DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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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-004528
Date Inspected: 28-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

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, 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:

Foundry Shop

At the start of the shift, the QA inspector traveled to the Foundry Shop to observe the scheduled repair welding of the rib build-up areas on the West Deviation Saddle Casting identified as W2E2. The repair welding was conducted at Lane 1 of the Foundry Shop at the area designated as "The Gouging and Grinding Area." The QA inspector observed the welding performed by JSW welding personnel Kubotamori Yoshio ID 06-8000 on the repair area of rib 8L identified as Grid 3, 2-1. The weld inspection was performed by the Welding Engineer Tomio Imai. The welding was performed by JSW the welding personnel utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) identified as SJ-3026-2 which was also used by the QC inspector as a reference during QC verification of the Alternating Current (AC) welding parameters. The consumable utilized by the welder appeared to be a Hobart Brothers Product identified as LB-106, with the diameter size of 5.0 mm which appeared to comply with the AWS Specification A5.5 and the AWS Electrode Classification E10016-G. The welding was performed in the horizontal (2G) position with the work in the vertical plane and the weld axis horizontal.
The referenced information for the rib repair build-up is identified as Submittal 000643 Revision 2.

Fabrication Shop # 4

Later in the shift the QA inspector observed the scheduled Partial Joint Penetration (PJP) groove welding of the

structural steel grillage to the casting, QC inspection and the verification of the Alternating Current (AC) and Direct Current (DC) welding parameters during the welding on the West Deviation Saddle identified as W2E1. The welding was performed on the rib to rib connections identified as E1Y-4U-1 and E1Y-8U.
The welding of E1Y-4U-1 was performed by Japan Steel Works, Ltd. (JSW) welding personnel Yamashita Masao ID-73-4195 utilizing the gas shielded Flux Cored Arc Welding (FCAW-G) process and the welding of E1Y-8U was performed by JSW welding personnel Takatoshi Inowe ID 08-5163 utilizing the Shielded Metal Arc Welding (SMAW) process. The welding of the PJP connections was performed utilizing the Welding Procedure Specification (WPS) SJ-3011-7, which was also used as a reference by Intertek Testing Services (ITS) Quality Control (QC) Inspector Chung Fu-Kuan during QC verification of the welding parameters.

The QA inspector also observed the welding was also performed utilizing the Distortion Control Plan, identified as Document Number SJ-3109 Revision 4. It was also noted the welding was performed in the horizontal (2G) position with the work in the vertical plane and the axis of the weld horizontal.

The QA inspector also observed the JSW personnel performing the assembly fit-up, alignment and tack welding of the rib plates identified as 8Y-8V (2-3) and 8y-7V (2-3). The weld inspection was performed by ITS Quality Control (QC) Inspector Chung Fu-Kuan. The minimum preheat of 160 degrees Celsius was verified by QC inspector prior to the tack welding which was performed by JSW welding personnel OhtaYoshihiro, ID 08-2017 utilizing the SMAW process as per the Welding Procedure Specification (WPS) SJ-3012-2. The WPS was also used by the QC inspector as a reference during the QC verification of the Alternating Current (AC) welding parameters. The tack welding was performed in the vertical (3G) position utilizing a 4.0 mm electrode.

The consumable utilized by the welding personnel appeared to be a Hobart Brothers Product and the trade name was identified as Hoballoy 9018-M which appeared to comply with the AWS Specification A5.5 and the AWS Classification E9018-M-H4R. The diameter of the electrodes utilized was 4.0 in diameter.
The consumable utilized for the FCAW-G process also appeared to be a Hobart Brothers Product and the trade name was identified as TM 95K2 which appeared to comply with the AWS Specification A5.29 and the AWS Classification E90T5-K2C H4. The size of the electrode was 1.6 mm in diameter.

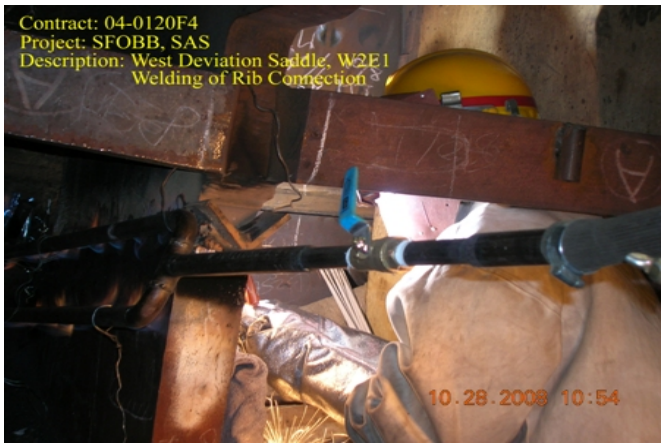
Mechanical Tests for Welder Qualifications
At approximately 13:00 hours, the QA inspector observed eight sets of side bend tests which were prepared as per Figure 5.11. The testing was performed utilizing a guided bend test jig as per Figure 5.14 and at the conclusion of the tests the QA inspector observed the Nikko Inspection Service (NIS) QC inspector, Hideo Damon perform the visual examination on the convex side of each specimen. There were no relevant discontinuities were noted and the examinations were performed in accordance with AWS D1.5-2002, Section 5.19 paragraph 5.19.2.
The side bend test conducted were for the following JSW personnel: Hidetoshi Mizuhara, Ryouichi Iizuka, Kenichiro Sadakawa, Takuma Ohkawa, Masatugu Kobayashi, Mamoru Kubota, Takao Kawakami.
The QA inspector issued the lot number, B83-042-08 for tracking purposes.

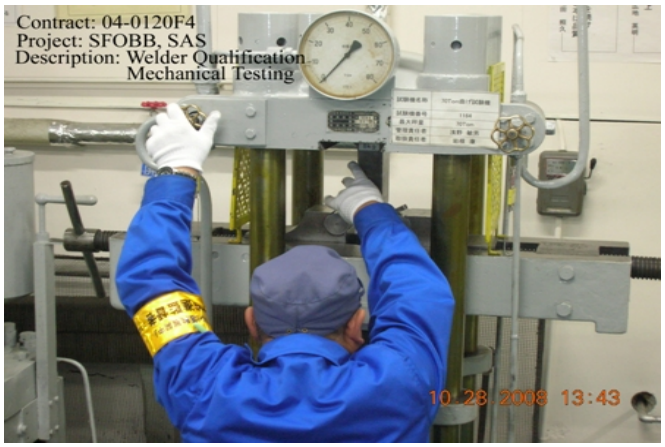
Later in the shift this QA inspector observed, at random intervals, the QC inspector's performing QC verification of the welding parameters, the minimum preheat and maximum interpass temperatures.

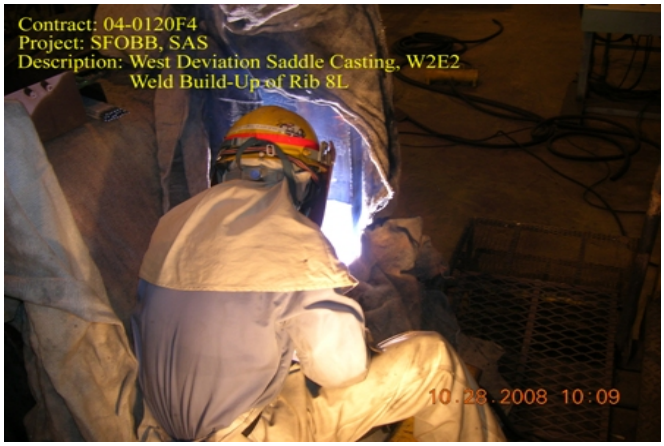
The QA inspector's observations were performed at random intervals during the shift. The QA inspector noted that it appeared the approved and latest revised WPS's were posted at the welding station and that each approved

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.

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







Item	Weld Identification	Applicable WPS	CWI Name	Amperage	Voltage	TravelSpeed	Preheat Temp	Remarks
1	W2E2, Rib 8L(2-1)	SJ-3026-2	T.Imai	205 AC	23 AC	180mm/m	172 Degrees C.	Yoshio
2	E1Y-4U-1	SJ-3011-7	C. Fu-Kuan	333 DC	35 DC	305mm/m	205 Degrees C.	Masao
3	E1Y-8U	SJ-3011-7	C. Fu-Kuan	251 AC	23 AC	150mm/m	190 Degrees C.	Inowe
4	8Y-8V (2-3)	SJ-3012-2	C. Fu-Kuan	150 AC	22 AC	110mm/m	185 Degess C.	Yoshihiro

WELDING INSPECTION REPORT

(Continued Page 4 of 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