

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

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-004523**Date Inspected:** 31-Oct-2008**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** Japan Steel Works**OSM Arrival Time:** 800**OSM Departure Time:** 1800**Location:** Muroran, Japan**CWI Name:** Chung Fu-Kuan**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, Deviation and Jacking Saddles**Summary of Items Observed:**

On this date OSM Quality Assurance (QA) Representative Daniel L. Reyes was present during the welding of the structural steel components regarding the West Deviation and the Tower Saddles relative to this project. The following was observed:

**Fabrication Shop # 4**

At the start of the shift the QA inspector observed the weld build-up of the casting stem on the Tower Saddle identified as T1-1. The welding was performed on the casting stems which were identified as 7S-3U and 7Y-6U utilizing the Welding Procedure Specification (WPS) SJ-3012-1-1. The WPS was also used by the QC inspector as a reference during QC verification of the Alternating Current (AC) welding parameters. The SMAW process was performed on the weld identified as 7Y-6U by JSW welding personnel Daisuke Hirakawa ID 08-3566 and 7S-3U was performed by the welding personnel Yuta Saito and Ryouichi Iizuka. The tower saddle was positioned so that the performance of the welding was in the flat position with the work in the horizontal plane and the weld metal deposited from above.

The 5.0 diameter consumable utilized by the JSW welding personnel appeared to be a Hobart Brothers Product and the trade name was identified as LB52-A which appeared to comply with the AWS Specification A5.1 and the AWS Electrode Classification E7016.

Later in the shift this QA inspector observed, at random intervals, the QC inspector's performing QC verification of the welding parameters, the minimum preheat and maximum interpass temperatures.

The QA inspector's observations were performed at random intervals during the shift. The QA inspector noted that it appeared the approved and latest revised WPS's were posted at the welding station and that each approved

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## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

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welder was entered in the latest revised Welding Personnel Log issued by Japan Steel Works, Ltd. The welding parameters, preheat and interpass temperatures were verified by the QA inspector utilizing a Fluke 337 clamp meter for the electrical welding parameters and Tempilstik temperature indicators were utilized during the verification of the heat control. The filler metal utilized by the JSW welding personnel was also verified. The QC inspector ITS personnel, Chung Fu-Kuan appeared to perform the visual weld examinations, monitoring of the welding and the verification of the welding parameters in accordance with the contract documents.

### Machine Shop # 2

Later in the shift the QA inspector traveled to the machine shop and was escorted by JSW personnel Kunio Nagaya to observe the machining of the West Deviation Saddle identified as W2E3. It appeared the saddle casting was in the process of machining the troughs to the rough dimensions. The layout of the casting for the rough machining was completed and appeared to be in the process preparation for milling. No work was performed on the W2E3 casting at the time of observation.

### Foundry Shop

The QA inspector periodically observed the Nikko Inspection Services (NIS) QC/NDT technician Mokoto Wada perform Magnetic Particle Testing (MPT) on the exterior surface of the Tower Saddle casting identified as T1-2. The MPT was performed in accordance with ASTM standard E709 and Japan Steel Works, Lt. (JSW) procedure SJ-2878 Revision 1 utilizing the AC yoke and the dry visible magnetic particle method. The yoke utilized appeared to be model UM 3BF, serial number 93-01. The yoke dead lift was verified with a 4.65kg test plate and the yoke light output was verified with a Hioki model 3408 light meter to be 1450Lx and the magnetic field was verified with a field indicating gauge (pie gauge). All calibrations appear to meet the minimum requirements of ASTM E709. The testing was not completed on this date and the testing and evaluations appeared to meet the minimum requirements of the contract specifications.

See Weld Joints in Progress Inspected on page 3 of this report in regards to QA observation of the welding parameters recorded during this shift and digital photographs which illustrates the observations of the activities performed on this date.

# WELDING INSPECTION REPORT

( Continued Page 3 of 3 )



Item	Weld Identification	Applicable WPS	CWI Name	Amperage	Voltage	TravelSpeed	Preheat Temp	Remarks
1	7S-3U	SJ-3012-1-1	C. Fu-Kuan	258 AC	24 AC	169mm/m	202 Degrees C.	Saito
2	7S-3U	SJ-3012-1-1	C. Fu-Kuan	257 AC	24.5 AC	174mm/m	195 Degrees C.	Iizuka
3	7Y-6U	SJ-3012-1-1	C. Fu-Kuan	264 AC	25 AC	172mm/m	205 Degrees C.	Hirakawa
4								

### Summary of Conversations:

There were no pertinent conversations relative to the project on this date.

### 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.

**Inspected By:** Reyes, Danny

Quality Assurance Inspector

**Reviewed By:** Lanz, Joe

QA Reviewer