utilizing an AWS Type 2 Metric calibration block, to calibrate the instrument with a 60 degree testing angle attached to a 2.25 MHZ transducer. Once the calibration was complete by Mr. Barnett, the QA Inspector then utilized the identical block to perform a calibration in the same manner.
The QA Inspector then observed Mr. Barnett perform 100 % Ultrasonic Weld Testing on the above mentioned CWR. The QA Inspector observed that the testing was being performed from the exterior of the repair and that the area had been previously cleaned approximately 16" (400 mm) x 16" 9400 mm) square to accommodate a full volumetric scan of the repair area. The QA Inspector observed QC Inspector Barnett scanning all around the repair area and surrounding heat affected zone. Once the testing was complete, QC Inspector Barnett explained that no rejectable or recordable indications were found during the testing. The QA Inspector then performed 100 % Ultrasonic Testing, in the same manner which was performed by QC Inspector Barnett and found no rejectable indications. See attached picture and completed Ultrasonic Testing report 9TL 6027), for additional details.

Hinge-K Pipe Beam Assembly 101A-4:
The QA Inspector was informed by Lead QC Inspector Mike Gregson that QC Inspector Rob Walters had performed 100 % Ultrasonic Testing (UT), on the previously completed non-critical weld repair, on Weld Joint # W4-01. The QA Inspector noted that this Complete Joint Penetration (CJP), AWS D1.5 B-U7-S weld joint, is the Fuse 120A-1 to Forging 102A- and observed that this non-critical repair was plotted as "indication # 1", per OIW's completed Ultrasonic Examination Report (# 2244-10-UT-04).
After reviewing the Ultrasonic Examination testing report, it appeared that Mr. Walters had performed the testing utilizing OIW approved procedure # NP-2244-(13)-01 and found no rejectable or recordable indications, during the testing. After reviewing the testing report, it appeared that Mr. Walters had performed the testing from Face A, the exterior face of the weld joint axis from the forging side only, utilizing a 60 and 70 degree angle, attached to a 2.25 MHz transducer. After further review of the testing report, it appeared Mr. Walters had performed the inspection from both sides of the weld axis from Face B, the interior face of the weld joint, utilizing a 70 degree testing angle attached to a 2.25 MHz transducer. Per the testing report, Mr. Walters had found no rejectable or recordable indications after the testing was complete. The QA Inspector noted that the 72 hrs. cooling time prior to the inspection which was performed by Mr. Walters, had previously expired.
The QA Inspector then performed 100% Ultrasonic Testing on the above mention non critical weld repair in the same manner as mentioned above and found no rejectable or recordable indications. The QA Inspector noted that per AWS D1.5, "Only those discontinuities which are rejectable need be recorded on the test report, except that for welds designated in the contract documents as being "Fracture Critical," ratings which are up to and including 6 dB less critical than rejectability, shall be recorded on the test report".
After the testing was complete, the QA Inspector notified Lead QA Inspector Mike Gregson of the testing results and completed an applicable Ultrasonic Testing Report (TL 6027), on this date. The QA Inspector noted that an additional non critical weld repair, plotted as "indication # 2" per the above mention UT report, was still pending repair.

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 Clackamas: 4 OIW production personnel and 2 QC Inspectors. The QA Inspector observed at Oregon Iron Works Vancouver: 6-8 OIW/Morgan production personell and 1 QC.

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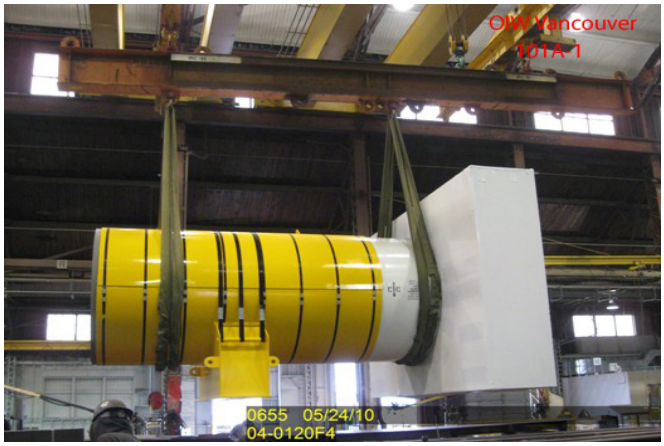

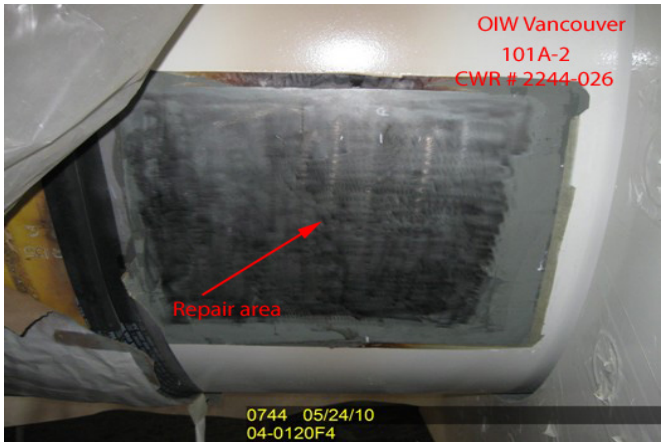

Summary of Conversations:

Lead QA Inspector Joe Adame had previously notified the QA Inspector that OIW Vancouver will be transporting the completed HPB 101A-1, from the Vancouver facility to the site. The QA Inspector arrived in Vancouver at approximately 0730 on this date and met with Lead QA Inspector Adame. Upon arrival, the QA Inspector observed that Morgan Machinery Moving had previously placed a semi-truck with an attached flatbed trailer, into the OIW Production Bay, which the HPB was located. The QA Inspector then observed OIW production attaching two rigging slings around the HPB and then start to mobilize the overhead crane to pick up the HPB. Once the Bay Crane was mobilized, the QA Inspector observed that the hooks were lowered to attach to a spreader bar, in which the slings around the HPB were then attached. The QA Inspector then observed OIW picking the HPB from the Bay floor and then OIW production applying white colored shrink wrap around the entire end of the forging side, which had been previously painted. Lead QA Inspector Adame explained that he had previously proposed that this to OIW PM Bill Pender, to protect the painted surface during transport and PM Pender agreed. The QA Inspector then observed OIW personnel mobilize the HPB with the crane and place above the flatbed trailer, in the position which it will sit for transport. Once above the trailer, the QA Inspector observed OIW lower the HPB onto the trailer and secure with multiple come-a-longs, which were attached to shackles, to secure the HPB to the trailer. Once secured to the trailer, the QA Inspector observed OIW and Morgan personnel attaching a plywood covering to the end of the Fuse opening and additional shrink wrap on the end of the Fuse, to protect during transport. The QA Inspector observed that during this time, a Morgan Machinery person was taking digital photographs in the Bay to document this move. The QA Inspectors did not observe OIW QC personell present at this time to photograph or document the move or the condition of the Fuse, after picking and loading HPB onto the trailer. The QA Inspector then observed Morgan Machinery leaving OIW premises with the HPB on the trailer, presumably to the site. See attached pictures below.

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

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Reviewed By: Adame,Joe QA Reviewer