**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 #: 70.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Pursell, Gary
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-003383
**Date Inspected:** 31-Jul-2008

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** Japan Steel Works

**OSM Arrival Time:** 1000
**OSM Departure Time:** 1800
**Location:** Muroran, Japan

**CWI Name:** Kuan Chung

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|---|---|---|---|---|---|---|---|---|
| **Inspected CWI report:** | ☐ Yes | ☑ No | ☐ N/A | **CWI Present:** | ☑ Yes | ☐ No | |
| **Electrode to specification:** | ☑ Yes | ☐ No | ☐ N/A | **Rod Oven in Use:** | ☑ Yes | ☐ No | ☐ N/A |
| **Qualified Welders:** | ☑ Yes | ☐ No | ☐ N/A | **Weld Procedures Followed:** | ☑ Yes | ☐ No | ☐ N/A |
| **Approved Drawings:** | ☑ 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,Jacking and Deviation Saddle

**Summary of Items Observed:**

The following report is based on METS observations at Japan Steel Works (JSW) in Muroran Japan. Current work: Casting, machining and repair of Saddles.

At 1000 hours, the Caltrans Quality Assurance (QA) inspector arrived at JSW fabrication shop number 4 and observed Mr. K, Kubota performed tack welding on W2-E2 additional tack welds, and added three passes on the top of existing tack welds. Cracked tack welds were ground out and all weld metalwas removed. NISC NDT technician Mr. Kazuya Kobayashi performed magnetic particle testing of the tack location.
The tack welding of the stem to base plate, was performed utilizing the Shielded Metal Arc Welding (SMAW) process per the welding procedure specification (WPS) SJ-3011-2 and SJ-3011-3. The welding was performed in the 2G (Horizontal) position. The filler metal utilized was identified as 4.8mm diameter, Class E9018-M-H4R, Brand name Hoballoy 9018-M. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 160 degrees Celsius and maximum interpass temperature of 260 degrees Celsius was verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. This data was entered into the QC inspector's daily log, identifying the location on a weld map. The SMAW welding average amperage and voltage by clamp type meter and travel speed were verified to be within the welding procedure specification parameter range of 245 amps to 270 amps, 22 volts to 25 volts and travel speed of 132 to 168 mm per minute for the 4.8mm electrode and 145 amps to 165 amps, 21 volts to 24 volts and travel speed of 72 to 97 mm per minute for the 4.0mm electrode by the QA inspector. The work was not completed on this date and appears to meet the minimum requirements of the welding procedure specification and contract documents.

# WELDING INSPECTION REPORT

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WQT Witness

At 1300 hours, the Caltrans Quality Assurance (QA) inspector arrived at JSW fabrication shop number 4 and observed a welder qualification test designated following welders, WPS, and positions. The welding was performed utilizing the Shield Metal Arc Welding Process in the Flat (1G) position. The welding was performed per the AWS D1.5, 2002 Section 5.13 requirements. The Intertek QC inspectors, Mr. Makhmud Ashadi checked welding parameter and recorded the preheat and interpass temperatures, the average amperage, voltage and the travel speed for all weld passes. The QA inspector observed that the welder Mr. Masao Yamashita ground each weld pass to smooth bright finish prior to starting the next weld pass. The welding of this plate was completed on this date. The QA inspector noted that the welding appeared to meet the minimum requirements of AWS D1. 5-2002 and the contract documents.

Please see following information for WQT.

| Welder Name | ID number | WPS | Position | Visual inspection result |
|---|---|---|---|---|
| Daisuke Harakawa | 08-3566 | SJ-2893 WP-7 | 1G 1” Plate | QC accepted |
| Katsuaki Izumi | 07-4536 | SJ-2893 WP-7 | 1G 1” Plate | QC Accepted |
| Ryota Kato | 07-4510 | SJ-2893 WP-7 | 1G 1” Plate | QC Accepted |
| Mamoru Kubota | 74-3666 | SJ-2893 WP-4 | 3G 2” Plate PJP | QC Accepted |
| Kenichiro Sadakawa | 06-2929 | SJ-2893 WP-4 | 3G 2” Plate PJP | QC Accepted |

NDT Inspection Fabrication Shop#4

The QA inspector periodically observed The Nikko Inspection Services (NIS) QC/NDT technicians Mr. Kazuya Kobayashi perform magnetic particle (MT) testing of West Deviation Saddle base W2E2. The MT testing on previous root pass and first root pass of multi root pass of stem plate to base plate root weld. The MT was performed in accordance with ASTM standard E709, using the yoke method. The yoke utilized appeared to be model VM3, serial numbers 97049. The yoke dead lift was verified with a 4.65kg test plate. All calibrations appear to meet the minimum requirements of ASTM E709. The testing was evaluated in accordance with the contract special provisions.

**Summary of Conversations:**

No specific conversations.

**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 Venkatesh Iyer, (858) 967-6363, who represents the Office of Structural Materials for your project.

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|---|---|---|
| **Inspected By:** | Shin,DJ | Quality Assurance Inspector |
| **Reviewed By:** | Lanz,Joe | QA Reviewer |