

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 73.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007152**Date Inspected:** 05-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1800**Contractor:** HoChang, Korea**Location:** Unyang/Changwon, Korea

<b>CWI Name:</b>	Sang Ho Kwak		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	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, 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.

**Forging**

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

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

## Casting

On this date DHIC was performing repair welding on the castings listed below. This QA inspector, HMIC QC Inspector and DHIC QC inspector checked the welding parameters of the personnel listed below prior to the start of repair welding.

The QA inspector observed the welding process utilized Flux Core Arc Welding (FCAW) with filler metal E81T1-K2, 1.6mm diameter and manufactured by SEAH-ESAB with brand name Dual shield 1181-K2.

This QA inspector verified the following welding parameters; 23-26 volts and 210-250 amps with a travel speed of 13-16 cm/min. The QA inspector observed a shielding gas flow of 10-25 l/min and a preheat temperature over 100°C which appeared to be maintained 24 hours a day and through out repair welding.

All of welding parameters were comply to approve welding procedure specifications No A-F-Z1Z1-219.

Welder Mr. YT, Kim welding on S4-01.

1. Bearing Top Housing(B1-06, C07039-010): Continued repair welding.
2. Bearing Top Housing(B2-06, C07039-020): Completed removal of defect and NDT
3. Bearing Top Housing(B3-06, C07039-030): Completed PWHT
4. Bearing Top Housing(B4-06, C07039-040): Completed repair welding.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Completed PWHT
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Completed PWHT
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Completed PWHT
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Completed PWHT
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Completed PWHT
10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Completed PWHT
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Completed PWHT
12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Completed PWHT
13. Shear Key Stub(S1-01, C07039-090) : Completed PWHT
14. Shear Key Stub(S2-01, C07039-100) : Completed PWHT
15. Shear Key Stub(S3-01, C07039-110) : Completed PWHT
16. Shear Key Stub(S4-01, C07039-120) : Started repair welding
17. Shear key Housing(S1-03, C07039-130): Continued repair welding.
18. Shear key Housing(S2-03, C07039-140): Completed repair welding.
19. Shear key Housing(S3-03, C07039-150): Completed removal of defect and NDT
20. Shear key Housing(S4-03, C07039-160): Completed removal of defect and NDT

\* S and B number is drawing number.

\* C number is DSHI ID number

This QA inspector observed Post Weld Heat Treatment (PWHT) was in progress on a Procedure Qualification

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Record (PQR). Please see photo below of PWHT holding temperature.



## 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.

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**Inspected By:** Shin,DJ

Quality Assurance Inspector

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**Reviewed By:** Hager,Craig

QA Reviewer