

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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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-008524**Date Inspected:** 18-Aug-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, Jose 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:

OIW Fabrication Shop-Bay 3

Hinge-K Pipe Beam Assembly 102A-1: 8/18/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed this assembly 102A-1 had been previously placed in position and welder #J6, Mr. Craig Jacobson, was in process of performing submerged arc welding, on the c106 stiffener plate to b106 stiffener plate, designated as weld joint # W1-01, in the flat position. QA Inspector noted that this weld joint was designated as a multi-pass 10mm fillet weld and verified Mr. Jacobson was currently qualified for this process/position. QA Inspector noted that Mr. Jacobson was utilizing OIW approved welding procedure specification (WPS 4020) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit. QA Inspector noticed QC Inspector Jose Salazar was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Salazar had previously recorded in-process welding parameters of 405 amps and 29.5 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)

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Hinge-K Pipe Beam Fuse Assembly 120A-2: 8/18/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed that the ESW stainless steel overlay passes were in-process, on this fuse assembly 120A-2. QA Inspector witnessed welder #F17, Mr. Igor Frolov performing electro slag welding (ESW) on the third and final layer welding passes, (approximately 10% complete), in the flat position, utilizing Soudokay brand Soudotape 316L stainless steel consumable strip. QA Inspector noted the first layer passes were previously completed utilizing the 309L consumable strip and second layers utilizing the 316L consumable strip, per contract requirements. QA Inspector randomly noticed QC Inspector's Mike Gregson and Jose Salazar were present, to verify in-process welding parameters (amps/volts) and monitor in-process continuous pre-heat temperatures. QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that welding amps were recorded as 1200 amps/25.3 volts, travel speed at 241mm/min. and a pre-heat temperature recorded at 70 degrees Fahrenheit (20 C). 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 picture below.

Professional Service Industries, Inc. (PSI)

QA Inspector received an inspection request (TL38), on this date, to witness the mechanical testing at Professional Service Industries, Inc. (PSI), in Portland, OR, on the previously cut sample from fuse assembly 120A-3 (Gr. 485W). QA Inspector arrived at PSI and met with OIW Quality Control Manager Tom Tomovick and Mr. Tomovick explained that PSI would be performing the following tests on the cut sample:

4ea. Charpy Impact

1ea. All Weld Metal Tension

QA Inspector witnessed PSI perform the mechanical tests and PSI explained that the tests were acceptable and in accordance with AWS D1.5. PSI provided QA Inspector with copies of the testing results and QA Inspector noted that the following mechanical testing values were recorded:

Note: PSI provided QA Inspector copies of the applicable testing results in SAE measurements and QA Inspector converted to metric measurements. See attached results below.

Material, Equipment, and Labor Tracking

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 6 OIW production personnel and 2 QC Inspectors.



Charpy Impact Test Number (HAZ @ -18C)	Impact Strength (Joules)	Charpy Impact Test Number (HAZ @ -18C)	Impact Strength (Joules)
1	160	1	171
2	149	2	153
3	152	3	163
4	159	4	224
5	133	5	168
AVG	150.6	AVG	175.8

Charpy Impact Test Number (WAZ @ -30C)	Impact Strength (Joules)	Charpy Impact Test Number (WAZ @ -30C)	Impact Strength (Joules)
1	140	1	163
2	149	2	171
3	159	3	187
4	159	4	169
5	157	5	168
AVG	152.8	AVG	171.6

All Weld Metal Tension	
Peak Load	9204 kg
Peak Stress	7268 kg/cm ²
Yield @ 0.20% Offset	6803 kg/cm ²
Yield @ 0.20% Offset	8616 kg
Man. Elong. @ Break	23.10%
Reduction of Area	71.70%

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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
