

**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 #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003781**Date Inspected:** 25-Aug-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Japan Steel Works**Location:** Muroran, Japan**CWI Name:** Kuan Chung**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:** 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.

**Fabrication Shop**

Caltrans Quality Assurance (QA) inspector arrived at JSW fabrication shop and observed Mr. M. Kato and Mr. M. Yamashita perform multiple root pass welding on T1-1. The multiple root pass welding of the rib plate to side plate, joint designation T1-1, 7Y-9V, T1-1 and 7Y-5V, was performed utilizing the Shielded Metal Arc Welding (SMAW) process per the welding procedure specification (WPS) SJ-3012-2. The welding was performed in the 3G (Vertical) positions. The filler metal utilized was identified as 4.0mm diameter, Class E7016, Brand name LB-52A. 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 110 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 140 amps to 165 amps, 21 volts to 24 volts and travel speed of 70 to 82 mm per minute for the 4.0mm electrode used. All welding parameters checked QC inspector and verified 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.

Number 2 Fabrication shop

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## WELDING INSPECTION REPORT

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QA inspector Mr. Dong Jun Shin observed cutting process was on going. Plates piece numbers 9-2 and 9-3 to cut for Tower Saddle T1-3.

### Mechanical testing witness

The QA inspector observed two Reduced Section Tensile tests for each test plate in accordance with AWS D1.5-2002 Section 5.18.1. and one all weld metal tensile test. in accordance with AWS D1.5-2002 Section 5.18.4. The test machine Shimazu 1000kn model, serial number I22104400055 calibration was verified to be due 05-15-2009. JSW QC personnel Mr. Naoya Takahashi verified the specimen dimensions and the testing was performed and results recorded as follows.

Test Plate SW11-2, sample B1-1, 622MPa tensile, failure was in the base metal, sample B1-2, 626MPa tensile, failure was in the base metal and sample B2-1(all weld metal), 618Mpa tensile.

The samples were found acceptable in accordance with paragraph 5.19.1. and 5.19.4

Caltrans witness lot number B85-30-08 was assigned to test plate SW11-2 for tracking purposes.

The QA inspector observed four each Side Bend tests for test plates SW11-2 accordance with AWS D1.5-2002 paragraph 5.18.3. JSW QC personnel Mr. Naoya Takahashi performed tests and recorded results as acceptable in accordance with paragraph 5.19.2.

The QA inspector observed five each Impact Test samples test temperature at -0C results were 93Joules, five each Impact Test samples test temperature at -20C results were 108 joules, five each Impact Test samples test temperature at -23C results were 143 Joules. The samples were found to be acceptable in accordance with paragraph 5.19.5.

Caltrans witness lot number B85-30-08 was assigned to test plate SW11-2 for tracking purposes.

The QA inspector observed Three each Macro Etch tests for test plates for welding procedure specification WP11-2. JSW QC personnel Mr. Naoya Takahashi performed tests and recorded results as acceptable in accordance with paragraph 5.19.3.

### 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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<b>Inspected By:</b>	Shin,DJ	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz,Joe	QA Reviewer

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