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

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 73.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-009172
Date Inspected: 16-Sep-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: HoChang, Korea

OSM Arrival Time: 800
OSM Departure Time: 1800
Location: Unyang, Korea

CWI Name: Sang Ho Kwak

Inspected CWI report:	☐ Yes	☑ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A

CWI Present:	☑ Yes	☐ No	
Rod Oven in Use:	☑ Yes	☐ No	☐ N/A
Weld Procedures Followed:	☑ 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: Pier E2 Bearing and Shear key

Summary of Items Observed:

The following report is based on METS observations at HoChang Machinery Industries (HCMI). Current work: Casting, forging and machining.

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HCMI) located at Unyang and Onsan Korea and Korea Precision Co,. located at Dooseo Korea.The Purpose of this trip was to observe quality control during fabrication and process of following items.

On this date DHIC continued Stainless Steel overlay welding on Solid Shaft(B2-02), QA inspector and HMIC QC Inspector has checked welding parameters prior start overlay welding. Welding process is Electro Slag Welding (ESW) with E309L (1st layer) and E316EL (2nd and remaining layers), 0.4mm x 30mm ESW strip wire manufactured by KOBE STEEL, brand name US-309L and US-316EL with KOBE PF-B7FK Flux. The QA inspector checked the welding parameters of 28-29 volts, 550-590 amps, travel speed 180-190mm/min, preheat temperature over 100ºC with 24 hours maintaining preheat temperature. All of welding parameters were comply to approve welding procedure specifications No ESW-002.

Welder: Day shift Mr. KJ, Lee welding on B3-02.
Mr. CK, Jang welding on B3-02.

Night Shift Mr. DJ, Kim welding on B3-02.

Forging

1. Bearing Bottom Housing (B1-07/F07302-010): Completed final MT.
2. Bearing Bottom Housing (B2-07/F07302-020): Completed final MT.
3. Bearing Bottom Housing (B3-07/F07302-030): Completed final MT.
4. Bearing Bottom Housing (B4-07/F07302-040): Completed final MT.
5. Spherical Ring (S1-07/F07302-050): Completed PWHT after SS overlay welding.
6. Spherical Ring (S2-07/F07302-060): Completed PWHT after SS overlay welding.
7. Spherical Ring (S3-07/F07302-070): Completed PWHT after SS overlay welding.
8. Spherical Ring (S4-07/F07302-080): Completed PWHT after SS overlay welding.
9. Solid Shaft (B1-02/F07302-090): Completed SS overlay welding.
10. Solid Shaft (B2-02/F07302-100): Completed SS overlay welding.
11. Solid Shaft (B3-02/F07302-110): Completed SS overlay welding.
12. Solid Shaft (B4-02/F07302-120): Start SS overlay welding.

• F number is DooSan Production Number.
• B number is drawing Number.

Casting

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HCMI) located at Unyang, Korea and DooSan Heavy Industries(DHIC) located at Changwon, Korea. The Purpose of this trip was to observe quality control during fabrication and process of following items.

HMIC NDT technician Mr. DY, Whang and Mr. GT, Kim performed final MT on Shear key Housing (S2-03). QA inspector checked following items prior to testing: Calibration Date, AC lifting power, and Pie gauge sensitivity.

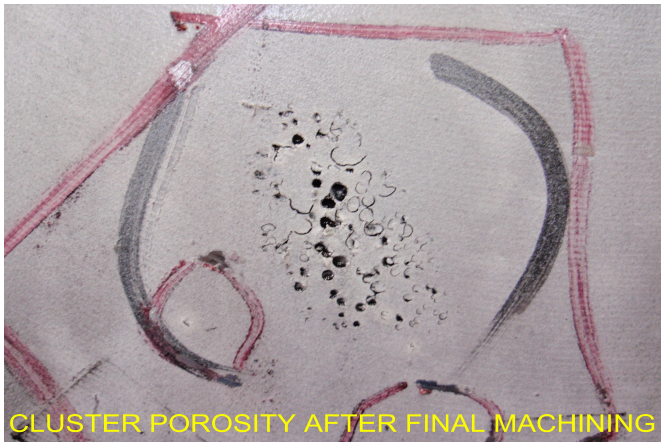
1. Bearing Top Housing (B1-06, C07039-010): Continue final machining.
2. Bearing Top Housing (B2-06, C07039-020): Continue final machining.
3. Bearing Top Housing (B3-06, C07039-030): Continue to final machining.
4. Bearing Top Housing (B4-06, C07039-040): Continue to final machining.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Completed final MT.
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Completed final MT.
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Completed final MT.
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Completed final MT.
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Completed final MT.
10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Completed final MT.
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Completed final MT.
12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Completed final MT.
13. Shear Key Stub (S1-01, C07039-090): Continue final machining.
14. Shear Key Stub (S2-01, C07039-100): Continue final machining.
15. Shear Key Stub (S3-01, C07039-110): Continue final machining.
16. Shear Key Stub (S4-01, C07039-120): Continue final machining.
17. Shear key Housing (S1-03, C07039-130): Continue final machining.

18. Shear key Housing(S2-03, C07039-140): Continue final machining.
19. Shear key Housing(S3-03, C07039-150): Continue final machining.
20. Shear key Housing(S4-03, C07039-160): Continue final machining.

* S and B number is drawing number.
* C number is DSHI ID number.

STEEL STRUCTURE

On this date HMIC continued structural welding on retainer brackets and nut retainer brackets. The QA inspector and HMIC QC Inspector checked welding parameters prior to start welding. Welding process utilized Flux Core Arc Welding (FCAW) with E71T-1C with diameter 1.4mm wire manufactured by Hyundai STEEL, Brand name Supercored 71H(HYUNDAI) with Co2 gas. QA inspector checked welding parameters and observed 23-27 volts, 250-290 amps, travel speed of 320-390mm/min, Gas flow 25 l/min. preheat temperature over 20ºC and interpass temperature was less then 250º C. All of welding parameters appear to comply with approved welding procedure specification No. FC-061-F.



Summary of Conversations:

*Discuss with Mr. S. H. Kwak regarding general project schedule.

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:	Shin,DJ	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer