

**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-008405**Date Inspected:** 11-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, 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: 8/11/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed this assembly 102A-1 had been previously placed in position and welder #O6, Mr. Tim O'Brian, was in process of performing submerged arc welding, on the c108 stiffener plate to ab106 stiffener plate, designated as weld joint # W1-102, in the flat position. QA Inspector noted that this weld joint was designated as AWS D1.5 TC-P5-S and verified Mr. O'Brian was currently qualified for this process/position. QA Inspector noted that Mr. O'Brian 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 Mike Gregson was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Gregson had previously recorded in-process welding parameters of 415 amps and 28 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.

QA Inspector noticed welder #T23, Mr. John Tellone, was in process of performing submerged arc welding, on the f108 stiffener plate to a107 stiffener plate, designated as weld joint # W1-92, in the flat position. QA Inspector

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noted that this weld joint was designated as AWS D1.5 TC-P5-S and verified Mr. Tellone was currently qualified for this process/position. QA Inspector noted that Mr. Tellone 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 Mike Gregson was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Gregson had previously recorded in-process welding parameters of 430 amps and 28volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.

OIW Fabrication Shop-Bay 6 (ESW Overlay Process)

Hinge-K Pipe Beam Fuse Assembly 120A-2: 8/11/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed that the first 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 first layer welding passes, (approximately 40% complete), in the flat position, utilizing Soudokay brand Soudotape 309L stainless steel consumable strip. QA Inspector noted the first layer passes would be completed utilizing the 309L consumable strip and the remaining second & third layer passes would be completed utilizing Soudokay brand Soudotape 316L stainless steel consumable strip, per contract requirements. QA Inspector randomly noticed QC Inspector's Mike 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 Mike Gregson and Mr. Gregson explained that welding amps were recorded as 1200 amps/25.2 volts, travel speed at 279mm/min. and a pre-heat temperature recorded at 225 Fahrenheit (100 C). QA Inspector verified Mr. Igor Frolov was currently qualified for this welding process/position and randomly recorded pre-heat temperatures of approximately 225 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.

AG Machining

Hinge-K Pipe Beam Fuse Assembly 120A-7: 8/11/09

a124-5 Half Fuse to a124-15 Half Fuse

QA Inspector arrived at AG Machining, on this date and noticed that AG Machining had previously placed this fuse assembly 120A-7 in a horizontal lathe and was in-process of performing rough machining. QA Inspector spoke with AG Machinist and AG explained that OIW had previously released this fuse assembly to AG and the first machining cut pass was in-progress, at approximately .160" (4mm) deep and was approximately 50% complete. AG explained that 2 more cut passes will be necessary, at approximately .160" (4mm) deep, to achieve a final outside diameter measurement of approximately 1903mm. QA Inspector noted that contract requirements require a finished rough machining outside diameter of 1900mm (+- 3mm) and AG Machining appeared to be in compliance with contract requirements. QA Inspector noted that once AG completes the rough machining, on this fuse assembly 120A-7, OIW will transfer back to OIW fabrication shop and QC Inspectors will perform 100% magnetic particle testing on the finished machined surface, per contract requirements. See attached pictures 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.

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The QA Inspector observed at AG Machining: 1 Machinist using a horizontal lathe.



## 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.

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**Inspected By:** Vance, Sean

Quality Assurance Inspector

**Reviewed By:** Adame, Joe

QA Reviewer

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