

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-014479**Date Inspected:** 25-May-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

CWI Name:	M. Gregson, J. Salazar, G. Mundt	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-4:

The QA Inspector was present on this swing shift and observed OIW QC Inspector Gary Mundt, performing Ultrasonic Testing (UT), on the previously completed non-critical weld repair, 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-4 to Forging 102A-4 and observed that this non-critical repair was plotted as "indication # 2", per OIW's completed Ultrasonic Examination Report (# 2244-10-UT-04). The QA Inspector noted that the 72 hrs. cooling time prior to the UT being performed by QC Inspector Mundt, had previously expired. The QA Inspector observed that QC Inspector Mundt was performing the testing utilizing OIW approved procedure # NP-2244-(13)-01 and was testing the repair from Face "A", from the forging side of the weld axis. QC Inspector Mundt later notified the QA Inspector that the testing was complete and no rejectable indications were found. See Summary of Conversations below for additional details.

The QA Inspector then performed 100 % Ultrasonic weld testing on the above mentioned non-critical repair, in the same manner which was performed above and approximately 10 % on areas of the Weld Joint # W4-01, which were previously accepted by OIW QC Personnel. The QA Inspector found no rejectable indications after testing and completed an applicable Ultrasonic Testing report (TL 6027), on this date.

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Hinge-K Pipe Beam Assembly 102A-3:

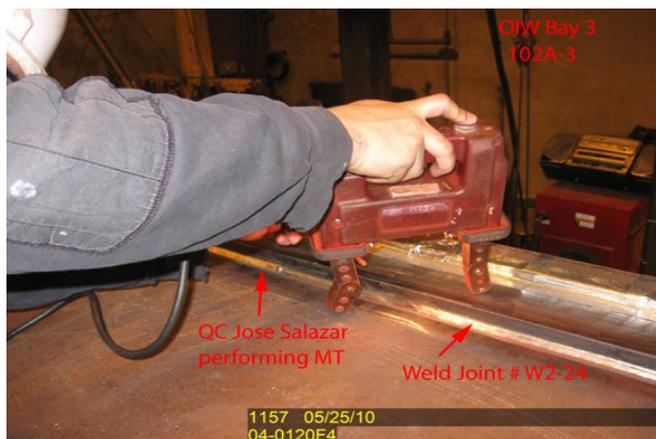
The QA Inspector observed WID # B62 (Marcus Belgarde) performing submerged Arc Welding (SAW) on weld joint (# W2-24). The QA Inspector observed that WID # B62 was performing the SAW in the flat position and was currently qualified for this. The QA Inspector noted that this weld joint was a partial penetration, AWS D1.5 TC-P4-S, a109 Post Tension Cap plate to ab106 HPS 485 W stiffener. The QA Inspector observed that OIW QC Inspector Jose' Salazar was present at the time of welding and QC Inspector Salazar explained that he was intermittently checking the welding parameter amps, volts, travel speed and pre-heat temperatures. The QA Inspector randomly observed QC Inspector Salazar verify welding amperage of 468 amps, 31.7 volts and a travel speed of 16 inches per minute. The QA Inspector observed that the root passes were currently in process and that the parameters were in compliance with the applicable Welding Procedure Specification (WPS) 4020. The QA Inspector then randomly performed a pre-heat check and noted that the temperature was approximately 350 degrees Fahrenheit.

The QA Inspector later observed that the SAW root pass had been completed on the above mentioned weld joint # W2-24 and QC Inspector Salazar was in process of performing Magnetic Particle Testing (MT) on this root pass. QC Inspector explained that he had performed Visual testing, prior to performing the MT and found no rejectable indications. After the MT was complete, QC Inspector Salazar explained that no rejectable indications were found, during the testing and that WID # B62, will be setting up to start the fill passes. The QA Inspector then performed 100% Visual and approximately 50% MT on the weld joint root passes and found no rejectable indications. See attached picture below and completed Magnetic Particle Testing report (TL6028), for additional details.

The QA Inspector was present on this swing shift and observed WID # B10 (Liem Bui) continuing to perform the Submerged Arc Welding fill passes, on the above mentioned weld joint, utilizing the identical WPS. The QA Inspector observed that OIW QC Inspector Gary Mundt was present and QC Inspector Mundt explained that the welding parameters were recorded as follows: 620 amps, 35 volts and a travel speed of 22 inches per minute. QC Inspector Mundt explained that pre-heat was recorded at 350 degrees Fahrenheit and the QA Inspector randomly verified this. QC Inspector Mundt explained that the SAW will probably continue the entire shift and he will be present to intermittently monitor the welding activities. The QA Inspector randomly performed a pre heat check and noted that the temperature was approximately 350 degrees Fahrenheit. The QA Inspector noted that the above mentioned SAW appears to be in compliance with the applicable WPS.

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.



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Summary of Conversations:

During the UT examination on the CJP Weld Joint # W4-01, non-critical weld repair (# 2), the QA Inspector observed that QC Inspector Mundt was marking the non-critical repair area, in the center of the weld joint, for another repair. QC Inspector Mundt explained that the entire weld repair area was rejectable, with a Class "A" (-3 dB rating), from Face A, in a first leg sound path with a 70 degree testing angle. QC Inspector Mundt explained that he could also reject the repair from the interior (Face B), forging side of the weld axis, in a second leg sound path. The QA Inspector noted that due to the location of the interior ring stiffener, that a second leg sound pass scan would not be possible.

Upon arrival and observing QC Inspector Mundt rejecting the repair, the QA Inspector observed that QC Inspector Mundt had a screen range setting on the USN 58L testing instrument, which was set to 1000 mm (40"). The QA Inspector informed QC Inspector Mundt that this screen range is excessive and will prevent a reliable first and second leg of sound path, where applicable. The QA Inspector then asked QC Inspector Mundt to set a screen range on the instrument which will display a first and second leg scan only. After QC Inspector Mundt made this change to the instrument, the QA Inspector informed QC Inspector Mundt that he should re-examine the repair. The QA Inspector observed that QC Inspector Mundt had mistakenly identified a consistent back reflector as a rejectable indication in the repair, visible in first leg sound path, which was the interior weld cap of the joint. The QA Inspector explained this to QC Inspector Mundt and proved this by examining and plotting random locations throughout the entire weld joint.

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
