DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027941
Date Inspected: 10-Jul-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1930
Location: Job Site

CWI Name: As noted below.

Inspected CWI report:	☐ Yes	☐ No	☑ N/A
Electrode to specification:	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☐ Yes	☐ No	☑ N/A
Approved Drawings:	☐ Yes	☐ No	☑ N/A

CWI Present:	☐ Yes	☑ No	
Rod Oven in Use:	☐ Yes	☐ No	☑ N/A
Weld Procedures Followed:	☐ Yes	☐ No	☑ N/A
Verified Joint Fit-up:	☐ Yes	☐ No	☑ N/A
Approved WPS:	☐ Yes	☐ No	☑ N/A
Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower Component

Summary of Items Observed:

This Quality Assurance Inspector (QA) flew to Oregon Graduate Institute, Portland State University (OGI) located at 2000 NW Walker St., Beaverton Oregon to perform Ultrasonic Testing (UT) of Electroslag Weld (ESW) samples. The samples tested were the ESW “mock-up” and Performance Qualification Record (PQR) test welds for the Tower Shear Plate ESW welds of the San Francisco / Oakland Bay Bridge (SFOBB) Self Anchored Suspension (SAS) project.

Welds tested were samples of 60mm-70mm butt-joint ESW, 60mm-70mm t-joint ESW, and 60mm-70mm skewed t-joint ESW. The “mock-up” weld was a 100mm-80mm transition butt-joint ESW weld. This QA tested approximately 1880mm of the “mock-up”.

Weld samples were tested with the probe oriented in the “E scan” direction for attempted discovery of transverse indications. Due to the limited scanning space available, the standard scanning pattern as prescribed by AWS D1. 5 could not be used to perform a perpendicular full volumetric examination of these ESW welds. Limited scanning was used to find a distinct and repeatable set of returned signals (3 signals) that have been measured to be located at the outer grain boundaries and approximate center of the ESW weld.

Ultrasonic Testing of ESW

This QA performed Ultrasonic Testing (UT) on approximately 1880mm of Tower Electroslag Complete Joint Penetration (CJP) shear plate weld “mock-up”. Location (Y=120~2000) of this weld was inspected using this testing method.

This QA observed three (3) transverse indications at the time of testing.

This QA generated a TL-6027 UT report reflecting this date of testing.
UT findings for transverse indications are listed as:

"Mock-up"-
Y= 1555mm
A= 81db, B= 54db, C= 6db, D= 21db
SP= 103.7mm, DP= 32.40mm

Y= 1415mm
A= 69db, B= 54db, C= 5db, D= 10db
SP= 86.99mm, DP= 27.17mm

Y= 420mm
A= 72db, B= 54db, C= 5db, D= 13db
SP= 94.16mm, DP= 29.4mm

This QA performed Ultrasonic Testing (UT) on Tower Electroslag Complete Joint Penetration (CJP) shear plate weld PQR test samples. Seven (7) samples were inspected using this testing method.
This QA observed four (4) transverse indications at the time of testing.
This QA generated a TL-6027 UT report reflecting this date of testing.
UT findings for transverse indications are listed as:

PQR Test Samples-
PQR045, 5-6 (T-joint)
Y=55mm (Face A)
A= 75db, B= 54db, C= 5db, D= 16db
SP= 83.08mm, DP= 25.96mm

PQR045, 5-6 (T-joint)
Y= 165mm (Face B)
A= 74db, B= 54db, C= 5db, D= 15db
SP= 85.61mm, DP= 26.75mm

PQR045, 2-3 (T-joint)
Y= 350mm (Face B)
A= 78db, B= 54db, C= 5db, D= 19db
SP= 93.16mm, DP= 29.09mm

PQR045, 2-3 (T-joint)
Y= 170mm (Face B)
A= 77db, B= 54db, C= 5db, D= 18db
SP= 88.3mm, DP= 27.58mm

PQR044, 2-3 (Butt-joint)

No recordable indications

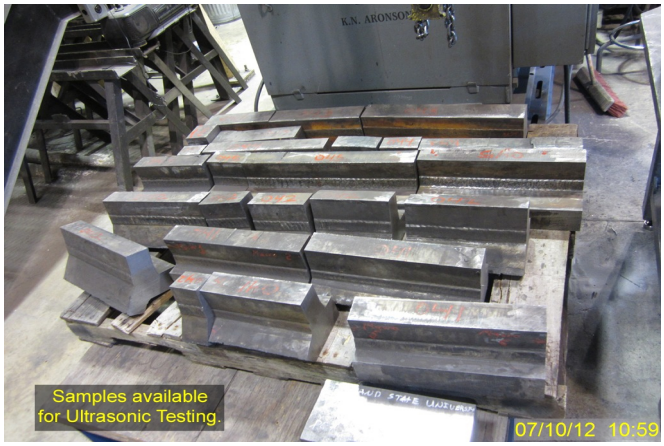
PQR042, 5-6 (Skewed T-joint)
No recordable indications

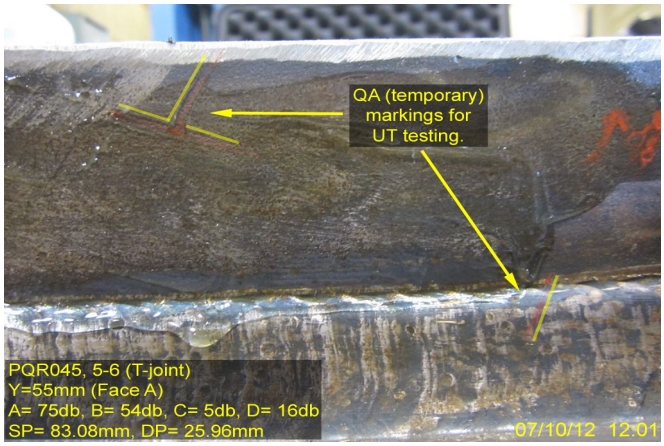
PQR041, 2-3 (Skewed T-joint)
No recordable indications

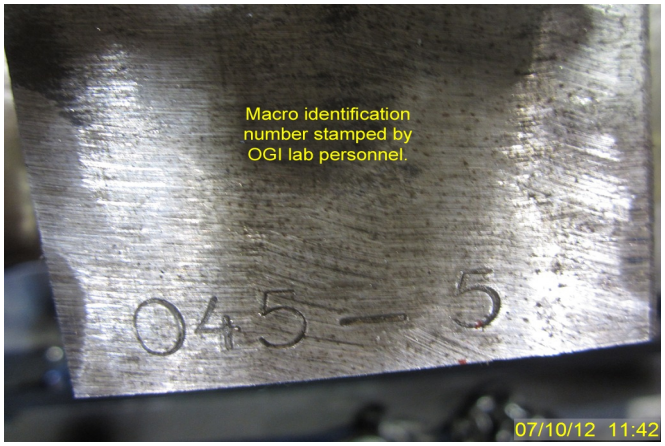
PQR041, 4-5 (Skewed T-Joint)
No recordable indications.

PQR045, 1-2 (T-Joint)
No recordable indications.

Present at time of testing were Structural Materials Rep (SMR) Aaron Prchlik and OGI representative Bob Turpin.







Summary of Conversations:
Conversations were relevant to testing performed.
Comments

WELDING INSPECTION REPORT

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 SMR Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Clifford,William	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer