

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 #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003441**Date Inspected:** 11-Aug-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Japan Steel Works**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 Tower Saddles relative to this project. The following was observed:

At the start of the shift the QA inspector traveled to the Radiography Department to review radiographic film for the Procedure Qualification Record (PQR) Test identified as SW-3-1. The QA inspector reviewed two (2) sets of film, one set was radiograph after welding and the second set was radiograph after Post Weld Heat Treatment (PWHT). Each set contained three (3) radiographic films. The radiographs were reviewed to verify that the examination, technique and interpretation complied with the contract documents. A Radiographic Film Review Report, TL-6029 was generated on this date.

Fabrication Shop # 4

At approximately 1100 hours the QA inspector traveled to the Fabrication Shop # 4 to observe the welding of the PQR tests identified as SW-13-1, SW-13-2 and SW-13-3. The tests plates were assembled to a T-Joint configuration and appeared to comply with AWS D1.5-2002, Figure 5.8. The welding was performed by Japan Steel Works, Ltd. (JSW) welding personnel Kei Nakasato ID 91-2247 who utilized the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) SJ-2942 WP-19. The tests were performed in the 1F, 2F and 3F positions. The QA inspector observed the QC inspector verified the Alternating Current (AC) welding parameters which appeared to comply with the WPS. A Weld Witness Report, TL-6032 was generated on this date.

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Later in the 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 W2E2. The Welding Procedure Specifications (WPS) SJ-3011-2, SJ-3011-3 and the Distortion Control Plan, identified as Document SJ-3109 Revision 3 was utilized by the Japan Steel Works, Ltd. (JSW) personnel during the performance of the production welding of the rib plate to base plate connection identified as EY2-15L, EY2-15V, EY2-16L, EY2-16V and EY2-9L. 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 2 and Attachment 6, Step 3 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 gas shielded Flux Cored Arc Welding (FCAW-G) was performed by JSW welding personnel Mutuo Kashiwada ID 08-2008, Kouzou Kabayashi ID 08-5023 and Hidetaka Nishikawa ID 08-5162. 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.

The Quality Control (QC) inspection was performed by Intertek Testing Services (ITS) personnel Chung Fu-Kuan and verified the preheat temperatures, welding parameters 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 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.

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

The digital photographs on Page 3 of this report illustrates the observations of the activities performed on this date.

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| Item | Weld Identification | Applicable WPS | CWI Name | Amperage | Voltage | TravelSpeed | Preheat Temp | Remarks |
|------|---------------------|----------------|------------|----------|---------|-------------|----------------|-----------|
| 1 | EY2-15V | SJ-3011-3 | C. Fu-Kuan | 310 DC | 24 DC | 280 mm/m | 175 Degrees C. | Kashiwada |
| 2 | EY2-16V | SJ-3011-3 | C. Fu-Kuan | 315 DC | 24.5 DC | 283 mm/m | 177 Degrees C. | Kabayashi |
| 3 | EY2-9L | SJ-3011-2 | C. Fu-Kuan | 312 DC | 24 DC | 281 mm/m | 182 Degrees C. | Nishikawa |

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.

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| Inspected By: | Reyes,Danny | Quality Assurance Inspector |
| Reviewed By: | Lanz,Joe | QA Reviewer |
