

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 #: 04-0120F4Cty: 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-007393**Date Inspected:** 23-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Oregon Iron Works Clackamas, Or.**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:**

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-1: 6/23/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed the critical weld repair (CWR #32244-003 R2) had been previously completed on this forging assembly 102A-1 and OIW QC Inspector Rob Walters had completed 100% final ultrasonic weld inspection on the completed weld repair, identified as weld joint #W2-12/W2-13. QA Inspector reviewed the applicable ultrasonic testing report, after completion of the ultrasonic weld inspection and noted that Mr. Rob Walters had performed the inspection utilizing a 60 and 70 degree transducer angle on the exterior (face "A") and a 60 degree transducer angle on the interior (face "B") and Mr. Walters had found no rejectable indications. QA Inspector noted that Mr. Walters appeared to be in compliance with AWS D1.5 and contract requirements. QA Inspector performed 100% ultrasonic weld inspection on this critical weld repair (CWR #32244-003 R2), identified as weld joint #W2-12/W2-13, for forging assembly 102A-1. QA Inspector performed the ultrasonic weld inspection utilizing a 60 and 70 degree transducer angle on the exterior (face "A") and a 60 degree transducer angle on the interior (face "B") and found no rejectable indications. QA Inspector notified lead QC Inspector Mike

WELDING INSPECTION REPORT

(Continued Page 2 of 4)

Gregson of the testing results and completed the applicable ultrasonic testing report (TL6027).

Hinge-K Pipe Beam Assembly 102A-2: 6/23/09

a111-2 Forging to a110-2 Base Plate

QA Inspector noticed this assembly 102A-2 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-3: 6/23/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed this assembly 102A-3 was sitting idle, with a pending non-critical weld repair.

Hinge-K Pipe Beam Assembly 102A-4: 6/23/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed this assembly 102A-4 had been previously placed in position and welder #T6, Mr. Craig Jacobson, was in process of performing submerged arc welding on the PJP AWS D1.5 TC-P5-S, weld root pass, a111-4 forging to d108 stiffener plate, designated as weld joint # W1-128, in the flat position. QA verified Mr. Jacobson was currently qualified for this process/position and noted that Mr. Jacobson was utilizing OIW approved welding procedure specification (WPS 4016). QA Inspector randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit and noticed QC Inspector Rob Walters was present to monitor in-process welding parameters (amps/volts). QA Inspector noted that Mr. Walters had recorded in-process welding parameters of 450 amps and 30 volts, which appears to be in compliance with the applicable welding procedure specification.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 6/23/09

a124-6 Half Fuse to a124-7 Half Fuse

QA Inspector noticed this fuse assembly 120A-1 was sitting idle in OIW Bay 6, pending the stainless steel overlay process.

Hinge-K Pipe Beam Fuse Assembly 120A-2: 6/23/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed this assembly 120A-2 was sitting idle, pending transfer to A&G Machining for rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 6/23/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector noticed that the stainless steel overlay welding (ESW) was complete on this fuse assembly 120A-3 and was sitting idle, in OIW Bay 3.

Hinge-K Pipe Beam Fuse Assembly 120A-4: 6/23/09

a124-13 Half Fuse to a124-4 Half Fuse

QA Inspector noticed that the stainless steel overlay welding was in-process, on this fuse assembly 120A-4. QA Inspector witnessed welder #F17, Mr. Igor Frolov, performing electro slag welding (ESW) in the flat position, utilizing Soudokay brand Soudotape 316L stainless steel consumable strip. QA Inspector noted that the first overlay weld passes were 100% complete, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip and the second layers were approximately 70% complete. QA Inspector noticed QC Inspector's Mike

WELDING INSPECTION REPORT

(Continued Page 3 of 4)

Gregson and Rob Walters were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Rob Walters and Mr. Rob Walters explained that welding amps were recorded as 1200 amps/25.5 volts, with travel speed at 229mm/minute and a pre-heat temperature of approximately 70 degrees Fahrenheit. QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 70 degrees Fahrenheit. QA Inspector noted that Mr. Igor Frolov appeared to be in compliance with the applicable approved welding procedure specification (WPS 7003). See attached photo of assembly 120A-4 below.

Hinge-K Pipe Beam Fuse Assembly 120A-5: 6/23/09

a124-2 Half Fuse to a124-14 Half Fuse

QA Inspector noticed the rough machining had been previously completed on this fuse assembly 120A-5 and OIW QC Inspector Steve Barnett had completed 100% final ultrasonic weld inspection on the CJP (AWS D1.5 B-U3c-S) weld splice, identified as weld joint #WM3-18. QA Inspector reviewed the applicable ultrasonic testing report (UT-2244-39) and noted that Mr. Barnett had performed the inspection utilizing a 60 degree transducer angle from the interior (face "B") and found no rejectable indications, as noted on the UT report. QA Inspector noted that 100% ultrasonic weld inspection was performed, prior to rough machining, by OIW QC Inspector Rob Walters and no rejectable indications were found. QA Inspector noted that Mr. Walters had previously performed the inspection utilizing a 60 and 70 degree transducer angle on the exterior (face "A") and a 60 degree transducer angle on the interior (face "B"). QA Inspector noted that no rejectable indications were found, by Mr. Walters. QA Inspector noted that the ultrasonic weld inspection, prior to and after rough machining, appeared to be in compliance with AWS D1.5 and contract requirements. QA Inspector performed approximately 10% final ultrasonic weld inspection on this CJP (AWS D1.5 B-U3c-S) weld splice, weld joint identified as WM3-18, after rough machining was complete. QA Inspector performed the ultrasonic weld inspection utilizing a 60 degree transducer angle on the interior (face "B") and found no rejectable indications. QA Inspector notified lead QC Inspector Mike Gregson of the testing results and completed the applicable ultrasonic testing report (TL6027).

Hinge-K Pipe Beam Fuse Assembly 120A-6: 6/23/09

a124-1 Half Fuse to a124-9 Half Fuse

A&G Machining

QA Inspector arrived at A&G Machining on this date and witnessed A&G performing the third and final cut pass, for rough machining on this fuse assembly 120A-6. QA Inspector spoke with A&G machinist and A&G explained that this final cut pass was approximately .160" (4mm) and would probably be completed on this date. A&G explained to QA Inspector that a final outside diameter of 1903mm would be maintained and that an OIW machinist would be arriving on 6/25/09 to verify dimensional outside diameter measurements and transfer this fuse assembly 120A-6, back to OIW fabrication shop. QA Inspector noted that once this assembly 120A-6 arrives at OIW fabrication shop, 100% magnetic particle testing will be performed by qualified OIW QC Inspectors and 100% final ultrasonic weld inspection will be performed on the CJP weld splice. QA Inspector noted that A&G appeared to be in compliance with contract requirements. See picture below of fuse assembly 120A-6, in process of rough machining.

Hinge-K Pipe Beam Fuse Assembly 120A-7: 6/23/09

a124-5 Half Fuse to a124-15 Half Fuse

QA Inspector noticed the half-fuse sub-assemblies identified as a124-5 and a124-15 were fit-up/tack welded and

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

was sitting idle.

Hinge-K Pipe Beam Sub-Assembly a124-16: 6/23/09

a125 & b125 Ring Stiffeners to a124-16 Half Fuse

QA Inspector randomly witnessed OIW welder #06, Mr. Tim O'Brian, performing submerged arc welding on the a125 internal ring stiffener to a124-15 half fuse, designated as weld joint #WM3-04. QA Inspector noticed the submerged arc welding was being performed in the flat position and verified Mr. Tim O'Brian was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 350 F, which is in accordance with the applicable welding procedure specification (WPS 4020). QA Inspector randomly recorded in-process welding parameters of 350 amps and 26.5 volts and noticed that QC Inspector Rob Walters was present to randomly verify in-process welding parameters (amps/volts) and pre-heat temperatures. QA Inspector noted that the submerged arc welding being performed by Mr. Tim O'Brian, appeared to be in compliance with the applicable welding procedure specification (WPS 4020).



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
