

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: 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-004797**Date Inspected:** 24-Nov-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 830**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Japan Steel Works**Location:** Muroan, Japan

<b>CWI Name:</b>	Chung-Fu Kuan		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	Yes	No	N/A
<b>Component:</b>	Tower, Jacking and Deviation Saddles		

**Bridge No:** 34-0006**Summary of Items Observed:**

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

**Fabrication Shop 4****T1-1 Base**

No work performed on this date.

**T1-1 Casting**

JSW personnel were observed building scaffold around T1-1 Casting in preparation for grinding the weld locations.

**T1-2 Base**

JSW personnel were observed rotating T1-2 base to allow welding to continue on the opposite side of weld joints previously welded to approximately 70% complete.

**T1-3 Base**

The QA inspector observed the in process assembly layout and fit-up operation of the structural steel plates for the Tower Saddle Base T1-3. The end plates were aligned on the base plate and to the stem plates. The JSW fitter personnel Kiyotaka Koanagi performed the layout in accordance with approved drawings. The JSW welding personnel Yoshihiro Ohta, ID 08-2017 performed the in process tack welding of joint 9Y-9V (3-2) in the vertical

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position. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process per the welding procedure specification (WPS) SJ-3012-2. 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°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 work was not completed on this date and appears to meet the minimum requirements of the welding procedure specification and contract documents.

## W2-E1

The QA inspector periodically observed The Nikko Inspection Services QC/NDT technicians Mr. Kazuya Kobayashi and Mr. Matshero Sato perform magnetic particle (MT) testing of West Deviation Saddle W2-E1 base and base to casting partial penetration welds after post weld heat treatment. The MT was performed in accordance with ASTM standard E709 and Nikko Inspection Services procedure SF-MT-01 using the yoke method with dry visible powder. The testing was evaluated in accordance with the contract special provisions. No relevant indications were marked by Mr. Kobayashi or Mr. Sato. The testing was not completed on this date and the work appears to meet the minimum requirements of the contract specifications.

The QA inspector performed a random visual inspection of the West Deviation Saddle W2-E1 base and base to casting partial penetration welds. The following issues were noted.

- 1) Base to rib plate weld E1Y-8L was found to have several locations of undercut at the toe of the weld.
- 2) Base to rib plate weld E1Y-13L was found to have underfill at the weld termination.

These issues were brought to the attention of Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan. Mr. Kuan verified the indications and reported that these and any further repairs found during magnetic particle testing would be repaired after the initial testing was completed.

## W2-E2 Base

Two JSW employees were observed grinding weld prep areas of the rib and stem plates of W2-E2 base. The grinding was performed to smooth the weld joint surface and remove all rust prior to fit up to W2-E2 casting. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

## W2-W1 Casting

The QA inspector observed that a preliminary Dye Penetrant examination had been performed on W2-W1 casting. The areas examined appear to be the top edges of the machined trough surfaces of the casting. No relevant indications were observed on the machined surfaces.

## Foundry

### W2-E2 Casting

No work performed on this date.

### W2-E3 Casting

A JSW employee was observed grinding areas where excess material has been removed from the exterior surface

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of the casting W2-E3. The grinding was performed to smooth the surface of the casting where the Air-Carbon Arc method was utilized. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

### T1-2 Casting

The QA inspector observed the in process casting repair welding on Tower Saddle casting T1-2. The welding was performed to build up the thickness of the ribs in areas that were found to not meet the minimum thickness as shown on the approved drawings. The repair locations and repair details for this casting were submitted as number 000902, revision 00. The JSW welding personnel Yoshio Kabutomori, ID 06-8000 continued the repair welding of repair 1-2 as shown in section A-A. Fujii Mitshunori, ID 06-8004 continued the repair welding of repair 2-1 as shown in section B-B. The repairs were performed utilizing Shielded Metal Arc Welding (SMAW) per the welding procedure specification (WPS) SJ 3026-4. JSW welding engineer Mr. Imai monitored the welding parameters and heat control at periodic intervals. The minimum preheat temperature of 150° Celsius and maximum interpass temperature of 260° Celsius was verified to meet the WPS requirements by the QA inspector utilizing Tempilstik temperature indicators. 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 180 amps, 22 volts to 26 volts and travel speed of 90 to 160 mm per minute 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.

### T1-3 Casting

Two JSW employees were observed removing excess riser material from the exterior surface of the casting T1-3. The material was removed utilizing the Air-Carbon Arc method. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

### East Saddle Casting

The East Saddle casting was removed from the mold and was placed in the foundry to cool.

The following digital photographs illustrate observations of the activities being performed.

### Summary of Conversations:

There were general conversations with Intertek Testing Services Certified Welding Inspector Mr. Chung-Fu Kuan relative to the location of the welding and inspection personnel in the fabrication shop number 4.

### 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>	Lanz,Joe	Quality Assurance Inspector
<b>Reviewed By:</b>	Brasel,Ron	QA Reviewer

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