

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
 690 Walnut Ave. St. 150  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B


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**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT**


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**Location:** Changxing Island, Shanghai, PRC**Report No:** NCR-000398**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 04-Sep-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0372**Type of problem:****Welding****Concrete****Other****Welding****Curing****Procedural****Bridge No:** 34-0006**Joint fit-up****Coating****Other****Component:** West Tower**Procedural****Procedural****Description:** Missed MT indications on West Tower, Lift 1**Reference Description:** Missed MT indications on West Tower, Lift 1 discovered during additional NDT review**Description of Non-Conformance:**

During additional (weld over-check) Magnetic Particle Testing (MT) of accessible welds at the 43 & 47.6 meter diaphragm elevations of West Tower, Lift 1, QA discovered transverse and longitudinal linear indications at the following welds. These welds were previously tested and accepted by ZPMC Quality Control personnel.

## Weld ID - Number of Indications - Type

WSD1-A115A/J-44 - 2 - Transverse Linear Indication  
 WSD1-A115A/J-58 - 1 - Transverse Linear Indication  
 WSD1-A115A/J-59 - 1 - Transverse Linear Indication  
 WSD1-A115A/J-65 - 1 - Transverse Linear Indication  
 WSD1-A115A/J-67 - 1 - Transverse Linear Indication  
 WSD1-A115A/J-72 - 1 - Transverse Linear Indication  
 WSD1-A115A/J-99 - 1 - Transverse Linear Indication  
 WSD1-A115A/J-114 - 5 - Transverse Linear Indication  
 WSD1-A115H/J-179 - 2 - Transverse Linear Indication  
 WSD1-A115H/J-192 - 3 - Transverse Linear Indication  
 WSD1-A115H/J-227 - 2 - Transverse Linear Indication  
 WSD1-A115H/J-211 - 1 - Transverse Linear Indication  
 WSD1-A115H/J-214 - 1 - Transverse Linear Indication  
 WSD1-A115H/J-220 - 1 - Transverse Linear Indication  
 WSD1-A115H/J-196 - 3 - Transverse Linear Indication  
 WSD1-A115H/J-177/178 - 1 - Transverse Linear Indication  
 WSD1-SA49A/D-27A/B - 4 - Transverse Linear Indication  
 WSD1-A115H/J-76 - 2 - Longitudinal Linear Indication

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WSD1-A115H/J-165 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-170 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-186 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-191 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-199 - 2 - Longitudinal Linear Indication  
WSD1-A115H/J-203/204 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-207/208 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-199 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-136 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-135 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-137 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-137 - 1 - Longitudinal Linear Indication  
WSD1-A115H/J-54 - 1 - Longitudinal Linear Indication  
WSD1-SA39G/K-18/19 - 1 - Longitudinal Linear Indication  
WSD1-SA39G/K-37/38 - 1 - Longitudinal Linear Indication



## Applicable reference:

Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

AWS D1.5 (02) Section 6.26.2 – “Welds that are subject to MT in addition to visual inspection shall have no cracks.

**Who discovered the problem:** Nagalingam Pandaram Pillai

**Name of individual from Contractor notified:** Steve Lawton

**Time and method of notification:** 09-01-2009, 13:00; Verbal

**Name of Caltrans Engineer notified:** Scott Kennedy

**Time and method of notification:** 09-02-2009, 9:00; Verbal

**QC Inspector's Name:** Lai Tau

**Was QC Inspector aware of the problem:**

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Yes No

**Contractor's proposal to correct the problem:**

**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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Sinevod,Serge	ASMR
<b>Reviewed By:</b>	Wahbeh,Mazen	SMR

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**DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge**

333 Burma Road  
Oakland CA 94607  
Tel: Fax:

**NON-CONFORMANCE REPORT TRANSMITTAL**

<b>To:</b>	AMERICAN BRIDGE/FLUOR, A JV 375 BURMA ROAD OAKLAND CA 95607	<b>Date:</b>	05-Sep-2009
<b>Dear:</b>	Mr. Charles Kanapicki	<b>Contract No:</b>	04-0120F4 04-SF-80-13.2 / 13.9
<b>Attention:</b>	Mr. Thomas Nilsson    Project/Fabrication Manager	<b>Job Name:</b>	SAS Superstructure
<b>Subject:</b>	NCR No. ZPMC-0372	<b>Document No:</b>	05.03.06-000361

**Reference Description:** Missed Indications (MT) / West Shaft Lift 1 / Partial Weld Over-Check Transverse & Longitudinal Indications

The attached Non-Conformance Report describes an occurrence where the contractor did not comply with a requirement of the contract document as indicated below:

- Material or Workmanship not in conformance with contract documents.
- Quality Control (QC) not performed in conformance with contract documents.
- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

**Material Location:** Tower **Lift:** 01

**Remarks:**

During additional (weld over-check) Magnetic Particle Testing (MT) of accessible welds at the 43 & 47.6 meter diaphragm elevations of West Tower, Lift 1, QA discovered transverse and longitudinal linear indications. These welds were previously tested and accepted by ZPMC Quality Control personnel.(see attached NCR for weld ids, number and type of indication)

Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

AWS D1.5 (02) Section 6.26.2 – “Welds that are subject to MT in addition to visual inspection shall have no cracks.

**Action Required and/or Action Taken:**

Propose a resolution for this systematic non-conformance that addresses the failure of Quality Control to identify the linear indications during magnetic particle testing of the welds. In addition to the welds identified during the limited over-check performed by CT, address how ABF/ZPMC intends to verify that additional indications have not been overlooked throughout the shaft. Provide documentation of steps/actions taken to ensure additional indications have not been overlooked. Address the steps/actions taken by the Quality Control Manager to prevent future occurrences.

In addition to the Quality Control non-conformance, address the material/workmanship for the identified non-conformance including documentation that the identified deficiencies have been brought into compliance with the contract requirements and that additional deficiencies identified by ABF/ZPMC have been remedied. Address the probable causes for the indications and the actions that will be taken to limit future occurrences.

Recent failures by Quality Control to identify linear indications (MT) have resulted in the issuance of NCR ZPMC-0358, ZPMC-0359 and ZPMC-0371 related to Tower.

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# NCT

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**Transmitted by:** Scott Kennedy      Sr. Bridge Engineer

**Attachments:**    ZPMC-0372

**cc:**    Rick Morrow, Gary Pursell, Mark Woods, Doug Coe

**File:** 05.03.06

## NCR PROPOSED RESOLUTION

**To:** CALTRANS - SAS Superstructure  
333 Burma Road  
Oakland CA 94607

**Attention:** Pursell, Gary  
Resident Engineer

**Ref:** 05.03.06-000361

**Subject:** NCR No. ZPMC-0372

**Dated:** 21-Sep-2009

**Contract No.:** 04-0120F4  
04-SF-80-13.2 / 13.9

**Job Name:** SAS Superstructure

**Document No.:** ABF-NPR-000368 Rev: 00

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### Contractor's Proposed Resolution:

**Reference Resolution:** ZPMC MT technicians have been under gone training and testing due to the amount of missed indications found, ABF has implemented overchecks on several welds within the OBG

ZPMC MT technicians have been under gone training and testing due to the amount of missed indications found, ABF has implemented overchecks on several welds within the OBG to prevent unacceptable welds from being passed on to CT. ABF has also performed an investigation regarding cracks found during ZPMC, ABF and CT inspections to find a means to prevent these defects from occurring in the first place. As for the specific welds related to this NCR, ZPMC will perform the necessary repairs and submit the repair and inspection documents at a later date for closure of this NCR.

### Submitted by:

**Attachment(s):** ABF-NPR-000368R00

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### Caltrans' comments:

**Status:** REJ

**Date:** 21-Sep-2009

The Department will consider closure of this NCR once the repair documents are submitted, reviewed and found to be acceptable.

**Submitted by:** Lee, Ken

**Date:** 21-Sep-2009

**Attachment(s):**

## NCR PROPOSED RESOLUTION

**To:** CALTRANS - SAS Superstructure  
333 Burma Road  
Oakland CA 94607

**Attention:** Pursell, Gary  
Resident Engineer

**Ref:** 05.03.06-000361

**Subject:** NCR No. ZPMC-0372

**Dated:** 25-Nov-2009

**Contract No.:** 04-0120F4  
04-SF-80-13.2 / 13.9

**Job Name:** SAS Superstructure

**Document No.:** ABF-NPR-000368 Rev: 01

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### Contractor's Proposed Resolution:

**Reference Resolution:** ABFJV and ZPMC disputes the basis of the NCR and requests that it be rescinded. These indications have been noted and will be repaired.

This non conformance was written based on the contention that ZPMC had missed the indications which were later found by the Department. On further investigation of this issue, the Department signed off on the QA Verification Form (Green tag) attesting that the welds were acceptable prior to the NCR being written. If the indications in this NCR were present at the time of the inspection then the Department would not have signed off on the QA Verification Form. If indications were discovered in areas not tested by ZPMC then those results should be transmitted in a different means than an NCR. Therefore ABFJV and ZPMC disputes the basis of the NCR and requests that it be rescinded. These indications have been noted and will be repaired.

### Submitted by:

**Attachment(s):** ABF-NPR-000368R01

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### Caltrans' comments:

**Status:** CLO

**Date:** 10-Dec-2009

The Department agrees with the basis of ABFJV and ZPMC's dispute and is rescinding Non-conformance ZPMC-0372. These defects should have been communicated through normal channels and did not warrant a NCR. Non-conformance ZPMC-0372 is closed.

**Submitted by:** Lee, Ken

**Date:** 10-Dec-2009

**Attachment(s):**

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000439**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 13-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0372**Type of problem:**

<b>Welding</b>	<b>Concrete</b>	<b>Other</b>	
<b>Welding</b>	<b>Curing</b>	<b>Procedural</b>	<b>Bridge No:</b> 34-0006
<b>Joint fit-up</b>	<b>Coating</b>	<b>Other</b>	<b>Component:</b>
<b>Procedural</b>	<b>Procedural</b>	<b>Description:</b>	

**Date the Non-Conformance Report was written:** 04-Sep-2009**Description of Non-Conformance:**

During additional (weld over-check) Magnetic Particle Testing (MT) of accessible welds at the 43 & 47.6 meter diaphragm elevations of West Tower, Lift 1, QA discovered transverse and longitudinal linear indications at the following welds. These welds were previously tested and accepted by ZPMC Quality Control personnel.

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