

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-005096**Date Inspected:** 19-Dec-2008**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** Japan Steel Works**OSM Arrival Time:** 830**OSM Departure Time:** 1930**Location:** Muroran, Japan**CWI Name:** Chung 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, Jacking and Deviation Saddles**Summary of Items Observed:**

Steel Structure Welding Shop:

Tower Saddle Steel Structure T1-3: Caltrans Quality Assurance Inspector (QAI) representative Mr. Wai Pau, traveled to Japan Steel Works (JSW) Muroran plant to observe two welders perform Flux Cored Arc Welding (FCAW) process on a rib # 9Y-10V and # 9Y-11V of T1-3 tower saddle steel structure. The weld numbered 9Y-10V (3-2) and 9Y-11V(3-1). The two welds start welding from 70% weld metal to 100%. The material used for grillage was reported by CWI Mr. Chung Kuan as ASTM 709 Gr345 plate having a thickness measurement of 120mm. The weld joint design used, double-V groove partial joint penetration groove weld (PJP). The filler metal and shield gas used for FCAW welding is Hoballoy wire TM-95K2, 1.6 diameter made by Hobart Brothers, USA with 100% CO₂. The parameters used for FCAW welding of assemblies were conducted in accordance with Caltrans approved WPS #SJ-3012-3. The FCAW welding process and parameters were monitored and recorded by CWI inspector Mr. Chung Kuan. Based on Caltrans QA observation, the FCAW welding operation appeared to be in general compliance with requirements of AWS D1.5 2002 and Caltrans contract documents.

Tower Saddle Steel Structure T1-2: The QAI observed Nikko Inspection Service (NIS) NDT technicians perform dry MT testing on all the production weld surfaces of tower saddle steel structure T1-2 after sand blasted. The dry MT was performed and evaluated in accordance with ASTM standard E709 and Caltrans Special Provisions, using the yoke method. The yoke utilized appeared to be model UM 3BF, serial numbers 93-05. The yoke light output was verified with a Hioki model 3408 light meter. The magnetic field was verified with a field indicating gauge (pie gauge). Visible dry red magnetic particles were utilized and made by Magnotron, Japan. The MT test will continue next Tuesday, 12-23-08. Based on Caltrans QA observation, the MT test operation appeared to be in general compliance with requirements of AWS D1.5 2002 and Caltrans contract documents.

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West Deviation Saddle Steel Structure W2E3: Caltrans QA Inspector observed two welders in process of fit up and Shielded Metal Arc Welding (SMAW) tack welding on stem plate attach to side plate. The stem plate and side plate material used is ASTM 709M-HPS-485WT with 100mm and 120mm thickness.

The weld is designed butt joint, double V-groove weld. After the stem plate is aligned on side plate, a number of 40mm length tack welds, evenly spaced along the stem plate. The proper filler metal used for SMAW tack welding is Hoballoy 9018-M with 5mm diameter electrode made by Hobart Brothers, USA. The fit up, SMAW tack welding process and parameters have been monitored and recorded by CWI inspector Mr. Chung Kuan.

Based on Caltrans QA Inspector observation, no discrepancies were noted.

Casting Shop:

West Deviation Saddle casting W2W2 and W2W3: Caltrans QAI observed two welders performed air carbon arc gouging process on exterior rough surface of rib side for west deviation saddle W2W3 after rough machining. The gouging areas are not uniform surface and not able to use machining. The equipment used a 10mm gouging electrode all made in Japan. The gouging process will schedule to December 28, 2008. Based on Caltrans observation, no discrepancies were noted.

West Deviation Saddle casing W2E3 and Tower Saddle casing T1-3:- Caltrans QAI observed two NIS NDT level II technicians perform straight beam UT test on rib side of West Deviation Saddle W2E3 and rib side of Tower Saddle T1-3. The thickness of saddle segment is casting and tower saddle form 150mm to 500mm and both saddle test surface have been Magnetic Particle Test (MT) prior UT test. First, a 500mm range reflection was calibrated on a Krautkramer Branson USM 3 instrument, a straight beam search unit, 24mm x 2 MHz single transducer applied a source of compression waves, and penetrated into segment W2E3 and T1-3 for discontinuities scanning. The distance and sensitivity of straight beam is calibrated with the 3.0mm and 6.4mm diameter FBH reference block and an additional test reference block made by same casting metrical. The liquid glycerin is be used to couple the search unit to the test surface. All the straight beam testing was completed. Based on Caltrans observation, no discrepancies were noted. The Shear wave UT test for both saddles will start on Tuesday, December 23, 2008.

Summary of Conversations:

As Note within the report 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 Nina Choy (510)385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Pau,Wai	Quality Assurance Inspector
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Reviewed By:	Lanz,Joe	QA Reviewer
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