

**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-004558**Date Inspected:** 05-Nov-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1800**Contractor:** Japan Steel Works**Location:** Muroran, 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

**Component:** Tower, Deviation and Jacking Saddles

**Bridge No:** 34-0006**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 Tower and West Deviation Saddles relative to this project. The following was observed:

**Fabrication Shop # 4**

At the start of the shift the QA inspector traveled to the shop to observe the scheduled work performed on the casting stem and rib on the Tower Saddle identified as T1-1. The weld build-up was performed on the casting ribs which were identified as 7Y-5U-2, 7Y-8U, 7Y-9U-2 and 7Y-9U-3 utilizing the Welding Procedure Specification (WPS) SJ-3012-1-1. The WPS was also used by the Intertek Testing Service (ITS) Quality Control (QC) Inspector Chung Fu-Kuan as a reference during QC verification of the Alternating Current (AC) welding parameters. The SMAW process was performed by the following JSW welding personnel; Kato Ryota ID 07-4510, Yoshita Nakano 08-2011 and Kazuya Iwamoto ID 07-4366. 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 performing QC verification of the welding parameters, the minimum preheat and maximum interpass temperatures.

The QA inspector also observed the root pass welding and the Magnetic Particle Testing (MPT) of the Partial Joint

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Penetration (PJP) groove welds on the Tower Saddle identified as T1-2. The welding process utilized appeared to be the Shielded Metal Arc Welding (SMAW) and was performed by the following Japan Steel Works, Ltd. (JSW) welding personnel; Kobayashi Kouzou ID 08-5023 and Kato Makoto ID 08-5018. The Welding Procedure Specification (WPS) utilized by the welders appeared to be SJ-3012-2 which was also used by the Intertek Testing Service (ITS) Quality Control (QC) Inspector Chung Fu-Kuan as a reference during verification of the welding parameters. It was also noted by the QA inspector that JSW Distortion Control Plan identified as Document No. SJ-3151Rev. 3 was utilized in conjunction with the WPS. The welding of the PJP groove weld was performed on the structural steel end plate to base plate connection identified as weld numbers 8Y-10V (2-2) and 8Y-10V (2-3).

The consumables utilized appeared to be a Hobart Brothers product and was identified as a Hoballoy 9018-M, with a diameter size of 4.0 which appeared to comply with the AWS Specification A5.5 and AWS Classification E9018-M H4R.

The QA inspector observed the QC inspector verify the preheat temperatures of 197 degrees Celsius and the welding parameters during the welding of the root pass.

The MPT was performed by the Nikko Inspection Services (NIS) personnel QC technician, Kobayashi Kazuya utilizing an AC Yoke, Type A-6 testing unit which appeared to be manufactured by Eishin Kagaku Co., Ltd. The MPT was performed on 100% of the root pass and was conducted utilizing the MPT procedure identified as SF-MT-01. There appeared to be no relevant indications noted by the QC technician during the testing of the root pass.

Later in the shift the QA inspector observed that Magnetic Particle Testing (MPT) was conducted on the West Deviation Saddle casting identified as W2E2. It appears that several relevant indications were noted by NIS/QC technician, Makoto Wada that will require the excavation process. At the time of the QA inspector's observation the QC technician had concluded the MPT and no other testing was performed.

### Foundry Shop

The QA inspector traveled to the Foundry Shop to observe the scheduled Non-Destructive Testing (NDT) on the Tower Saddle Casting identified as T1-2. Upon the QA inspector's arrival it appeared that JSW personnel were performing grinding on the inside machine surfaces of the troughs. There was no NDT performed at the time of the QA inspector's observation.

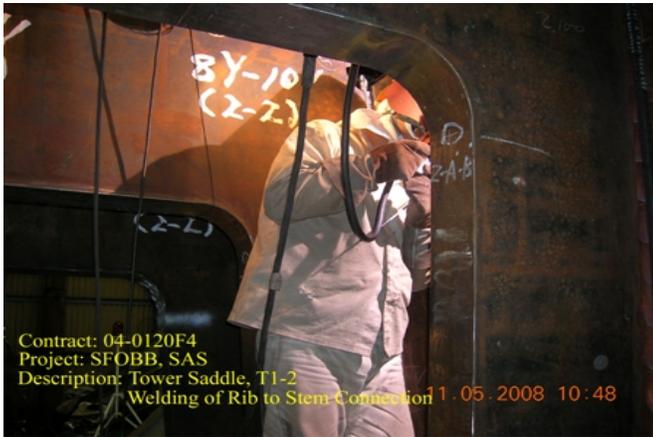
The QA inspector's observations were performed at random intervals during the shift. The QA inspector noted that it appeared the approved and latest revised WPS's were posted at the welding station and that each approved welder was entered in the latest revised Welding Personnel Log issued by Japan Steel 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.

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See Weld Joints in Progress Inspected, below, in regards to QA observation of the welding parameters recorded during this shift on this date.

The following digital photographs illustrate the observations of the activities performed on this date.



Item	Weld Identification	Applicable WPS	CWI Name	Amperage	Voltage	TravelSpeed	Preheat Temp	Remarks
1	7Y-5U-2	SJ-3012-1-1	C. Fu-Kuan	250 AC	24 AC	160mm/m	185 Degrees C.	Kazuya
2	7Y-8U	SJ-3012-1-1	C. Fu-Kuan	254 AC	24.5 AC	157mm/m	180 Degrees C.	Nakano
3	7Y-9U-2	SJ-3012-1-1	C. Fu-Kuan	260 AC	25 AC	162mm/m	195 Degrees C.	Ryota
4	7Y-9U-3	SJ-3012-1-1	C. Fu-Kuan	252 AC	23.5 AC	155mm/m	205 Degrees C.	Kei
5	8Y-10V (2-3)	SJ-3012-2	C. Fu-Kuan	167 AC	23 AC	113mm/m	183 Degrees C.	Kouzou
6	8Y-10V (2-2)	SJ-3012-2	C. Fu-Kuan	169 AC	24 AC	111mm/m	186 Degrees C.	Makoto

### Summary of Conversations:

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

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

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