

**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 #: 69.25B**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT****Location:** Changxing Island, Shanghai, P.R. China**Report No:** NCR-000712**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 20-Apr-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0679**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> East Tower, Lift 1, Skin C, Cable Tray Support
<b>Procedural</b>	<b>Procedural</b>	<b>Description:</b>	

**Reference Description:** Missed MT Indication by QC, East Tower, Lift 1, Skin C, Cable Tray Support**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) review of welds on East Tower, Lift-1, Skin 'C' Cable Tray Support, Caltrans Quality Assurance (QA) discovered the following issue:

-Two (2) transverse linear indication measuring approximately 5mm and 3mm in length.

-The member is identified as Cable Tray Support BK22-1-EL8.000M-1.

-The weld is identified as BK22-1-EL8.000M-1-1-E.

-The weld is a Tack weld (fillet) T-joint joining the cable tray support to the stiffener of skin 'C'.

-The member is Non-Seismic Performance critical Member (SPCM).

-The member is located in Vertical Truss Assembly.

The Notice of Witness Inspection Number (NWIT) is 005558. The indication is located inside the area that has been previously tested and accepted by ZPMC Quality Control (QC) personnel. ZPMC's QC personnel are required to perform 100% MT inspection of this weld.

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# QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

( Continued Page 2 of 2 )

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### 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:** Naddi Sandeep Kumar

**Name of individual from Contractor notified:** Chen Wen Liang

**Time and method of notification:** 15:00 - 04/20/10 - Verbal

**Name of Caltrans Engineer notified:** Ken Lee

**Time and method of notification:** 18:00 - 04/21/10 - Email

**QC Inspector's Name:** Ma Qian Bi

**Was QC Inspector aware of the problem:** 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 Skyler Guest, 15000422360, who represents the Office of Structural Materials for your project.

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**Inspected By:** Guest, Skyler

SMR

**Reviewed By:** Wahbeh, Mazen

SMR



**DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge**  
 333 Burma Road  
 Oakland CA 94607  
 Tel: 510-808-4618 Fax:

**NON-CONFORMANCE REPORT TRANSMITTAL**

**To:** AMERICAN BRIDGE/FLUOR, A JV  
 375 BURMA ROAD  
 OAKLAND CA 95607

**Date:** 22-Apr-2010

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

**Dear:** Mr. Charles Kanapicki  
**Attention:** Mr. Thomas Nilsson Project/Fabrication Manager  
**Subject:** NCR No. ZPMC-0679

**Job Name:** SAS Superstructure  
**Document No:** 05.03.06-000669

**Reference Description:** Missed MT/ East Tower / Lift 1 Skin C/ Cable Tray Support

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 Magnetic Particle Testing (MT) review of welds on East Tower, Lift-1, Skin 'C' Cable Tray Support, Caltrans Quality Assurance (QA) discovered the following issue:

- Two (2) transverse linear indication measuring approximately 5mm and 3mm in length.
- The member is identified as Cable Tray Support BK22-1-EL8.000M-1.
- The weld is identified as BK22-1-EL8.000M-1-1-E.
- The weld is a Tack weld (fillet) T-joint joining the cable tray support to the stiffener of skin 'C'.
- The member is Non-Seismic Performance critical Member (SPCM).
- The member is located in Vertical Trial Assembly.

The Notice of Witness Inspection Number (NWIT) is 005558. The indication is located inside the area that has been previously tested and accepted by ZPMC Quality Control (QC) personnel. ZPMC's QC personnel are required to perform 100% MT inspection of this weld.

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 non-conformance that addresses the failure of Quality Control to identify the linear indications during magnetic particle testing of the welds. Provide documentation of the steps/actions taken by the Quality Control Manager to prevent future occurrences.

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# NCT

( Continued Page 2 of 2 )

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

The response for the resolution of this issue is requested within 7 days.

**Transmitted by:** Ken Lee          Transportation Engineer

**Attachments:**    ZPMC-0679

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

**File:** 05.03.06

## NCR PROPOSED RESOLUTION

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

**Attention:** Pursell, Gary  
Resident Engineer

**Ref:** 05.03.06-000669

**Subject:** NCR No. ZPMC-0679

**Dated:** 12-May-2010

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

**Job Name:** SAS Superstructure

**Document No.:** ABF-NPR-000657 Rev: 00

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### Contractor's Proposed Resolution:

**Reference Resolution:** ZPMC has repaired the missed indications and is providing the repair reports as well as the NDT to show that the weld is now acceptable. Based on that ZPMC requests closure of this NCR.

ZPMC has repaired the missed indications and is providing the repair reports as well as the NDT to show that the weld is now acceptable. Based on that ZPMC requests closure of this NCR.

**Submitted by:** Ishibashi, Joshua

**Attachment(s):** ABF-NPR-000657R00;

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### Caltrans' comments:

**Status:** CLO

**Date:** 16-May-2010

The proposed resolution is acceptable. The Department concurs that Non-conformance ZPMC-0679 is closed.

**Submitted by:** Lee, Ken

**Attachment(s):**

**Date:** 16-May-2010



No. T-137

## LETTER OF RESPONSE

**TO: American Bridge/Flour JV**

**DATE: 2010-5-12**

**REGARDING: NCR-000712(ZPMC-0679)**

ZPMC received NCR-000712(ZPMC-0679), it mentioned that CT inspector discovered linear indications when they carried out MT for the Skin'C' Cable Tray Support of East Tower lift 1.

ZPMC acknowledged that and went about taking the repairing work. And then we asked CT to re-check again and now it is accepted. Here attached the NDT and welding repair report to show the weld is sound.

So ZPMC hope CT could take a review and close this NCR.

**ATTACHMENT:**

**NCR-000712(ZPMC-0679)**

**T787-MT-8828**

**T-WR3205**

*Zhao Jia neng*

*2010-5-12*



焊缝返修报告  
Welding Repair Report

版本  
Rev. No.:

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	B22	报告编号 Report No.	T-WR3205
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	东塔一吊电缆卡槽 Tower (E) 1 <sup>st</sup> electric cable notch	NDT报告编号 Report No. of NDT	NA
项目编号 Project No.:	ZP06-787				

焊缝缺陷描述:

Description of Welding Discontinuity:

东塔一吊电缆卡槽焊缝B22-1-EL8.000M-1-1-E发现一处线形缺陷。如图示:

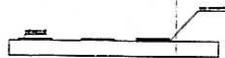
The linear defect was found at east tower 1<sup>st</sup> lifting electric cable notch, weld ID: B22-1-EL8.000M-1-1-E, sees the following draft.

*Ma Qianli*

检验员 (Inspector): Ma Qianli

焊缝返修位置示意图:

Draft of Welding Discontinuity:



产生原因:

Cause:

1. 火焰加热时, 水汽没有完全的去掉或者这个区域预热不够;
1. Moisture wasn't completely removed during drying operation (preheating) or the area wasn't preheated sufficiently.

车间负责人 (Foreman): *W. Yefei* 日期 (Date): 4.22

处理意见

Disposition :

1. QC/CWI shall monitor and direct all grinding and welding during the repair procedure.
2. Grind the repair area smooth
3. Verify that no defects are present by VT and MT prior to welding
4. Weld according to the approved WPS;
5. Preheat and maintain interpass temperature control according to the approved WPS
6. QC shall monitor all welding passes being deposited;
7. QC shall ensure all slag has been removed prior the deposition of next pass;
8. Perform VT, MT and UT inspection on the repaired areas.

1. QC 和 CWI 应当监督和指导整个返修过程中的打磨和焊接工作
2. 将返修区域打磨顺滑
3. 在焊接前进行 VT、MT 确保没有表面缺陷
4. 根据批准的 WPS 进行焊接
5. 根据批准的 WPS 进行焊接前预热和道间温度控制
6. QC 应当监控整个焊接过程
7. QC 应当确保在施焊下一道焊层前所有焊渣已被清理干净
8. 对返修区域进行 VT、MT 和 UT。

工艺: *Li Chungping*  
Technical Engineer:

审核:  
Approved By:

日期:  
Date:

10.4.22



# 焊缝返修报告

## Welding Repair Report

版本  
Rev. No.:

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	B22	报告编号 Report No.	T-WR3205
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	东塔一吊电缆 卡槽 Tower (E) 1" electric cable notch	NDT报告编号 Report No. of NDT	NA
项目编号 Project No.:	ZP06-787				

**纠正措施:**

**Corrective Action to Prevent Re-occurrence:**

1. 返修前, QC确认有效的预热, 以将水汽全部去除。

1. QC shall verify sufficient preheat has been applied, to remove moisture, prior to welding.

车间负责人 (Foreman):

Wu Yefei

日期 (Date):

4.22

参照的WPS编号 Repair WPS No.:	WPS-345-FCAW-1 G(1F)-Repair WPS-345-FCAW-2 G(2F)-Repair WPS-345-SMAW-1 G(1F)-Repair WPS-345-SMAW-2 G(2F)-Repair	工艺员 Technologist:	Li Chen Ping 4.22
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返修(碳刨)前预热温度 Preheat Temperature Before Gouging:	NA	返修的缺陷 Description of Discontinuity:	线性缺陷.
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焊前处理检查 Inspection Before Welding:	VT, MT A	焊前预热温度 Preheat Temperature Before Welding:	90°C.
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最大碳刨深度 Max. Depth of Gouge:	NA	碳刨总长 Total Length of Gouge:	NA
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焊工 Welder:	041271	焊接类型 Welding Type:	SMAW	焊接位置 Position:	2F.
焊接电流 Current:	152.	焊接电压 Voltage:	24.2	焊接速度 Speed:	115.

**返修后检查**  
Inspection After Repair:

外观检查 VT Result:	VT A	检验员 Inspector:	An Qing Xiang 07120651	日期 Date:	2010.04.22.
NDT复检 NDT Result:	MT A	探伤员 NDT Person:	Cao Xin Xin	日期 Date:	10.04.22.

见证:  
Witness/Review:

备注:  
Remark:



# REPORT OF MAGNETIC PARTICLE EXAMINATION

## 磁粉检测报告

REPORT NO. 报告编号 T787-MT-8828      DATE日期 2010.04.22      PAGE OF页码 1/1      Revision No: 0

PROJECT NO. 工程编号: ZP06-787      CONTRACTOR: 用户: CALTRANS

DRAWING NO. 图号: B22-1 TOWER(E) FIRST LIFTING CABLE SLOT      CALTRANS CONTRACT NO.: 加州工程编号 04-0120F4

REFERENCING CODE 参考规范编码: AWS D1.5-2002      ACCEPTANCE STANDARD 接受标准: AWS D1.5-2002      PROCEDURE NO. 程序编号: ZPQC-MT-01      CALIBRATION DUE DATE 仪器校正有效期: Dec. 28<sup>ST</sup>, 2010

EQUIPMENT 设备: MT YOKE      MANUFACTURER 制造商: PARKER      MODEL NO. 样式编号: B310S      SERIAL NO. 连续编号: 5620 5395 5617

MAGNETIZING METHOD 磁化方法: Continuous magnetic yoke 磁轭式连续法      CURRENT 电流: AC

PARTICLE TYPE 磁粉类型: Dry magnet powder 干磁粉      YOKE SPACING 磁轭间距: 70~150mm

MATERIAL TO BE EXAMINED 检测材料:  WELDING 焊接件      Material & thickness 母材,厚度: A709M-345T2-Z  
 CASTING 铸件      4/70 mm  
 FORGING 锻造

WELDING PROCESS 焊接方法: SMAW      TYPE OF JOINT 焊缝类型: T JOINT

WELD I.D. 焊缝编号	DISCONTINUITY不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度			
B22-1-EL8.000M-1-1-E				ACC.		100%MT

AFTER T-WR 3205

BLANK

EXAMINED BY主探: *Car Yanxin*      REVIEWED BY 审核: *Xu Bing*  
 LEVEL-II SIGN 签名 / DATE日期: 10.04.22      LEVEL-II SIGN / DATE日期: 10.04.22  
 质量经理 / QCM: \_\_\_\_\_      用户CUSTOMER: \_\_\_\_\_  
 签字 SIGN / 日期 DATE: \_\_\_\_\_      签字 SIGN / 日期 DATE: \_\_\_\_\_

**DEPARTMENT OF TRANSPORTATION**

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 (707) 649-5453  
 (707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, P.R. China**Report No:** NCS-000621**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 17-May-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0679**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:** 20-Apr-2010**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) review of welds on East Tower, Lift-1, Skin 'C' Cable Tray Support, Caltrans Quality Assurance (QA) discovered the following issue:

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The Notice of Witness Inspection Number (NWIT) is 005558. The indication is located inside the area that has been previously tested and accepted by ZPMC Quality Control (QC) personnel. ZPMC's QC personnel are required to perform 100% MT inspection of this weld.

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

Repair weld and verify with NDT.

**Corrective action taken:**

Weld was repaired on 4/22/2010 (T-WR3205) and verified by MT (T787-MT-8828).

**Did corrective action require Engineer's approval?** Yes No

**If so, name of Engineer providing approval:**

**Date:**

**Is Engineer's approval attached?**

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## QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION

( Continued Page 2 of 2 )

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**Yes    No**

**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 Skyler Guest, 15000422360, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Guest, Skyler	Quality Assurance Inspector
<b>Reviewed By:</b>	Wahbeh, Mazen	QA Reviewer

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