

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 99.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-002986**Date Inspected:** 18-Jun-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 2230**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 830**Contractor:** Japan Steel Works, Ltd.**Location:** Muroran, Japan**CWI Name:** Makhmud Ashadi**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, Jacking and Deviation Saddles**Summary of Items Observed:**

On this date OSM Quality Assurance (QA) Representative Daniel L. Reyes observed the build-up repair welding and the welding of the structural steel plate components the West Deviation Saddle and Saddle Casting scheduled on this date. The following was observed:

Fabrication Shop # 4

At the start of the C-shift the QA inspector traveled to the Fabrication Shop # 4 to observe the continued Partial Joint Penetration (PJP) groove welding of the structural steel plate components for the West Deviation Saddle identified as W2E1. The Welding Procedure Specification (WPS) SJ-3011-1 and the Japan Steel works, Ltd. Distortion Control Plan, Document No. SJ-3109 Rev. 1 was utilized by the JSW welding personnel during the performance of the production welding of the stem plate to base plate connection and was also used as a reference during QC verification.

The gas shielded Flux Cored Arc Welding (FCAW) was performed by JSW welding personnel Yuichi-Arai ID 08-5157 and Satoru-Watanabe ID 08-5159. The consumable utilized by the welding personnel appeared to be a Hobart Brothers Product and identified with the trade name TM 95K2 which appeared to comply with the AWS Specification A5.29 and the AWS Classification E90TS-K2C H4. The size of the electrode was 1.6 mm in diameter.

The Quality Control (QC) inspection was performed by Intertek Testing Services (ITS) personnel Makhmud Ashadi. The QC inspector verified the preheat temperatures, the Alternating Current (AC) and performed 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

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inspector were previously verified by this QA inspector.

The welding, inspection and QC verification were performed on the weld joint identified as E1S-2L. The welding was performed in the Flat Position (1G) with the work in the horizontal plane and the weld metal deposited from above.

See Weld Joints in Progress Inspected on Page 3 of 4 of this report regarding the QA verification of the welding parameters recorded during this shift on this date.

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, Mukhmud Ashadi appeared to perform the visual weld examinations, monitoring of the welding and the verification of the welding parameters in accordance with the contract documents.

Other QA Observations

The QA inspector observed the verification of the interpass temperatures performed by the ITS QC inspector, Makhmud Ashadi and it appeared the temperature readings exceeded the maximum value of 218 Degrees Celsius. The actual reading appeared to be 220 Degrees Celsius which was measured on the stem plate identified as 1-2. The QC inspector informed the QA inspector that prior to the start of the welding process the preheat temperature was measured at 165 Degrees Celsius and had exceeded the maximum interpass temperature at the conclusion of applying three weld layers. At this time the welding was terminated at approximately 23:15 to allow the welding surfaces to cool. At approximately 23:45 the welding commenced which at this the time the QC inspector verified the preheat temperature of 165 Degrees Celsius.

Later in the shift the QA inspector observed that JSW has made adjustments regarding the preheat application by reducing the flow of gas into the pipe burners. This adjustment was made at the gas manifold located on the south side of the positioner. This action was directed by the JSW Welding Engineer, Mr. Sasaki.

Foundry Shop

At approximately 01:30 the QA inspector traveled to the Foundry Shop to observe the repair welding on the saddle casting scheduled on this date. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) SJ-3026-2 which was also used by the QA inspector as a reference during verification of the welding parameters. The welding was performed by Japan Steel Works, Ltd. (JSW) welding personnel, Kazuya-Komai ID 06-8002 and Yoshio-Kabutomori ID 06-8000 which was conducted on the West Deviation Saddle identified as W2E1 and was performed in the horizontal (2G) position with the work in the vertical plane and the axis of the weld horizontal. The repair welding was conducted on the rib castings identified as 1U and 6U.

The consumable appeared to be identified as LB-106, a product of Hobart Brothers which appeared to comply with the AWS Specification A5.5 and the AWS Classification E10016-G. The size of the electrode appeared to be 5.0 millimeters in diameter.

The QA inspector verified the preheat temperatures, the interpass temperatures and the Alternating Current (AC) welding parameters at random intervals during this shift.

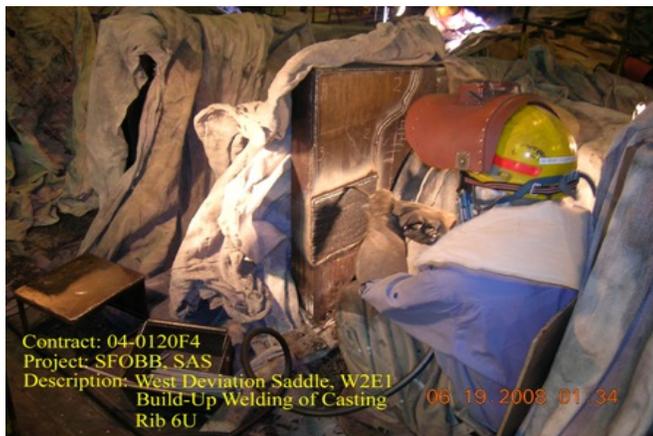
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See Weld Joints in Progress Inspected on Page 3 of 4 of this report regarding the QA observation of the welding parameters recorded during this shift on this date.

This QA inspector randomly observed the in process Shielded Metal Arc Welding (SMAW) for the repair welding of the ribs on the West Deviation Saddle Casting identified as W2E1. This QA inspector noted that it appeared the approved and latest revised WPS's were posted at the appropriate 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 as noted by this QA inspector utilizing a Fluke 337 clamp meter for the electrical welding parameters and Tempilstik temperature indicators for preheat and interpass temperatures. The filler metal utilized at the welding stations was also verified. The welding was not completed during this shift and appeared to be in general compliance with the contract documents.

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



Item	Weld Identification	Applicable WPS	CWI Name	Amperage	Voltage	TravelSpeed	Preheat Temp	Remarks
1	W2E1, EIS-2L	SJ-3011-1	M. Ashadi	337 DC	36.0 DC	290 mm/m	165-218 Degrees C.	Yuchi-Arai
2	W2E1, EIS-2L	SJ-3011-1	M. Ashadi	332 DC	35.0 AC	295 mm/m	170-218 Degrees C.	Satoru-Watanabe
3	W2E1, Rib 1U, Area 3-9SJ-3026-2		N/A	212 AC	23.0 AC	160 mm/m	180-230 Degrees C.	Kazuya-Komai
4	W2E1, Rib 6U, Area 2-7SJ-3026-2		N/A	215 AC	24.0 AC	170 mm/m	170-230 Degrees C.	Yoshio-Kabutomori

Summary of Conversations:

There were general conversations relative to this project with the QC inspector, Makhmud Ashadi on this date,"As Noted Above."

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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Inspected By: Reyes,Danny

Quality Assurance Inspector

Reviewed By: Lanz,Joe

QA Reviewer