

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: 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-013400**Date Inspected:** 19-Apr-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR

<b>CWI Name:</b>	M. Gregson, J. Salazar, G. Mundt	<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>
<b>Inspected CWI report:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
		<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Bridge No:</b>	34-0006	<b>Component:</b>	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-2:**

The QA Inspector was informed by OIW QC Inspector Jose' Salazar that an arc strike was previously discovered on the a111-2 Forging Base Metal. QC Inspector Salazar explained that during the previous swing shift, OIW production had utilized a mechanical grinder to remove the arc strike and blend with the adjacent base metal, creating a depression in the base metal, approximately 3 mm deep. QC Inspector Salazar explained that he had earlier performed a hardness test, on this date and recorded a Brinell hardness reading of 400 HB, on the depression, where the arc strike was removed. QC Inspector Salazar explained that he then tested an unaffected area of the base metal, and recorded a hardness reading of 255 HB. QC Inspector Salazar explained that he then notified Production Lead Troy Smith that the area will require further excavating, to remove the excessively hardened base metal and the will require a weld repair. QC Inspector Salazar later informed the QA Inspector that OIW production had performed further excavation on the area and he had performed a hardness test. QC Inspector Salazar explained that the hardness reading was 226 HB and was acceptable. The QA Inspector then witnessed QC Inspector Salazar performing Visual and Magnetic Particle Testing (VT/MT) on the excavation and after the testing was complete, QC Inspector Salazar explained that no rejectable indications were found. The QA Inspector then performed VT/MT on the excavation, found no rejectable indications and recorded the following measurements: 60 mm wide x 60 mm deep x 6mm deep. QC Inspector Salazar then explained that a non-critical

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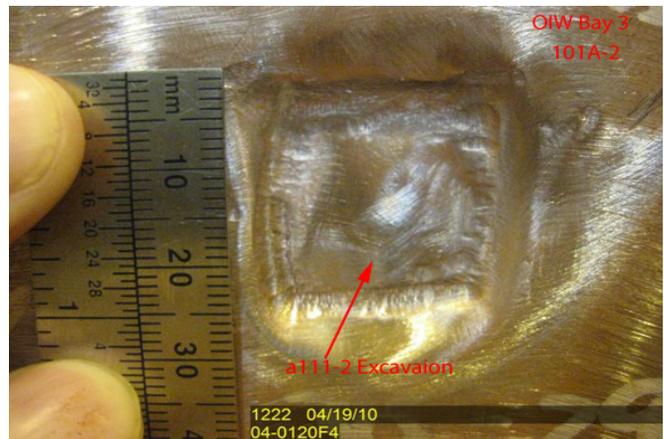
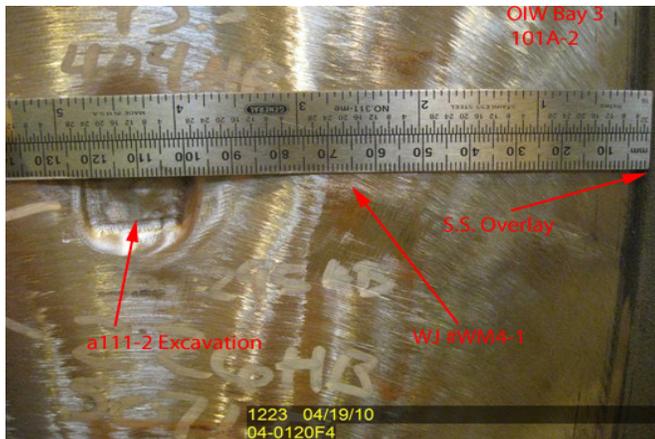
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Weld Repair Report (WRR #2244-10-02) will be generated and Swing Shift will probably start the FCAW repair. The QA Inspector was present on swing shift and witnessed WID #S74 (Bounheune Savanhn) performing the Flux Core Arc welding (FCAW), on the above mentioned non-critical weld repair #2244-10-02. The QA Inspector noted that WID #S74 was performing the FCAW in the vertical position and that OIW QC Inspector Gary Mundt was present on this shift. QC Inspector Mundt explained to the QA Inspector that WID #S74 was performing the repair in accordance to OIW approved welding procedure specification (WPS 3048). QC Inspector Mundt explained that he had recorded welding parameters of 240 amps, 24 volts, 400 degrees Fahrenheit pre-heat temperature and a welding travel speed of 7-9 inches per minute (178-229 mm). The QA Inspector randomly verified the welding parameters and pre-heat to be in compliance with the applicable WPS. The QA Inspector was later informed by QC Inspector Mundt that the FCAW was complete and WID #S74 was currently grinding the repair area to flush with the adjacent base metal. QC Inspector Mundt explained that post heat will be applied to the repair area for two hours. The QA Inspector reviewed the WRR #2244-10-02 and noted that per the instructions, post heat will be applied for 2 hours at a temperature of 230-315 C. The QA Inspector then witnessed WID# S74 applying the post heat utilizing a hand held oxygen-acetylene torch and WID #S74 explained that he will continue the post-heat for approximately two-hours. The QA Inspector noted that the FCAW appeared to be in compliance with AWS D1.5 and the applicable WPS 3048. See attached pictures and completed Magnetic Particle Testing report (TL 6028), for additional details.

## 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: 4 OIW production personnel and 1 QC Inspector.



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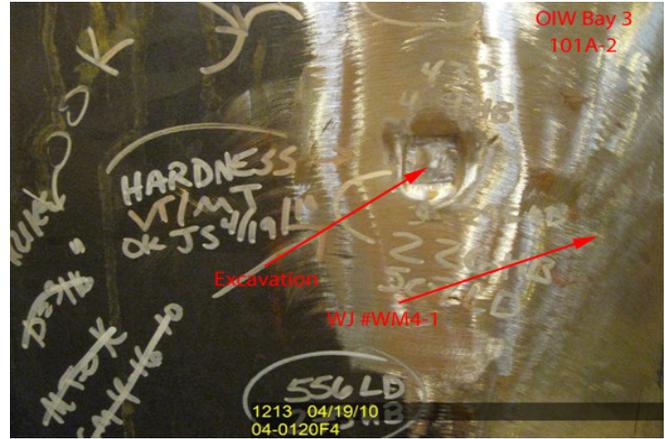
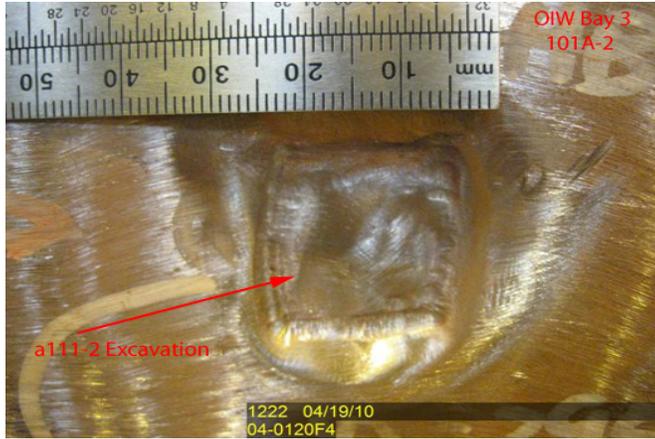
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## Summary of Conversations:

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.

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**Inspected By:** Vance, Sean

Quality Assurance Inspector

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**Reviewed By:** Adame, Joe

QA Reviewer