

**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, PRC**Report No:** NCR-000056**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 06-Jan-2008**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0055**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> Tower-114m Mockup
<b>Procedural</b>	<b>Procedural</b>	<b>Descriptor:</b> Skin "C" to "D", Complete Joint Penetration Weld	

**Description of Non-Conformance:**

ABF allowed ZPMC to move the 114m tower mock-up prior to performing the required postweld heat treatment of a critical weld repair. At the completion of welding of the skin plate critical weld repair (CWR) # 32 the required minimum preheat and interpass temperature of 200° C was measured at approximately 138 °C before the critical weld repair was raised to the hydrogen diffusion postweld heat treatment (PWHT) described within the CWR and AWS D1.5 section 12.15.1.2. There was an approximate forty minute lapse between the time the CWR was completed until the time the post heat temperature was applied and achieved.

**Applicable reference:**

ZPMC CWR # 32 and AWS D1.5 (2002) Sections 12.15.1.1 and 12.15.1.2.

**Who discovered the problem:** Alfredo Acuna**Name of individual from Contractor notified:****Time and method of notification:****Name of Caltrans Engineer notified:** Ching Chao**Time and method of notification:** 1/08/08, 0600, Verbal**QC Inspector's Name:** Lay Tao**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 Patrick Lowry, 916-227-5719, who represents the Office of Structural Materials for your project.

**Inspected By:** Acuna, Alfredo

Quality Assurance Inspector

**Reviewed By:** Cuellar, Robert

QA Reviewer



**DEPARTMENT OF TRANSPORTATION**  
666 Feng Bin Road Room 708, Changxing Island  
Shanghai 201913 PR China  
Tel: 021-56856666 ext 207061 Fax:

## NON-CONFORMANCE REPORT TRANSMITTAL

**To:** American Bridge/Fluor Enterprises, a JV  
375 Burma Road  
Oakland CA 94607

**Date:** 08-Feb-2008

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

**Attention:** Dave Williams            Consultant

**Job Name:** SAS Superstructure

**Document No:** 05.03.06-000013

**Subject:** NCR No. ZPMC-0055

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

Non-Conformance with quality control procedures. Please take appropriate corrective action. Recurrence may require further administrative action.

Non-Conformance with quality control. Records indicate that this is a recurring issue and constitutes a systematic problem in quality control. Within fourteen (14) days, please submit a plan to correct the deficiency.

Material or workmanship is not in compliance with contract requirements.

**Enclosed please find the following items:**

**NCR No:** ZPMC-0055

**Remarks:**

Please see the attached NCR for details.

**Transmitted by:** Ching Chao

**cc:** Rick Morrow, Gary Pursell, Peter Siegenthaler, Mark Woods, Doug Coe, Jason Tom, Dave Williams, Contract Files, Kannu Balan, Chin

**File:** 05.03.06

## NCR PROPOSED RESOLUTION

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

**Attention:** Pursell, Gary  
Resident Engineer

**Ref:** 05.03.06-000013

**Subject:** NCR No. ZPMC-0055

**Dated:** 23-Apr-2008

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

**Job Name:** SAS Superstructure

**Document No.:** ABF-NPR-000016 **Rev:** 00

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### Contractor's Proposed Resolution:

**Reference Resolution:** ZPMC QC will increase monitoring to ensure proper post-weld heat treatment

Please see the attached response from ZPMC. ABF JV has reviewed and concurs with this response and considers this issue resolved. ABF JV believes, based on our understanding of the NCT process that this NCR was issued closed as the top (first) box on the NCT was checked. Please confirm.

**Submitted by:** Kanapicki, Charles

**Attachment(s):** ABF-NPR-000016R00;

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### Caltrans' comments:

**Status:** CLO

**Date:** 24-Jun-2008

ZPMC has agreed to strengthen their monitoring of the weld repair process, and im proper post weld heat treatment has no longer been an issue. Therefore, we concur that Non-Conformance ZPMC-0055 is closed.

**Submitted by:** Wright, Doug

**Attachment(s):**

**Date:** 24-Jun-2008



TRANSMITTAL LETTER

PROJECT: SAN FRANCISCO OAKLAND BAY BRIDGE

DATE: 03/17/2008

TO: RUBY/ ABFJV QA DEPARTMENT

FROM: ZPMC QA DEPARTMENT

SUBJECT: NCR(NCR-000056) FOR CLOSURE / ZPMC 55 *RJH 4/23/08*

SUBMITTED FOR YOUR APPROVAL AND SUBMITTAL TO CALTRANS.

ENCLOSED WITH THIS TRANSMITTAL IS ONE

- (1) COPY OF LETTER OF RESPONSE FOR CLOSURE NCR (NCR-000056).
- (2) COPY OF NCR WITH NUMBER NCR-000056 / ZPMC 55 *RJH 4/23/08*

PLEASE SIGN THIS TRANSMITTAL AND RETURN TO ME.

ACKNOWLEDGEMENT:

*Ruby Li*  
PLAN HOLDER

*3/19/08* *08 1048*  
DATE

*ABFJV*  
COMPANY

\_\_\_\_\_  
PHONE NO.

PLAN NUMBER: N/A  
#R787-QCP-102



LETTER OF RESPONSE

DATE: 2008.02.27

To: AB/F Steve Lawton

From: Yang Xuehui

Subject: Response to CT NCR-000056 / ZPMC 55 <sup>CBF</sup> 4/23/08

Mr. Lawton:

ZPMC has generated internal NCR-CT-018 in Response to CT NCR-000056, Regard that it removed the 114m Mockup prior to performing the required post weld heat treatment of the critical weld repair. the completion of welding of the skin plate critical weld repair the required minimum preheat and interpass temperature of 200°C was measured at approximately 138°C before the critical weld repair was raised to the hydrogen diffusion post-weld heat treatment described within the CWR032, There was an approximate forty lapse between the CWR was completed until the time the post-heat temperature was applied and achieved, The weld has finished repairing and accepted by NDT, in the future ,ZPMC will strengthen the monitoring of the critical repairing and contact with the fabricator to perform the post-heat treatment in time.

Attached you will find a copy of ZPMC internal NCR-CT-018, CWR032, WR059, CT-UT-086, CT-UT-086R1, CT-UT-086R2.

If further information is needed, Please contact me.

Sincerely

Yang Xuehui

*Yang Xuehui*

2008.02.27

*Reviewed  
ABF CBF  
10 APRIL 08*

*ZPMC 55 CBF 4/23/08*



# Nonconformance Report

## 不符合项报告

Project Name: S.F.O.B.B 项目名称: 美国加州海湾大桥		NCR Number: NCR 编号: NCR-CT-018 / ZPMC
Item: the post-heat treatment problem 名称描述: 后热问题	Item Number: 件号: NA	Drawing: 图号:
Location: 114M Mock Up 位置: 114 米段	Date: 2008-02-26 日期: 2008-02-26	

55  
GJK  
4/25/08

**Description of Nonconformance: 不符合项状态描述:**

Caltrans Quality Inspector Mr. Alfredo Acuna found ZPMC moved the 114m tower mock-up prior to performing the required post weld heat treatment of a critical weld repair. At the completion of welding of the skin plate critical weld repair (CWR-32) the required minimum preheat and inter-pass temperature of 200°C was measured at approximately 138 °C before the critical weld repair was raised to the hydrogen diffusion post-weld heat treatment described within the CWR and AWS D1.5 section 12.15.1.2. There was an approximate forty minute lapse between the time the CWR was completed until the time the post-heat temperature was applied and achieved.

加州检验人员发现 ZPMC 在关键焊缝返修后还没有按照 CWR32 对焊缝完成后热处理就开始移动 114 米段。要求最低的后热温度为 200°C，返修后测得的温度为 138°C，ZPMC 大概有 40 分钟的时间内未对焊缝作后热处理。

Work By: Hu zhen      Prepared by: Du Wenling      Reviewed by QCE: Xu Jun  
 施工方: Lu Xiang cheng      准备: Du Wenling 2008.02.26      质量工程师批准: Xu Jun 08.02.26

Drawing Error     Material Defect     Fabrication Error     Other  
 图纸错误                      材料缺陷                      制作错误                      其他原因

Disposition:       Use as is       Repair       Reject  
 处理措施:                      回用                      返修                      拒收

**Recommendation:**  
 建议:

ZPMC suggested to use it as is, because after the movement ZPMC took the post-heat treatment right away. And the NDT showed the defect had been removed after CWR. The untimely post-heat treatment didn't give the big influence in the weld.

ZPMC 建议回用，因为鉴于模型段，尽管 ZPMC 没有及时对焊缝进行后热处理，但在完成移动后就立即采取了后热措施，并且之后的 NDT 证明焊缝符合了验收标准。

Prepared by: Yang Xuehui      Approved by QCA: Hu Gang 2008.2.26  
 准备    质量经理批准

**Reason for Nonconformance:**

不符合原因:

未及时对关键返修焊缝作后热处理

ZPMC didn't perform the CWR weld post-heat treatment in time.

**Prevention of Re-occurrence:**

预防措施:

- 1、加强车间检验人员对关键焊缝返修的监督

Strength the monitoring of the critical weld repairing

- 2、及时联系施工人员对完成的焊缝进行后热处理。

Contact with the fabricator to perform the post-heat treatment in time.

Approved by/批准:

Yang Xuehua

Technical Justification for Use-As-Is/Repair:

Attachment

Non-attachment

回用或返修的技术依据:

附件

无附件

Reviewed /批准:

Yan Yongta 08.2.26

Verification:

Acceptable

Unacceptable

确认:

可接受

不可接受

Verified by QCI/质检确认:

Zhao Chen Sun

Reviewed by QCA/质检主任审核:

Hu Kang

#R787-QCP-1300

2008.2.27

2008.2.27



DEPARTMENT OF TRANSPORTATION  
666 Feng Bin Road Room 708, Changxing Island  
Shanghai 201913 PR China  
Tel: 021-56856666 ext 207061 Fax:

## NON-CONFORMANCE REPORT TRANSMITTAL

**To:** American Bridge/Fluor Enterprises, a JV  
375 Burma Road  
Oakland CA 94607

**Date:** 08-Feb-2008

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

**Attention:** Dave Williams Consultant

**Job Name:** SAS Superstructure

**Document No:** 05.03.06-000013

**Subject:** NCR No. ZPMC-0055

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

- Non-Conformance with quality control procedures. Please take appropriate corrective action. Recurrence may require further administrative action.
- Non-Conformance with quality control. Records indicate that this is a recurring issue and constitutes a systematic problem in quality control. Within fourteen (14) days, please submit a plan to correct the deficiency.
- Material or workmanship is not in compliance with contract requirements.

Enclosed please find the following items:

NCR No: ZPMC-0055

**Remarks:**

Please see the attached NCR for details.

Transmitted by: Ching Chao

cc: Rick Morrow, Gary Pursell, Peter Siegenthaler, Mark Woods, Doug Coe, Jason Tom, Dave Williams, Contract Files, Kannu Balan, Chin  
File: 05.03.06

**DEPARTMENT OF TRANSPORTATION**  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B

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

Location: Changxing Island, Shanghai, PRC

Report No: NCR-000056

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 06-Jan-2008

Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

NCR #: ZPMC-0055

## Type of problem:

Welding  Concrete  Other   
 Welding  Curing  Procedural  Bridge No: 34-0006  
 Joint fit-up  Coating  Other  Component: Tower-114m Mockup  
 Procedural  Procedural  Description: Skin "C" to "D", Complete Joint Penetration Weld

## Description of Non-Conformance:

ABF allowed ZPMC to move the 114m tower mock-up prior to performing the required postweld heat treatment of a critical weld repair. At the completion of welding of the skin plate critical weld repair (CWR) # 32 the required minimum preheat and interpass temperature of 200° C was measured at approximately 138 °C before the critical weld repair was raised to the hydrogen diffusion postweld heat treatment (PWHT) described within the CWR and AWS D1.5 section 12.15.1.2. There was an approximate forty minute lapse between the time the CWR was completed until the time the post heat temperature was applied and achieved.

## Applicable reference:

ZPMC CWR # 32 and AWS D1.5 (2002) Sections 12.15.1.1 and 12.15.1.2.

Who discovered the problem: Alfredo Acuna

Name of individual from Contractor notified:

Time and method of notification:

Name of Caltrans Engineer notified: Ching Chao

Time and method of notification: 1/08/08, 0600, Verbal

QC Inspector's Name: Lay Tao

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 Patrick Lowry, 916-227-5719, who represents the Office of Structural Materials for your project.

Inspected By: Acuna, Alfredo

Quality Assurance Inspector

Reviewed By: Cuellar, Robert

QA Reviewer



# REPORT OF ULTRASONIC EXAMINATION

## UT探伤报告

REPORT NO. 报告编号 CT-UT-086      DATE 2007.12.24      PAGE 1 OF 1      Revision No: 0

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

ITEMS NAME: 114M LOWER BOX ANGLE CD      DRAWING NO.: MUC-MA107 B/C      CALTRANS CONTRACT NO.: 04-0120F4  
 部件名称      图号      加州工程编号

REFERENCING CODE 参考规范      ACCEPTANCE STANDARD 接受标准      PROCEDURE NO. 程序编号  
 AWS D1.5-2002      AWS D1.5-2002(Table 6.3)      ZPQC-UT-01

WELDING PROCESS 焊接方法      JOINT TYPE 焊缝类型      CALIBRATION DUE DATE 仪器校正有效期  
 FCAW      CORNER JOINT      Jan. 1<sup>ST</sup>, 2008

EQUIPMENT 设备      MANUFACTURER 制造商      MODEL NO. 样式编号      SERIAL NO. 序列编号  
 UT SCOPE      PANAMETRICS      EPOCH-4B      051392712,061488510

CALIBRATION BLOCK 试块      COUPLANT 耦合剂      MATERIAL/THICKNESS 材料厚度  
 AWS IIW BLOCK TYPE II      C.M.C      A709-50T-2 / 90 mm

### TRANSDUCER 探头

MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸	MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸
Changchao	70 °	2.5 MHz	18x18 mm	Changchao	45 °	2.5 MHz	18x18 mm
Changchao	0 °	2.5 MHz	20 mm	Reference Level	参考灵敏度		20dB

Base metal inspected per AWS D1.5-2002 Section 6.19.5      0 ° UT OK

WELD IDENTIFICATION 焊缝编号	INDICATION NO. 指示号	PROBE ANGLE 探测角度	FROM FACE 检测面	LEG (次数)	DECIBELS 分贝				DISCONTINUITY 不连续性					Discontinuity Evaluation 缺陷估计	Remark 备注
					Indication Level	Reference Level	Attenuation Factor	Indication Rating	LOCATION OF DISCONTINUITY 不连续位置(mm)						
					a	b	c	d	Length 长度	Sound Path 声程	Depth from Surface 距表面深度	From X 距X	From Y 距Y		
MUC-MA107B/C-2A/2B	1	44.6	A	1	52-57	45	3-5	+4-7	160	63-84	45-60	-12-3	0	REI.	
	2	44.6	A	1	52-57	45	3-5	+4-7	1840	63-84	45-60	-12-3	460	REI.	
		68.2				45								ACC	

BLANK

EXAMINED BY 主探  
Li Liang 2007.12.24  
 LEVEL-II SIGN / DATE

REVIEWED BY 审核:  
Xue Hongyong 2007.12.24  
 LEVEL-II SIGN / DATE

质量经理 / QCM  
Hu Gang 2008.1.3  
 签字 SIGN / 日期 DATE

用户CUSTOMER  
 \_\_\_\_\_  
 签字 SIGN / 日期 DATE



# 关键焊缝返修报告

## Critical 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	MUC-MA111 MUC-MA110	报告编号 Report No.	CWR(CT)032
合同号 Contract No.:	04-0120F4	部件名称 Items Name	114M LOWER BOX ANGLE C/D	NDT报告编号 Report No.of NDT	
项目编号 Project No.:	ZP06-787				CT-UT-086

焊缝缺陷描述:

Description of welding discontinuity:

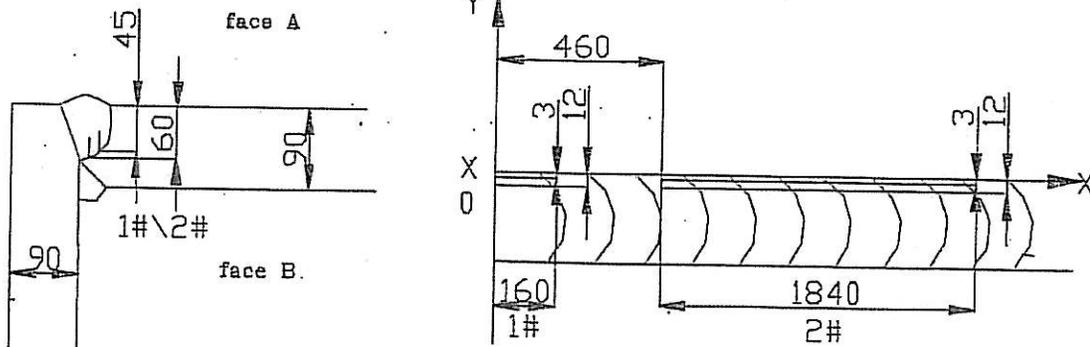
缺陷焊缝长度超过检测长度的10%。(MUC-MA107B/C-2A、2B)

Rejectable indication found by ultrasonic inspection exceeds 10% of the weld size.  
(MUC-MA107B/C-2A、2B)

检验员 (Inspector): Liling 日期(Date): 07.12.24

焊缝返修位置示意图:

Draft of welding discontinuity:



WELD NUMBER: MUC-MA107B/C-2A/2B

This document is APPROVED  
State of California  
DEPARTMENT OF TRANSPORTATION  
Paragraph Section 8-1.22 of the  
Standard Specifications  
Date: 1/4/06

产生原因:

Caused:

1. 焊工未严格执行WPS相应的规程。
2. 焊道没清理干净。
1. Welder didn't strictly inform relative WPS specification.
2. Did not clear the weld pass completely.

车间负责人(Foreman): *Young Xue* 日期(Date): 2007.12.26

处理意见

Disposition:

1. Preheat before gouging, the temperature is not below 65°C;
2. Gouge off the defect weld completely, and must prepare a right joint, the joint details should refer to the approved WPS-repair;
3. Grind smoothly the gouged surface;
4. Check with MT or other NDT method to make sure the defect remove completely;
5. Preheat and the interpass temperature control according to the WPS-repair;
6. Postheat after welding, keep the temperature between 230° and 315°C. Deciding how long the postheat time is according to the gouged depth. Usually per 25mm an hour, not less than an hour;
7. Perform NDE in accordance with according to the approved shop drawing.

- 1、碳刨之前必须先进行预热，温度不低于 65° C；
- 2、缺陷被完全清除后，必须准备一个正确的接头型式，具体接头型式请参见对应的修补焊接工艺规程 (WPS)；
- 3、将碳刨处打磨光滑；
- 4、用 MT 或其它的无损检测方法证实缺陷被完全清除；
- 5、修补区域的预热温度和道间温度请见批准后的相应的 WPS；
- 6、焊后进行后热，温度为 230° C~315° C，时间根据返修的深度确定，每 25mm/小时，但不少于 1 小时；
- 7、按图纸要求用探伤检测焊缝。

This document is: APPROVED  
State of California  
DEPARTMENT OF TRANSPORTATION  
Pursuant Section 5-1.02 of the  
Standard Specifications  
Initial *GH* Date: 11/4/08

工艺: *Lmanga* 2007.12.27  
Technical engineer

审核: *HuGang*  
Approved by

日期: 2007.12.27  
Date



# 关键焊缝返修报告

## Critical 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.	MUC-MA111 MUC-MA110	报告编号 Report No.	CWR(CT)032
合同号 Contract No.:	04-0120F4	部件名称 Items Name	114M LOWER B OX ANGLE CID	NDT报告编号 Report No.of NDT	CT-UT-086
项目编号 Project No.:	ZP06-787				

纠正措施:

Correction action to prevent re occurrence:

1. 严格按照焊接工艺技术规程操作。
2. 加强焊接监控和道间清理。
1. Strictly perform according to the welding procedure specification.
2. Improve monitoring of welding and interpass cleaning.

WHAT IS QC DOING TO "IMPROVE" MONITORING TO ENSURE COMPLIANCE?

车间负责人(Foreman): *Xiang Xue hui* 日期(Date): 2007.12.26

参照的WPS编号 Repair WPS No.	WPS-345-FCA W-1G(1F)-Repair	工艺员 technologist	<i>Linmengzhou</i>
返修(碳刨)前预热温度 Preheat temperature before gouging	90°C	返修的缺陷 Description of discontinuity	slag incomplete fusion 夹渣未熔合
焊前处理检查 Inspection before welding	Acc	焊前预热温度 Preheat temperature before welding	220°C
最大碳刨深度 Max. depth of gouging	58 mm	碳刨总长 Total length of gouging	2100 mm
焊工 welder	<i>Chang chuan cang 053870</i> <i>Wai wen ming 050234</i>	焊接类型 welding type	FOAW
焊接电流 Current	310 A	焊接电压 Voltage	305 V
返修后检查 Inspection After repairing:		焊接位置 position	1G
外观检查 VT result	ok	检验员 Inspector	<i>Xu Liang</i>
NDT复检 NDT result	WT RET	探伤员 NDT person	<i>Li Liang</i>
见证: Witness/Review:		日期 Date	2008.01.07
备注: Remark:		Signed	<i>Lin Mengzhou</i> Structure Representative
		Date	1/4/2008



# REPORT OF ULTRASONIC EXAMINATION

## UT探伤报告

REPORT NO. 报告编号 CT-UT-086R1

DATE 2008.01.07

PAGE 1 OF 1

Revision No: 0

PROJECT NO.: 工程编号 ZP06-787

CONTRACTOR: CALTRANS

ITEMS NAME: 114M LOWER BOX ANGLE CD  
部件名称

DRAWING NO.: MUC-MA107 B/C  
图号

CALTRANS CONTRACT NO.: 04-0120F4  
加州工程编号

REFERENCING CODE 参考规范  
AWS D1.5-2002

ACCEPTANCE STANDARD 接受标准  
AWS D1.5-2002(Table 6.3)

PROCEDURE NO. 程序编号  
ZPQC-UT-01

WELDING PROCESS 焊接方法  
FCAW

JOINT TYPE 焊缝类型  
CORNER JOINT

CALIBRATION DUE DATE 仪器校正有效期  
Jan. 1<sup>ST</sup>, 2008

EQUIPMENT 设备  
UT SCOPE

MANUFACTURER 制造商  
PANAMETRICS

MODEL NO. 样式编号  
EPOCH-4B

SERIAL NO. 序列编号  
051392712,061488510

CALIBRATION BLOCK 试块  
AWS IIW BLOCK TYPE II

COUPLANT 耦合剂  
C.M.C

MATERIAL/THICKNESS 材料厚度  
A709-50T-2 / 90 mm

### TRANSDUCER 探头

MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸	MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸
Changchao	70 °	2.5 MHz	18x18 mm	Changchao	45 °	2.5 MHz	18x18 mm
Changchao	0 °	2.5 MHz	20 mm	Reference Level 参考灵敏度			20dB

Base metal inspected per AWS D1.5-2002 Section 6.19.5

0 ° UT OK

WELD IDENTIFICATION 焊缝部件编号	INDICATION NO. 指示号	PROBE ANGLE 探测角度	FROM FACE 检测面	LEG (次数)	DECIBELS 分贝				DISCONTINUITY 不连续性					Discontinuity Evaluation 缺陷估计	Remark 备注
					Indication Level	Reference Level	Attenuation Factor	Indication Rating	LOCATION OF DISCONTINUITY 不连续位置(mm)						
					a	b	c	d	Length 长度	Sound Path 声程	Depth from Surface 距表面深度	From X 距X	From Y 距Y		
MUC-MA107B/C-2A/2B	1R1	45.0	A	1	41	30	5	±6	20	86	61	-10	2100	REJ.	
	2R1	68.6	A	1	46	35	6	±5	15	92	34	-25	2275	REJ.	

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EXAMINED BY 主探

REVIEWED BY 审核:

*[Signature]*  
LEVEL - II SIGN / DATE

*Xue Wanning 2008.01.07*  
LEVEL - II SIGN / DATE

质量经理 / QCM

用户 CUSTOMER

*Hu Gang 2008.1.15*

签字 SIGN / 日期 DATE

签字 SIGN / 日期 DATE



# 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	MUC-MA107B/C	报告编号 Report No.	WR059
合同号 Contract No.:	04-0120F4	部件名称 Items Name	114M LOWER B OX ANGLE C/D	NDT报告编号 Report No.of NDT	CT-UT-086R1
项目编号 Project No.:	ZP06-787				

**焊缝缺陷描述:**

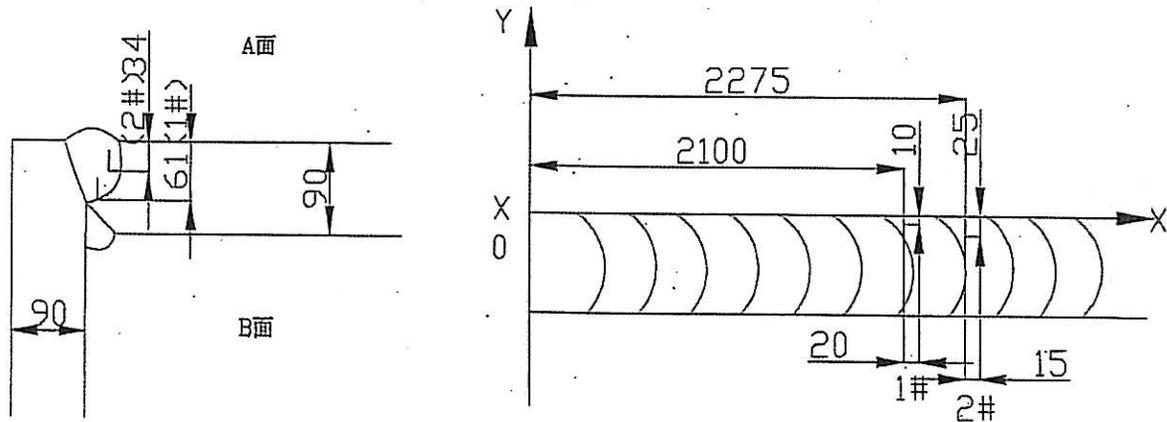
**Description of welding discontinuity:**

Rejected indication found by ultrasonic inspection is less than the maximum allowance aggregate length. (UT探伤发现的缺陷总长度小于最大允许总长度。)MUC-MA107B/C-2A/2B

检验员 (Inspector): Li Liming 日期(Date): 08.01.07

**焊缝返修位置示意图:**

**Draft of welding discontinuity:**



WELD NUMBER: MUC-MA107B/C-2A/2B

产生原因:

Caused:

1. 焊道没清理干净。
1. Did not clear the weld pass completely.

车间负责人(Foreman): Lu Yefei

日期(Date):2008.1.08

处理意见

Disposition :

1. Gouge off the defect weld;
2. Grind smoothly the gouged surface;
3. If User's request ,check with MT or other NDT method to make sure the defect remove compelety;
4. Preheat and the interpass temperature control according to the relative WPS-repair;
5. Check the welding according to the approved shop drawing.

- 1、 请将有缺陷的焊缝碳刨去除；
- 2、 将碳刨处打磨光滑；
- 3、 如用户要求，用 MT 或其它的无损检测方法证实缺陷被完全清除；
- 4、 按批准后返修焊接工艺规程 WPS 要求进行预热和控制道间温度；
- 5、 按图纸要求检测焊缝。

工艺: Luweiyu 2008.1.08  
Technical engineer

审核:  
Approved by

日期  
Date

#R787-QCP-900

		焊缝返修报告 Welding Repair Report			版本 Rev. No.	
项目名称 Project Name	美国海湾大桥 SFOBB	部件图号 Drawing No.	MUC-MA107B/C	报告编号 Report No.	WR059	
合同号 Contract No.:	04-0120F4	部件名称 Items Name	114M LOWER B OX ANGLE C/D	NDT报告编号 Report No.of NDT	CT-UT-086R1	
项目编号 Project No.:	ZP08-787					
纠正措施: Correction action to prevent re occurrence: 1. 加强焊接监控和道间清理。 1. Improve monitoring of welding and interpass cleaning.						
车间负责人(Foreman): <u>Lu Yefei</u> 日期(Date): 2008.1.08						
参照的WPS编号 Repair WPS No.	WPS-345-FCAW-1G (1F)-Repair	工艺员 technologist		<u>Lu Yefei</u>		
返修(碳刨)前预热温度 Preheat temperature before gouging	NA	返修的缺陷 Description of discontinuity		slag incomplete fusion 夹渣 未熔合		
焊前处理检查 Inspection before welding	Acc	焊前预热温度 Preheat temperature before welding		192°C		
最大碳刨深度 Max. depth of gouging	45mm	碳刨总长 Total length of gouging		185mm		
焊工 welder	<u>Chang chuanqiang</u> 053870	焊接类型 welding type	<u>FeAW</u>	焊接位置 position	1G	
焊接电流 Current	310A	焊接电压 Voltage	30.2V	焊接速度 Speed	298mm/min	
返修后检查 Inspection After repairing:						
外观检查 VT result	合格	检验员 Inspector	<u>Chen xi</u> 07072021	日期 Date	2008.01.10	
NDT复检 NDT result	Acc	探伤员 NDT person	<u>Xue Haiyong</u>	日期 Date	2008.01.10	
见证: Witness/Review:						
备注: Remark:						



# REPORT OF ULTRASONIC EXAMINATION

## UT探伤报告

REPORT NO. 报告编号 CT-UT-086R2      DATE 2008.01.10      PAGE 1 OF 1      Revision No: 0

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

ITEMS NAME: 114M LOWER BOX ANGLE CD      DRAWING NO.: MUC-MA107 B/C      CALTRANS CONTRACT NO.: 04-0120F4  
 部件名称      图号      加州工程编号

REFERENCING CODE 参考规范      ACCEPTANCE STANDARD 接受标准      PROCEDURE NO. 程序编号  
 AWS D1.5-2002      AWS D1.5-2002(Table 6.3)      ZPQC-UT-01

WELDING PROCESS 焊接方法      JOINT TYPE 焊缝类型      CALIBRATION DUE DATE 仪器校正有效期  
 FCAW      CORNER JOINT      Jan. 1<sup>ST</sup>, 2009

EQUIPMENT 设备      MANUFACTURER 制造商      MODEL NO. 样式编号      SERIAL NO. 序列编号  
 UT SCOPE      PANAMETRICS      EPOCH-4B      071565311,061488510

CALIBRATION BLOCK 试块      COUPLANT 耦合剂      MATERIAL/THICKNESS 材料厚度  
 AWS IIV BLOCK TYPE II      C.M.C      A709-50T-2 / 90 mm

### TRANSDUCER 探头

MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸	MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸
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Base metal inspected per AWS D1.5-2002 Section 6.19.5      0 ° UT OK

WELD IDENTIFICATION 焊缝编号	INDICATION NO. 指示号	PROBE ANGLE 探测角度	FROM FACE 检测面	LEG (次数)	DECIBELS 分贝				DISCONTINUITY 不连续性					Discontinuity Evaluation 缺陷估计	Remark 备注	
					Indication Level	Reference Level	Attenuation Factor	Indication Rating	LOCATION OF DISCONTINUITY 不连续位置(mm)							
									a	b	c	d	Length 长度			Sound Path 声程
MUC-MA107B/C-2A/2B	1R2	45.0					30								ACC.	
	2R2	68.5					35								ACC.	

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EXAMINED BY 主操      REVIEWED BY 审核:  
*Xue Herryong* 2008.01.10      *Zhuoqin*  
 LEVEL - II SIGN / DATE      LEVEL - II SIGN / DATE 2008.01.10

质量经理 / QCM      用户CUSTOMER:  
*Hufang* 2008.1.15      \_\_\_\_\_  
 签字 SIGN / 日期 DATE      签字 SIGN / 日期 DATE

**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 #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000049**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 19-May-2008**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0055**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:** 06-Jan-2008**Description of Non-Conformance:**

ABF allowed ZPMC to move the 114m tower mock-up prior to performing the required postweld heat treatment of a critical weld repair. At the completion of welding of the skin plate critical weld repair (CWR) # 32 the required minimum preheat and interpass temperature of 200? C was measured at approximately 138 ?C before the critical weld repair was raised to the hydrogen diffusion postweld heat treatment (PWHT) described within the CWR and AWS D1.5 section 12.15.1.2. There was an approximate forty minute lapse between the time the CWR was completed until the time the post heat temperature was applied and achieved.

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

ZPMC will improve monitoring of critical repair work in accordance with ZPMC internal NCR-CT-018.

**Corrective action taken:**

The weld has been inspected and passed NDT evaluation to ensure that cracks had not been formed due to the improper hydrogen diffusion postheat process. ZPMC internal NCR-CT-018 has been issued to ensure that critical repair work will be monitored more thoroughly in the future.

**Did corrective action require Engineer's approval?** Yes No**If so, name of Engineer providing approval:****Date:****Is Engineer's approval attached?** 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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

**Inspected By:** McReynolds, Robert

Quality Assurance Inspector

**Reviewed By:** Wahbeh, Mazen

QA Reviewer