

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-002581**Date Inspected:** 23-Apr-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2330**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

|                                    |                            |                                  |           |        |
|------------------------------------|----------------------------|----------------------------------|-----------|--------|
| <b>CWI Name:</b>                   | Xu Le Feng/ Chen Chci Ming | <b>CWI Present:</b>              | Yes       | No     |
| <b>Inspected CWI report:</b>       | Yes No N/A                 | <b>Rod Oven in Use:</b>          | Yes       | No N/A |
| <b>Electrode to specification:</b> | Yes No N/A                 | <b>Weld Procedures Followed:</b> | Yes       | No N/A |
| <b>Qualified Welders:</b>          | Yes No N/A                 | <b>Verified Joint Fit-up:</b>    | Yes       | No N/A |
| <b>Approved Drawings:</b>          | Yes No N/A                 | <b>Approved WPS:</b>             | Yes       | No N/A |
|                                    |                            | <b>Delayed / Cancelled:</b>      | Yes       | No N/A |
| <b>Bridge No:</b>                  | 34-0006                    | <b>Component:</b>                | OBG/Tower |        |

**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) Inspector Roscoe Dixon was present at the time requested to randomly observe welding and associated operations being performed for the Orthotropic Box Girders (OBG), and Tower.

Bay 3:

The QA Inspector randomly observed ZPMC Welding Operator Jing Jing Teng ID 046830, utilizing the Submerged Arc Welding (SAW Process with ZPMC Weld Procedure Specification (WPS) WPS-B-T-2221-BL2-C-S-1 to complete filler weld passes for the Complete Joint Penetration (CJP) Butt Joint weld for side plate components PL918A+PL918B. The part numbers were designated as SP36A, and SP36B.

The QA Inspector visually verified a single electrode was being utilized for the filler passes and the filler metal being used was JW-3 with a diameter of 4.8 millimeters.

The weld joints randomly observed being welded during this QA Inspector's shift included: SP361-001-001.

The QA Inspector observed that during the shift ZPMC CWI, Wu Ming Kai and ZPMC CAWI Inspectors monitoring the electrical parameters, travel speed and weld interpass temperatures at this welding station.

The QA Inspector observed ZPMC qualified Welders Zhang Feng ID 049769 and welder Lv Peng ID 048617 utilizing the Shielded Metal Arc Welding (SMAW) Process. Mr. Lv Peng was welding using ZPMC Weld

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Procedure Specifications (WPS)-B-P-2112 and (WPS)-B-P-212 to tack weld various WT stiffeners to plate material for side plates.

The marking on the plate materials was identified by ZPMC as Non Seismic Performance Critical Member (SPCM) plate material butt welded to approximately 700 millimeters of (SPCM) plate material, identified as PL601A+PL601B Mark SP751B. Mr. Zhang Feng was welding WT stiffeners on the section of the plate material identified by ZPMC markings as being (SPCM) material.

The electrode filler metal being used by Mr. Han xiao Feng during the welding of weld joint SP609-001-040 was verified as TL-508 on the non SPCM side of the plate, and the weld joint being tack welded appeared to be in conformance with the contract requirements.

Mr. Han xiao Feng ID 054467 was also in the process of tack welding WT stiffener to plate material with ZPMC marking identifying the plate materials as SPCM plate material PL10148B SPCM plate material PL601A Mark SP609B. The electrode filler metal used during the tack welding of weld joint SP609-001-041 and SP609-001-042 was verified as TL-506.

During the welding the QA Inspector verified the welding machine amperes utilizing a Fluke meter which registered 170 amperes.

The QA Inspector observed that during the shift ZPMC CWI, Wu Ming Kai and various ZPMC CAWI Inspectors were monitoring the electrical parameters, travel speed and temperatures at several welding stations in Bay # 3. The work being performed was in progress generally appeared to comply with the above listed WPS's and conform to contract specifications.

The QA Inspector randomly observed ZPMC Welding Operator Jing Jing Teng ID 046830, utilizing the Submerged Arc Welding (SAW Process with ZPMC Weld Procedure Specification (WPS) WPS-B-T-2221-BL2-C-S-1 to complete filler weld passes for the Complete Joint Penetration (CJP) Butt Joint weld for side plate components PL918A+PL918B. The part numbers were designated as SP36A, and SP36B.

The QA Inspector visually verified a single electrode was being utilized for the filler passes and the filler metal being used was JW-3 with a diameter of 4.8 millimeters.

The weld joints randomly observed being welded during this QA Inspector's shift included: SP361-001-001.

The QA Inspector observed that during the shift ZPMC CWI, Wu Ming Kai and various ZPMC CAWI Inspectors monitoring the electrical parameters, travel speed and weld interpass temperatures at this welding station.

The welding of the above listed weld joint was completed during the QA Inspector's verification and generally appeared to conform to contract specifications.

Bay 7:

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## WELDING INSPECTION REPORT

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The QA Inspector randomly observed ZPMC Welding Operator Sun Guzo ID 058100 performing the Submerged Arc Welding process with WPS) WPS-B-T-3221-BU3-C-S-1 in the 1F (Flat) position to weld the final cap pass for the 12 millimeters thick floor beam weld joint FB015-012-023.

The QA Inspector visually verified a single electrode was being utilized to complete the cap pass, the filler metal was JW-3 with a diameter of 4.8 millimeters.

The Flux was verified as JF-B, the base material listed on the. The QA Inspector observed and noted that during the welding operation the ZPMC welding operator would before welding over previous deposited weld pass utilized the proper cleaning method to remove slag prior to resuming the welding operation.

The QA Inspector observed that during the shift ZPMC CWI, Huang Wen Pang and various ZPMC CAWI Inspectors monitoring the electrical parameters, travel speed and weld interpass temperatures at this welding station.

The welding of the above listed weld joint was completed during the QA Inspector's verification and generally appeared to conform to contract specifications.

Bay 8:

The QA Inspector randomly observed ZPMC Welding Operator Ma Ying ID 045270 performing the Submerged Arc Welding process with WPS) WPS-B-T-3221-BU3-C-S-1 in the 1F (Flat) position to weld the root pass for SA290 (E)+P308(E), weld joint ESD1-SA290-11B/12B.

The QA Inspector visually verified a single electrode was being utilized to complete the root pass. The filler metal was LA-85 with a diameter of 4.8 millimeters.

The Flux was verified as MIL800-HPN1, the base material listed on the (WPS) as HPS 485WT2 Shear Link grade 485. The QA Inspector observed and noted that during the welding operation the ZPMC welding operator would before welding over previous deposited weld pass utilized the proper cleaning method to remove slag prior to resuming the welding operation.

The QA Inspector observed that during the shift ZPMC CWI, Lv Liqing and various ZPMC CAWI Inspectors monitoring the electrical parameters, travel speed and weld interpass temperatures at this welding station.

The QA Inspector randomly observed ZPMC Non-Destructive Testing (NDT) Technician Zhou Dongyun, Utilizing the Magnetic Particle Testing (MT) Method, to examine the Tower Diaphragm plate Weld Joint (WJ) Number NSD1 SA276-1B/2B. Mr Zhou Dongyun informed the QA Inspector that W/J NSD-SA276-1A/2A had been completed previously and that no indications were found in either weld joint.

The work being performed was in progress generally appeared to conform to contract specifications. For more detail see photographs shown below:

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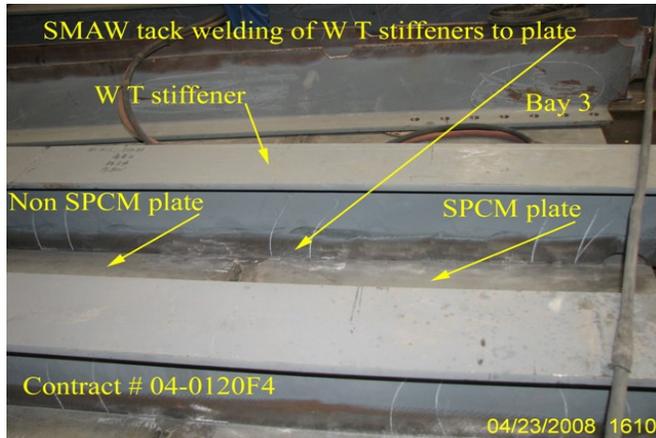
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## Summary of Conversations:

As noted within the report shown 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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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| <b>Inspected By:</b> | Dixon,Roscoe | Quality Assurance Inspector |
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| <b>Reviewed By:</b> | Carreon,Albert | QA Reviewer |
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