

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-003544**Date Inspected:** 20-Aug-2008**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** Japan Steel Works**OSM Arrival Time:** 800**OSM Departure Time:** 1630**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 for the West Deviation and the Tower Saddles relative to this project. The following was observed:

Foundry Shop

The QA inspector periodically observed the Nikko Inspection Services (NIS) QC/NDT technician Yugo Osanai perform the straight beam ultrasonic testing of the casting identified as the Tower Saddle T1-1. The casting was tested utilizing a Krautkramer Branson USM-3S, serial number 30178-1587 and a 2 MHz 24mm round transducer. The testing was performed on the exterior surface of the ribs, stem and main body of the casting. The ultrasonic testing appeared to be performed in accordance with the JSW procedure specification number SJ-2878 Revision 2. The testing was not completed on this date and the work appeared to meet the minimum requirements of the contract specifications.

Fabrication Shop # 4

At the conclusion of the observing the NDT at the Foundry Shop, the QA inspector traveled to the Fabrication Shop # 4 to observe the shop welding, weld inspection and verification of the welding parameters on the structural steel plate components for the West Deviation Saddle identified as W2E2. The Welding was performed by the Japan Steel Works, Ltd. (JSW) welding personnel Takao Kawakami ID 08-5079 and Masatugu Kabayashi ID 08-5154 utilizing the gas shielding Flux Cored Arc Welding (FCAW-G) as per the Welding Procedure Specification (WPS) SJ-3011-2. The Distortion Control Plan, identified as Document SJ-3109 Revision 3 was also utilized by the JSW personnel during the production welding of the rib plate to base plate connections

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identified as EY2-15L and E2Y-16L. The WPS and the Distortion Control Plan were also used as a reference during QC verification of the welding parameters and the monitoring of the weld sequence. The production welding sequence was performed as per Attachment 5, Case 2 Step 3 and Attachment 6, Step 4 of the Distortion Control Plan. The welding was performed in the Flat (1G) Position with the work in the horizontal plane and the weld metal deposited from above.

The consumable utilized by the welding personnel 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.

Later in the shift at approximately 1300 hours, the QA inspector observed the Magnetic Particle Testing (MPT) of the tack welds on the Tower Saddle identified as T1-1. The testing was performed by Nikki Inspection Service (NIS) QC/NDT personnel Kazuya Kobayashi 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 tack welds and was conducted utilizing the MPT procedure identified as SF-MT-01. The yoke dead lift was verified with a 4.65kg test plate and the magnetic field was verified with a field indicating gauge (pie gauge).

The QC/NDT technician noted seven cracks at the rib to stem plate connections identified as 7-7 to 7-2 and 7-7 to 7-3.

In regards to the JSW scheduling of the tack weld repairs this QA inspector informed QC inspector Chung Fu-Kuan that the QA inspector is required to be present at the start of the Non-Destructive Testing (NDE) as stated per AWS D1.5-2002, Chapter 6 Paragraph 6.6.6, "The Contractor shall schedule NDT to facilitate attendance by the QA Inspector. The QA Inspector shall be advised by the Contractor of operational and NDT schedules and scheduled changes." The QC inspector responded that QA inspector would be advised in advance of the time and date NDT repair schedule.

The Quality Control (QC) inspection was performed by Intertek Testing Services (ITS) personnel Chung Fu-Kuan who performed the verification the preheat temperatures, welding parameters and the in process weld inspection during this shift. The welding parameters were verified utilizing a Hioki 3109 Clamp Meter, Model RMS and the surfaces temperatures were verified utilizing an Anritsu HA 100E digital surface thermometer during the QC verification. The calibration dates of the measuring instruments utilized by the QC inspector were previously verified by this QA inspector.

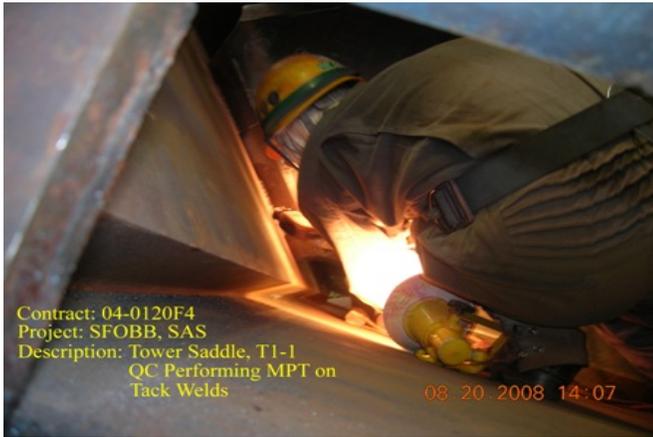
Later in the shift this QA inspector observed, at random intervals, the QC inspector performing QC verification of the welding parameters, the minimum preheat and maximum interpass temperatures.

The QA inspector'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 for the surface temperatures. 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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On this page of this report, see Weld Joints in Progress Inspected regarding the QA observations of the production welding parameters recorded 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	E2Y-15L	SJ-3011-2	C. Fu-Kuan	334 DC	36 DC	300 mm/m	200 Degrees C.	M. Kobayashi
2	E2Y-16L	SJ-3011-2	C. Fu-Kuan	338 DC	34 DC	293mm/m	200 Degrees C.	Kawakami

Summary of Conversations:

There were no pertinent conversations relative to the project on this date, except as noted above.

Comments

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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
