

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
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 (707) 649-5493

Contract #: 04-0120F4
 Cty: SF/ALA Rte: 80 PM: 13.2/13.9
 File #: 69.25B

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Changxing Island, Shanghai, P.R. China

Report No: NCR-000270

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 19-May-2009

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

NCR #: ZPMC-0244

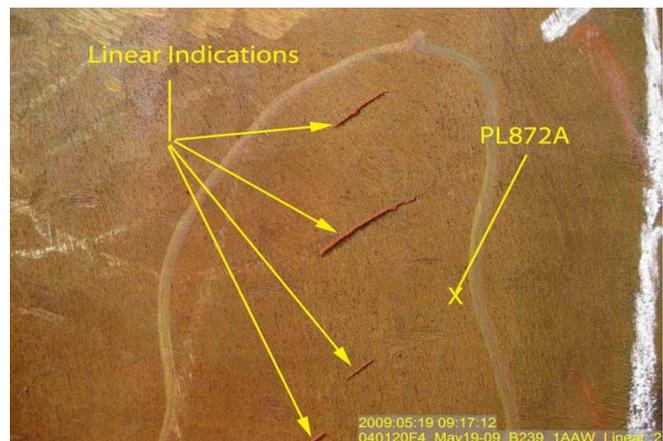
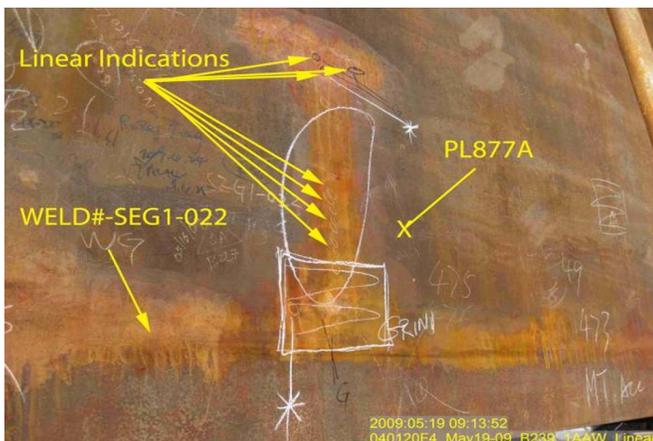
Type of problem:

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: OBG Segment 1AAW
Procedural	Procedural	Description:	

Reference Description: Missed NDT Indications by Quality Control, Segment 1AAW

Description of Non-Conformance:

During random verification Magnetic Particle Testing (MT) of 1AAW, Top plate and Top plate to Bulkhead plate welds (SEG001-001, 017, 019, 020, 022, 023 and 026), Caltrans Quality Assurance (QA) Inspector discovered a total of forty nine (49) linear indications from 5 to 75mm in length. These areas have been previously tested and accepted by ZPMC NDT personnel.



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”

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Who discovered the problem: Rodney Patterson
Name of individual from Contractor notified: Peter Shaw
Time and method of notification: 05/19/09, 0800 hours, Verbal
Name of Caltrans Engineer notified: Ching Chao
Time and method of notification: 05/20/09, 1330 hours, Verbal
QC Inspector's Name: Shen Xie Jun
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 Eric Tsang, +(86) 1500.042.2372, who represents the Office of Structural Materials for your project.

Inspected By:	Guest,Skylar	SMR
Reviewed By:	Wahbeh,Mazen	SMR



DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
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, A JV
375 BURMA ROAD
OAKLAND CA 95607

Date: 22-May-2009

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

Dear: Mr. Charles Kanapicki

Job Name: SAS Superstructure

Attention: Mr. Thomas Nilsson Project/Fabrication Manager

Document No: 05.03.06-000235

Subject: NCR No. ZPMC-0244

Reference Description: Missed NDT Indications by Quality Control, Segment 1AAW

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: OBG **Lift:**

Remarks:

During random verification Magnetic Particle Testing (MT) of 1AAW, Top plate and Top plate to bulkhead plate welds (SEG001-001, 017, 019, 020, 022, 023 and 026), Caltrans Quality Assurance (QA) Inspector discovered a total of forty nine (49) linear indications from 5 to 75mm in length. These areas have been previously tested and accepted by ZPMC NDT personnel.

Action Required and/or Action Taken:

A response for the resolution of this issue is expected within 14 days.

Transmitted by: Stanley Ku Sr. Bridge Engineer

Attachments: ZPMC-0244

cc: Rick Morrow, Gary Pursell, Peter Siegenthaler, Brian Boal, Doug Coe, Jason Tom, Ching Chao

File: 05.03.06

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000235

Subject: NCR No. ZPMC-0244

Dated: 27-May-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000239 Rev: 00

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has again been notified of missed NDT indications. ABF have recently transmitted a letter to ZPMC upper management to further elevate this issue within the ZPMC organization.

ZPMC has again been notified of missed NDT indications. ABF have recently transmitted a letter to ZPMC upper management to further elevate this issue within the ZPMC organization. ZPMC will submit weld repair and inspection documents at a later date.

Submitted by:

Attachment(s): ABF-NPR-000239R00

Caltrans' comments:

Status: AAP

Date: 04-Jun-2009

The response is acceptable, but the Non-Conformance is not closed.

Please provide documentation of the weld repairs that were performed and that the repairs were acceptable. The Department will review the Contractor's proposal to close Non-Conformance ZPMC-0244 at that time.

Submitted by: Wright, Doug

Date: 04-Jun-2009

Attachment(s):

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000235

Subject: NCR No. ZPMC-0244

Dated: 13-Jul-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000239 Rev: 01

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has responded to the NCR and has attached the necessary documents for closure. ZPMC requests closure of this NCR.

ZPMC has responded to the NCR and has attached the necessary documents for closure. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000239R01;

Caltrans' comments:

Status: AAP

Date: 15-Jul-2009

The response is acceptable, but the Non-Conformance is not closed. The attached documentation did not include all of the welds listed in the Non-Conformance.

Please provide the inspection documentation of all of the welds listed in the Non-Conformance. The Department will review the Contractor's proposal to close Non-Conformance ZPMC-0244 at that time.

Submitted by: Wright, Doug

Date: 15-Jul-2009

Attachment(s): NPR CT Comments



No. B-368

LETTER OF RESPONSE

TO: American Bridge/Flour

DATE: 2009-6-11

REGARDING: NCR-00270/271(ZPMC-0244/245)

With this letter of response, ZPMC requests closure for Caltrans NCR-00270/271(ZPMC-0244/245). According with the NPR response from the caltrans, we provide the documentation of the weld repairs the were performed and that the repairs were acceptable.

So base on the above explanation and attached documentations, ZPMC applies to close the caltrans's report NCR-00270/271(ZPMC-0244/245).

Please reference attached documentation for acceptance and closure the NCR-00270/271(ZPMC-0244/245).

ATTACHMENT:

NCR-00270/271(ZPMC-0244/245)

The critical welding repair report

The final NDT inspection reports

Zhuoshuangbao

2009. 6. 11



关键焊
Critical Welding

ZPMC-0244

CWR

final UT/MT

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	1AAW
项目编号 Project No.:	ZP06-787	NDT 报告编号 NDT Report No.:	B787-MT-11112

焊缝缺陷描述:

Description of Welding Discontinuity:

吊耳去除后母材上发现有10处横向裂纹。1、L=10mm; 2、L=8mm; 3、L=12mm; 4、L=14mm; 5、L=6mm; 6、L=6mm; 7、L=8mm; 8、L=12mm; 9、L=10mm; 10、L=14mm;

Ten transverse cracks were found by use of MT in material after removing lifting.

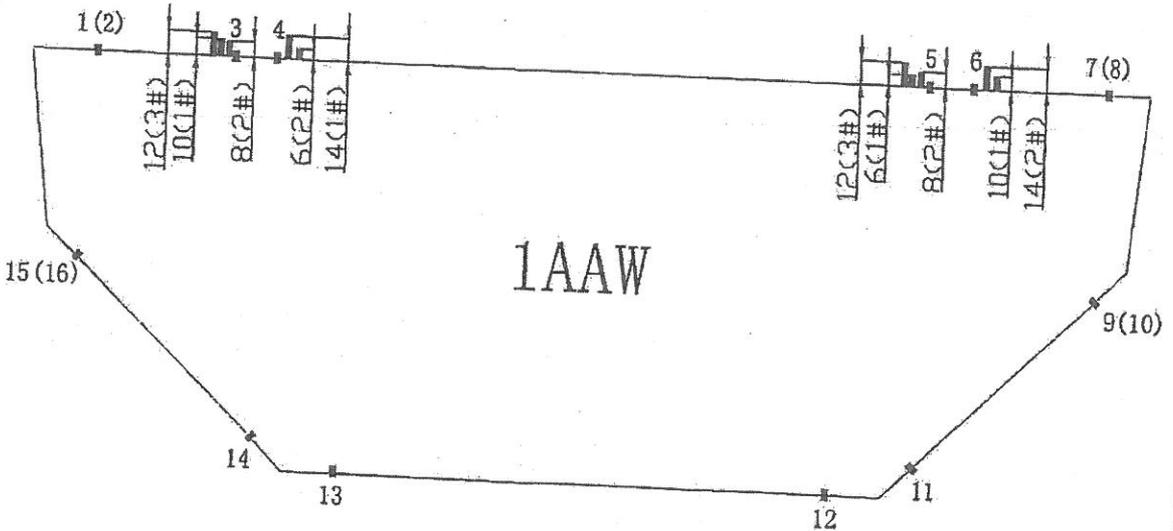
1、L=10mm; 2、L=8mm; 3、L=12mm; 4、L=14mm; 5、L=6mm; 6、L=6mm; 7、L=8mm; 8、L=12mm; 9、L=10mm; 10、L=14mm;

检验员 (Inspector): Sun Gongchao

日期 (Date): 2009-05-23

焊缝返修位置示意图:

Draft of Welding Discontinuity:



This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications

Initial: fw Date: 5/25/09

产生原因:

Cause:

1. 在装配吊耳时, 产生点焊裂纹, 去除吊耳后, 裂纹延伸至母材.
2. 由于焊后应力集中或未能控制好预热温度导致裂纹出现

1. The tack crack was caused during assembly lifting, and cracks extended to base metal after removing lifting.
2. Welding contraction stresses and insufficient preheat and post heat control caused the crack.

车间负责人 (Foreman):

Li Zhigang

日期 (Date):

09.05.23

处理意见

Disposition :

1. 采用打磨的方式去除裂纹;
 2. 准备一个正确的接头型式, 具体参照相应的返修WPS;
 3. VT和MT检测确认返修区域没有裂纹;
 4. 根据批准的返修焊接工艺规程
 5. 预热温度应不小于100℃,
 6. 预热范围在修补区域周围不应小于150mm;
 7. 将修补区域打磨与母材或相邻焊缝平齐;
 8. 对修补区域做VT与MT检测.
1. Remove the crack by means of grinding.
 2. Prepare excavation according to the approved repair WPS.
 3. Verify with VT and MT repair areas are crack free.
 4. Preheat and weld according to the approved repair WPS.
 5. Preheat prior to welding to a minimum temperature of 100°C
 6. The preheat area shall be a minimum of 150mm in all directions around the repair area.
 7. Grind the repaired area flush with base metal or the adjacent weld.
 8. Perform VT and MT of the repair areas.

This document is APPROVED
 State of California
 DEPARTMENT OF TRANSPORTATION
 Pursuant to Section 5-1.02 of the
 Standard Specifications
 Initial: *FW* Date: 5/25/09

工艺:

Technical Engineer: *Nin Tiefaf*

审核:

Approved By:

Wang Chenbin

日期:

Date: 09.05.23

for Chenbin



关键焊缝返修报告

版本
Rev. No.:

Critical Welding Repair Report (CWR)

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	SEG001	报告编号 Report No.:	B-CWR540
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	1AAW	NDT 报告编号 NDT Report No.:	B787-MT-11112
项目编号 Project No.:	ZP06-787				

纠正措施:

Corrective Action to Prevent Re-occurrence:

- 加强装配和焊接时监控和控制, 减少点焊裂纹;
 - 在焊后严格控制其后热程序, 避免裂纹现象发生。
- Enhance supervision and controlling during assembly and welding to reduce tack welding cracks.
 - Enhance supervision during the post heating operation to avoid cracks.

车间负责人 (Foreman): *Li zhigang* 日期 (Date): *09.25.23*

参照的 WPS 编号 Repair WPS No.:	WPS-345-SMAW-1 G(1F)-Repair WPS-345-FCAW-1 G(1F)-Repair-1	工艺员 Technologist:	<i>Niu Tiefeng</i> <i>09.25.23</i>
返修 (碳刨) 前预热温度 Preheat Temperature Before Gouging:	<i>110°C</i>	返修的缺陷 Description of Discontinuity:	<i>cracks</i>
焊前处理检查 Inspection Before Welding:	<i>Acc</i>	焊前预热温度 Preheat Temperature Before Welding:	<i>124°C</i>
最大碳刨深度 Max. Depth of Gouge:	<i>75mm</i>	碳刨总长 Total Length of Gouge:	<i>130mm</i>
焊工 Welder:	<i>062708</i>	焊接类型 Welding Type:	<i>7caw</i>
焊接电流 Current:	<i>287</i>	焊接电压 Voltage:	<i>29.5</i>
		焊接位置 Position:	<i>2F</i>
		焊接速度 Speed:	<i>4.29</i>

返修后检查
Inspection After Repair:

外观检查 VT Result:	<i>Acc</i>	检验员 Inspector:	<i>chenxi</i>	日期 Date:	<i>2009.05.29</i>
NDT 复检 NDT Result:	<i>Acc</i>	探伤员 NDT Person:	<i>Sun Yong chun</i>	日期 Date:	<i>09.25.29</i>

见证:
Witness/Review:备注:
Remark:

#R787-QCP-900

This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial *fw* Date: *5/25/09*



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 B787-MT-11112R1 DATE日期 2009.05.29 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: SEG001 1AAW 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. 28ST, 2009

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

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 CASTING 铸件 FORGING 锻造 Material & thickness 母材,厚度 A709M-345T2-X 30 mm

WELDING PROCESS 焊接方法 FCAW TYPE OF JOINT 焊缝类型 NA

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			
3	1R1			ACC.		
	2R1			ACC.		
	3R1			ACC.		
4	1R1			ACC.		
	2R1			ACC.		
5	1R1			ACC.		
	2R1			ACC.		
	3R1			ACC.		
6	1R1			ACC.		
	2R1			ACC.		

AFTER B-CWR540

BLANK

EXAMINED BY 主探 Sun Gongchang REVIEWED BY 审核 Ding Acheng

LEVEL - II SIGN 签名 / DATE 日期 09.5.29 LEVEL-II SIGN / DATE 日期 09.5.29

质量经理 / QCM 用户 CUSTOMER

签字 SIGN / 日期 DATE 签字 SIGN / 日期 DATE



关键焊缝返修报告
Critical Welding

版本
Rev. No.:

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	
项目编号 Project No.:	ZP06-787		

ZPMC-0245

*CWR
final VT (MT)*

焊缝缺陷描述:

Description of Welding Discontinuity:

在对SEG2A-033检测时, 发现2处纵向裂纹, 1、L=60mm; 2、L=6mm.

Welder ID No. (焊工编号): 066912

Position:(位置): 2G

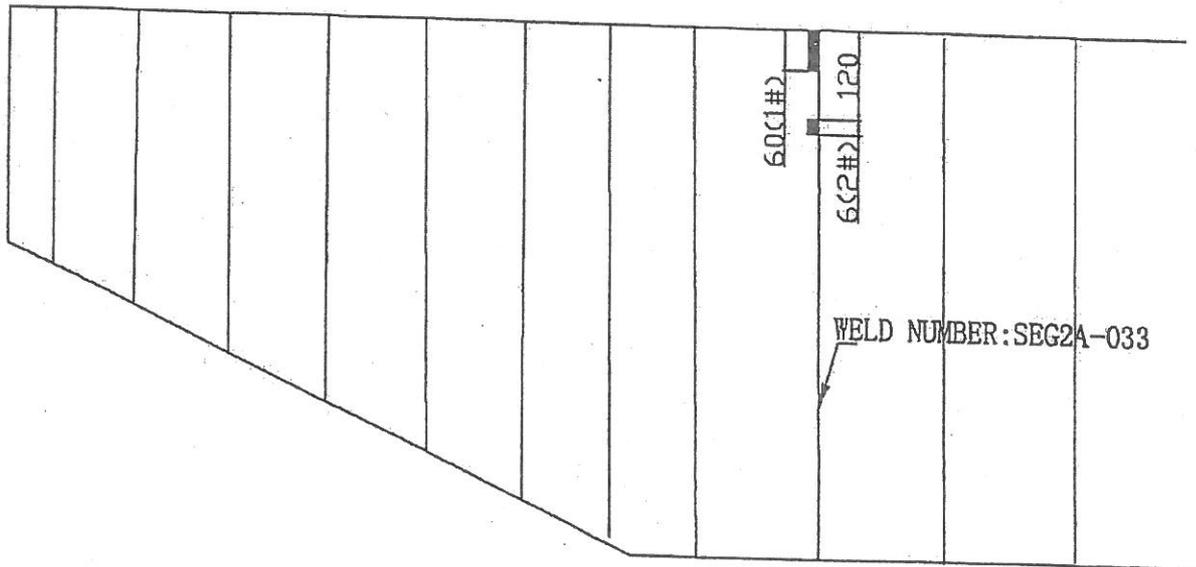
We found two longitudinal cracks in SEG2A-033.

检验员 (Inspector): *Sun Gongchang*
Sun Gongchang

日期 (Date): 2009-05-17

焊缝返修位置示意图:

Draft of Welding Discontinuity:



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State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial *AT* Date: *5/21/9*

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): *Lizhigang*

日期 (Date): *2009. 5. 19*

处理意见

Disposition:

1. 采用打磨的方式去除裂纹;
 2. 准备一个正确的接头型式, 具体参照相应的返修WPS;
 3. VT和MT检测确认返修区域没有裂纹;
 4. 根据批准的返修焊接工艺规程
 5. 预热温度应不小于100℃;
 6. 预热范围在修补区域周围不应小于150mm;
 7. 将修补区域打磨与母材或相邻焊缝平齐;
 8. 对修补区域做VT与MT检测。
1. Remove the crack by means of grinding.
 2. Prepare excavation according to the approved repair WPS.
 3. Verify with VT and MT repair areas are crack free.
 4. Preheat and weld according to the approved repair WPS.
 5. Preheat prior to welding to a minimum temperature of 100°C
 6. The preheat area shall be a minimum of 150mm in all directions around the repair area.
 7. Grind the repaired area flush with base metal or the adjacent weld.
 8. Perform VT and MT of the repair areas.

REVISION IS APPROVED
 State of California
 DEPARTMENT OF TRANSPORTATION
 Pursuant to Section 5-1.02 of the
 Standard Specifications
 Initial: *29* Date: *5/21/09*

工艺: *Niutiefang*
Technical Engineer: *2009. 5. 19*

审核: *lyyambua*
Approved By: *for chenbin*

日期: *5.19*
Date:

		<h2 style="margin: 0;">关键焊缝返修报告</h2> <h3 style="margin: 0;">Critical Welding Repair Report (CWR)</h3>			版本 Rev. No.:
					0
项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	1AAE	报告编号 Report No.:	B-CWR533
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	SEG2A	NDT 报告编号 NDT Report No.:	B787-MT-10936
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): <i>Lizhigang</i>			日期 (Date): <i>2009.5.19</i>		
参照的WPS编号 Repair WPS No.:	WPS-345-SMAW-2 G(2F)-Repair WPS-345-FCAW-2 G(2F)-Repair-1		工艺员 Technologist:	<i>Niutiefeng</i> <i>5/19/09</i>	
返修(碳刨)前预热温度 Preheat Temperature Before Gouging:	<i>972</i>		返修的缺陷 Description of Discontinuity:	<i>crackler</i>	
焊前处理检查 Inspection Before Welding:	<i>Acc</i>		焊前预热温度 Preheat Temperature Before Welding:	<i>1162</i>	
最大碳刨深度 Max. Depth of Gouge:	<i>9mm</i>		碳刨总长 Total Length of Gouge:	<i>100mm</i>	
焊工 Welder:	<i>200569</i>	焊接类型 Welding Type:	<i>FCAW</i>	焊接位置 Position:	<i>2F</i>
焊接电流 Current:	<i>290</i>	焊接电压 Voltage:	<i>30</i>	焊接速度 Speed:	<i>526</i>
返修后检查 Inspection After Repair:					
外观检查 VT Result:	<i>Acc</i>	检验员 Inspector:	<i>chenxi</i>	日期 Date:	<i>2009.05.24.</i>
NDT复检 NDT Result:	<i>Acc</i>	探伤员 NDT Person:	<i>Sungongchen</i>	日期 Date:	<i>09.05.24</i>
见证: Witness/Review:					
备注: Remark:					

#R787-QCP-900

This document is APPROVED
 State of California
 DEPARTMENT OF TRANSPORTATION
 Pursuant to Section 5-1.02 of the
 Standard Specifications
 Initial *SR* Date: *5/21/09*

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000235

Subject: NCR No. ZPMC-0244

Dated: 15-Jul-2009

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

Job Name: SAS Superstructure

Document No.: Abf-NPR-000239 **Rev:** 02

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has responded to the NCR as stated in the attachment. ZPMC requests closure of this NCR.
ZPMC has responded to the NCR as stated in the attachment. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000239R02;

Caltrans' comments:

Status: CLO

Date: 04-Aug-2009

The proposed resolution is acceptable. The inspection documents requested in Rev 1 have been provided. The Department concurs that Non-Conformance ZPMC-0244 is closed.

Submitted by: Wright, Doug

Date: 04-Aug-2009

Attachment(s):



No. B-394

LETTER OF RESPONSE

TO: American Bridge/Flour

DATE: 2009-7-14

REGARDING: NCR-00270 (ZPMC-0244)

With this letter of response, ZPMC requests closure for Caltrans **NCR-00270 (ZPMC-0244)**. As the comments of the NPR from caltrans, we provided the CWR and MT report to support the weld repairs that were performed and that the repairs were acceptable. But we should remind here that except the 10 indications in CWR, other indications had been removed by grinding. The final MT has been completed by ZPMC and verified by CT.

So base on the above explanation and attached documentations, ZPMC applies to close the caltrans's report **NCR-00270 (ZPMC-0244)**.

Please reference attached documentation for acceptance and closure the **NCR-00270 (ZPMC-0244)**.

ATTACHMENT:

NCR-00270 (ZPMC-0244)

The critical welding repair report

The final MT inspection reports

Zhao Shuangbao

2009. 7. 14

预防措施:

加强检测, 加强技术培训, 加强复检.

Enhance inspection and training and re-inspection.

Approved by/批准: W. C. Wong 2009/5/6/20

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: _____

Verification: Acceptable Unacceptable
确认: 可接受 不可接受

Verified by QCI/质检确认: _____ Reviewed by QCA/质检主任审核: _____

#R787-QCP-1300

DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
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, A JV
375 BURMA ROAD
OAKLAND CA 95607

Date: 22-May-2009

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

Dear: Mr. Charles Kanapicki

Job Name: SAS Superstructure

Attention: Mr. Thomas Nilsson Project/Fabrication Manager

Document No: 05.03.06-000235

Subject: NCR No. ZPMC-0244

Reference Description: Missed NDT Indications by Quality Control, Segment 1AAW

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: OBG

Lift:

Remarks:

During random verification Magnetic Particle Testing (MT) of 1AAW, Top plate and Top plate to bulkhead plate welds (SEG001-001, 017, 019, 020, 022, 023 and 026), Caltrans Quality Assurance (QA) Inspector discovered a total of forty nine (49) linear indications, from 5 to 75mm in length. These areas have been previously tested and accepted by ZPMC NDT personnel.

Action Required and/or Action Taken:

A response for the resolution of this issue is expected within 14 days.

Transmitted by: Stanley Ku Sr. Bridge Engineer

Attachments: ZPMC-0244

cc: Rick Morrow, Gary Pursell, Peter Siegenthaler, Brian Boal, Doug Coe, Jason Tom, Ching Chao

File: 05.03.06

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 #: 04-0120F4
 Cty: SF/ALA Rte: 80 PM: 13.2/13.9
 File #: 69.25B

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Changxing Island, Shanghai, P.R. China **Report No:** NCR-000270
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 19-May-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0244

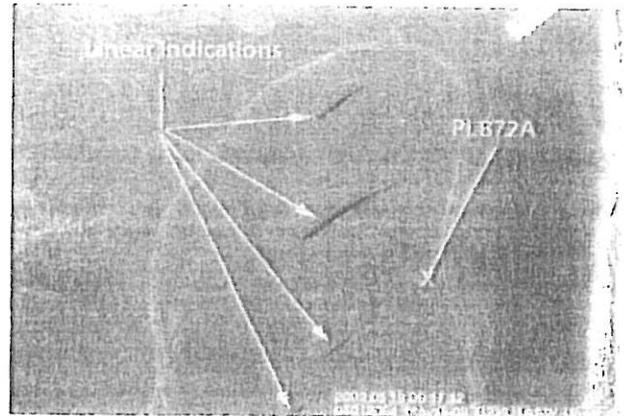
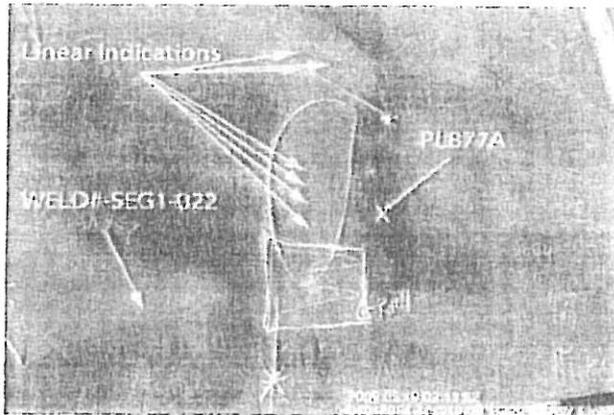
Type of problem:

- Welding Concrete Other
 Welding Curing Procedural **Bridge No:** 34-0006
 Joint fit-up Coating Other **Component:** OBG Segment IAAW
 Procedural Procedural Description:

Reference Description: Missed NDT Indications by Quality Control, Segment IAAW

Description of Non-Conformance:

During random verification Magnetic Particle Testing (MT) of IAAW, Top plate and Top plate to Bulkhead plate welds (SEG001-001, 017, 019, 020, 022, 023 and 026), Caltrans Quality Assurance (QA) Inspector discovered a total of forty nine (49) linear indications from 5 to 75mm in length. These areas have been previously tested and accepted by ZPMC NDT personnel.



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”

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Who discovered the problem: Rodney Patterson
Name of individual from Contractor notified: Peter Shaw
Time and method of notification: 05/19/09, 0800 hours, Verbal
Name of Caltrans Engineer notified: Ching Chao
Time and method of notification: 05/20/09, 1330 hours, Verbal
QC Inspector's Name: Shen Xie Jun
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 Eric Tsang, +(86) 1500.042.2372, who represents the Office of Structural Materials for your project.

Inspected By:	Guest, Skyler	SMR
Reviewed By:	Wahbeh, Mazen	SMR



关键焊缝返修报告

Critical Welding Repair Report (CWR)

版本
Rev. No.:

0

项目名称 Project Name:	美国海河大桥 SFOBB	部件图号 Drawing No.:	SEG001	报告编号 Report No.:	B-CWR540
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	1AAW	NDT 报告编号 NDT Report No.:	B787-MT-11112
项目编号 Project No.:	ZP06-787				

焊缝缺陷描述:

Description of Welding Discontinuity:

吊耳割除后母材上发现有10处横向裂纹。1、L=10mm; 2、L=8mm; 3、L=12mm; 4、L=14mm; 5、L=6mm; 6、L=6mm; 7、L=8mm; 8、L=12mm; 9、L=10mm; 10、L=14mm;

Ten transverse cracks were found by use of MT in material after removing lifting.

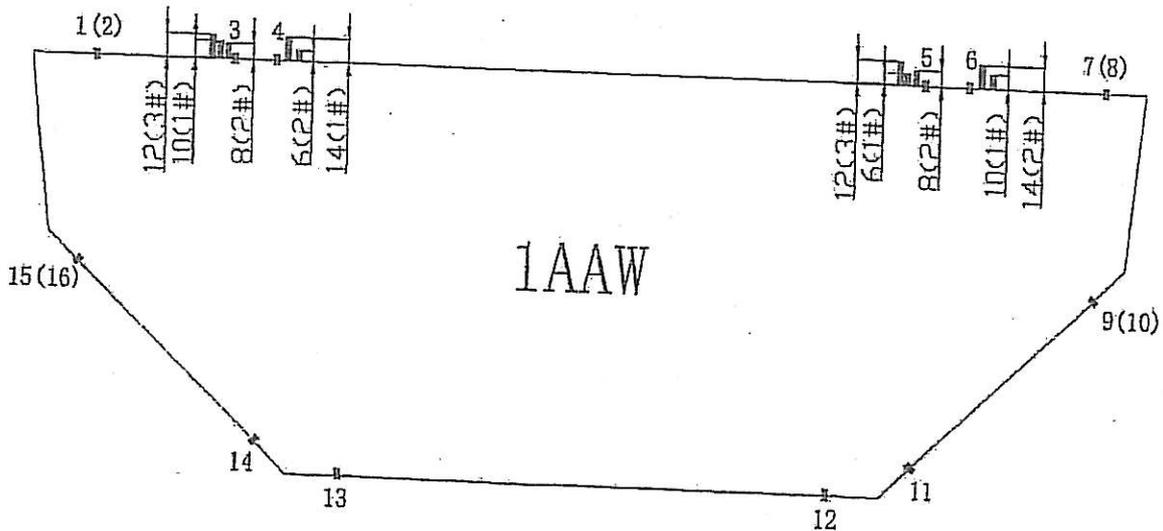
1、L=10mm; 2、L=8mm; 3、L=12mm; 4、L=14mm; 5、L=6mm; 6、L=6mm; 7、L=8mm; 8、L=12mm; 9、L=10mm; 10、L=14mm;

检验员 (Inspector): Sun Gungohary
Sun Gongchuan

日期 (Date): 2009-05-23

焊缝返修位置示意图:

Draft of Welding Discontinuity:



This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-102 of the
Standard Specifications

Initial g/w Date: 5/25/09

产生原因:

Cause:

- 1. 在装配吊耳时, 产生点焊裂纹, 去除吊耳后, 裂纹延伸至母材.
- 2. 由于焊后应力集中或未能控制好热温度导致裂纹出现

- 1. The lack crack was caused during assembly lifting, and cracks extended to base metal after removing lifting.
- 2. Welding contraction stresses and insufficient preheat and post heat control caused the crack.

车间负责人 (Foreman):

Li Zhigang

日期 (Date):

09.05.23

处理意见

Disposition:

- 1. 采用打磨的方式去除裂纹;
- 2. 准备一个正确的接头型式, 具体参照相应的返修WPS;
- 3. VT和MT检测确认返修区域没有裂纹;
- 4. 根据批准的返修焊接工艺规程
- 5. 预热温度应不小于100℃,
- 6. 预热范围在修补区域周围不应小于150mm;
- 7. 将修补区域打磨与母材或相邻焊缝平齐;
- 8. 对修补区域做VT与MT检测.

- 1. Remove the crack by means of grinding.
- 2. Prepare excavation according to the approved repair WPS.
- 3. Verify with VT and MT repair areas are crack free.
- 4. Preheat and weld according to the approved repair WPS.
- 5. Preheat prior to welding to a minimum temperature of 100°C
- 6. The preheat area shall be a minimum of 150mm in all directions around the repair area.
- 7. Grind the repaired area flush with base metal or the adjacent weld.
- 8. Perform VT and MT of the repair areas.

This document is APPROVED
 State of California
 DEPARTMENT OF TRANSPORTATION
 Pursuant to Section 9-1.02 of the
 Standard Specifications

Initial: *EL* Date: 5/25/09

工艺:

Technical Engineer: *Wm Tiedef*

审核:

Approved By: *Wm Tiedef*

日期:

Date: 09.05.23

for Chenbin



关键焊缝返修报告

版本
Rev. No.:

Critical Welding Repair Report (CWR)

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	SEG001	报告编号 Report No.:	B-CWR540
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	1AAW	NDT 报告编号 NDT Report No.:	B787-MT-11112
项目编号 Project No.:	ZP06-787				

纠正措施:**Corrective Action to Prevent Re-occurrence:**

1. 加强装配和焊接时监控和控制, 减少点焊裂纹;

2. 在焊后严格控制其后热程序, 避免裂纹现象发生。

1. Enhance supervision and controlling during assembly and welding to reduce tack welding cracks.

2. Enhance supervision during the post heating operation to avoid cracks.

车间负责人 (Foreman): *Li Zhigang* 日期 (Date): *09.25.23*

WPS-345-FAW-2GCF - Repair - 2 Niu Tiefeng 09.25.23

参照的 WPS 编号 Repair WPS No.:	WPS-345-SMAW-1 G(1F)-Repair WPS-345-FCAW-1 G(1F)-Repair-1	工艺员 Technologist:	<i>Niu Tiefeng</i> <i>09.25.23</i>
返修 (碳刨) 前预热温度 Preheat Temperature Before Gouging:	<i>1100</i>	返修的缺陷 Description of Discontinuity:	<i>cracks</i>
焊前处理检查 Inspection Before Welding:	<i>Acc</i>	焊前预热温度 Preheat Temperature Before Welding:	<i>1240</i>
最大碳刨深度 Max. Depth of Gouge:	<i>7.5mm</i>	碳刨总长 Total Length of Gouge:	<i>130mm</i>
焊工 Welder:	<i>062708</i>	焊接类型 Welding Type:	<i>FAW</i>
焊接电流 Current:	<i>287</i>	焊接电压 Voltage:	<i>29.5</i>
		焊接位置 Position:	<i>2G</i>
		焊接速度 Speed:	<i>429</i>

**返修后检查
Inspection After Repair:**

外观检查 VT Result:	<i>Acc</i>	检验员 Inspector:	<i>chenxi</i>	日期 Date:	<i>2009.05.29</i>
NDT 复检 NDT Result:	<i>Acc</i>	探伤员 NDT Person:	<i>Sun Jiong chun</i>	日期 Date:	<i>09.25.29</i>

见证:
Witness/Review:备注:
Remark:

#R787-QCP-900

This document is APPROVED
State of Georgia
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 6-1.02 of the
Standard Specifications

Initial *AW* Date: *5/25/09*



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 B787-MT-11112		DATE日期 2009.05.23	PAGE OF页码 1/2	Revision No: 0
PROJECT NO. 工程编号: ZP06-787		CONTRACTOR: 用户: CALTRANS		
DRAWING NO. 图号: SEG001 1AAW		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 ST , 2009	
EQUIPMENT 设备 MT YOKE	MANUFACTURER 制造商 PARKER	MODEL NO. 样式编号 B310S	SERIAL NO. 连续编号 5395 5617 5620	
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	<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材, 厚度	A709M-345T2-X 30 mm	
WELDING PROCESS 焊接方法	NA	TYPE OF JOINT 焊缝类型	NA	

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			
1				ACC.		removed lifting
2				ACC.		removed lifting
3	1	CRACK	10		REJ.	removed lifting
	2	CRACK	8		REJ.	removed lifting
	3	CRACK	12		REJ.	removed lifting
4	1	CRACK	14		REJ.	removed lifting
	2	CRACK	6		REJ.	removed lifting
5	1	CRACK	6		REJ.	removed lifting
	2	CRACK	8		REJ.	removed lifting
	3	CRACK	12		REJ.	removed lifting
6	1	CRACK	10		REJ.	removed lifting
	2	CRACK	14		REJ.	removed lifting
7				ACC.		removed lifting
8				ACC.		removed lifting
9				ACC.		removed lifting
10				ACC.		removed lifting

EXAMINED BY 主探 <i>Sun Gongchang</i>	REVIEWED BY 审核 <i>wang wei</i>
LEVEL - II SIGN 签名 / DATE 日期 <i>05.23</i>	LEVEL - II SIGN / DATE 日期 <i>09.25.23</i>
质量经理 / QCM	用户 CUSTOMER
签字 SIGN / 日期 DATE	签字 SIGN / 日期 DATE



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 B787-MT-11112		DATE日期 2009.05.23		PAGE OF页码 2/2		Revision No: 0	
PROJECT NO. 工程编号: ZP06-787			CONTRACTOR: 用户: CALTRANS				
DRAWING NO. 图号: SEG001 1AAW			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 ST , 2009	
EQUIPMENT 设备 MT YOKE		MANUFACTURER 制造商 PARKER		MODEL NO. 样式编号 B310S		SERIAL NO. 连续编号 5395 5617 5620	
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		<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造		Material & thickness 母材, 厚度		A709M-345T2-X 30 mm	
WELDING PROCESS 焊接方法		NA		TYPE OF JOINT 焊缝类型		NA	
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				
11				ACC.		removed lifting	
12				ACC.		removed lifting	
13				ACC.		removed lifting	
14				ACC.		removed lifting	
15				ACC.		removed lifting	
16				ACC.		removed lifting	
BLANK							
EXAMINED BY 主探 <i>Sungjungchang</i> LEVEL - II SIGN 签名 / DATE日期 <i>09.05.23</i>				REVIEWED BY 审核 <i>Wangye</i> LEVEL-II SIGN / DATE日期 <i>09.05.23</i>			
质量经理 / QCM				用户CUSTOMER			
签字 SIGN / 日期 DATE				签字 SIGN / 日期 DATE			



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 B787-MT-11112R1		DATE日期 2009.05.29	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: SEG001 1AAW		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 ST , 2009	
EQUIPMENT 设备 MT YOKE	MANUFACTURER 制造商 PARKER	MODEL NO. 样式编号 B310S	SERIAL NO. 连续编号 5395 5617 5620	
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	<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材, 厚度	A709M-345T2-X 30 mm	
WELDING PROCESS 焊接方法	FCAW	TYPE OF JOINT 焊缝类型	NA	

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			
3	1R1			ACC.		
	2R1			ACC.		
	3R1			ACC.		
4	1R1			ACC.		
	2R1			ACC.		
5	1R1			ACC.		
	2R1			ACC.		
	3R1			ACC.		
6	1R1			ACC.		
	2R1			ACC.		

AFTER B-CWR540

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EXAMINED BY主探 Sun Gongchang <i>Sun gongchang</i>	REVIEWED BY 审核 Ding Acheng <i>Ding Acheng</i>
LEVEL - II SIGN 签名 / DATE日期 09.5.29	LEVEL-II SIGN / DATE日期 09.5.29
质量经理 / QCM <i>[Signature]</i>	用户CUSTOMER
签字 SIGN / 日期 DATE <i>[Signature]</i>	签字 SIGN / 日期 DATE



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 B787-MT-11172		DATE日期 2009.05.25	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: 1AAW SEG1		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 ST , 2009	
EQUIPMENT 设备 MT YOKE	MANUFACTURER 制造商 PARKER	MODEL NO. 样式编号 B310S	SERIAL NO. 连续编号 5395 5617 5620	
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	<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材,厚度	A709M-345T2-X 18/28/38 mm	
WELDING PROCESS 焊接方法	FCAW	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			
SEG1-017				ACC.		100%MT
SEG1-018				ACC.		100%MT
SEG1-019				ACC.		100%MT
SEG1-020				ACC.		100%MT
SEG1-021				ACC.		100%MT
SEG1-022				ACC.		100%MT
SEG1-023				ACC.		100%MT
SEG1-024				ACC.		100%MT
SEG1-025				ACC.		100%MT

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EXAMINED BY主探 Sun Gongchang <i>Sun Gongchang</i>	REVIEWED BY审核 <i>Shangshou chen</i>
LEVEL - II SIGN 签名 / DATE日期 <i>09.05.25</i>	LEVEL-II SIGN DATE日期 <i>09.05.25</i>
质量经理 / QCM	用户CUSTOMER
签字 SIGN / 日期 DATE	签字 SIGN / 日期 DATE



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 B787-MT-11173		DATE日期 2009.05.25	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: 1AAW SEG1		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 ST , 2009	
EQUIPMENT 设备 MT YOKE	MANUFACTURER 制造商 PARKER	MODEL NO. 样式编号 B310S	SERIAL NO. 连续编号 5395 5617 5620	
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	<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材, 厚度	A709M-345T2-X 18/28/38 mm	
WELDING PROCESS 焊接方法	FCAW	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			
SEG1-026				ACC.		100%MT
SEG1-027				ACC.		100%MT
SEG1-028				ACC.		100%MT
SEG1-029				ACC.		100%MT
SEG1-030				ACC.		100%MT
SEG1-031				ACC.		100%MT
SEG1-032				ACC.		100%MT
SEG1-033				ACC.		100%MT
SEG1-034				ACC.		100%MT

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EXAMINED BY主探 Sun Gongchang <i>Sun Gongchang</i> LEVEL - II SIGN 签名 / DATE日期 <i>09.25.09</i>	REVIEWED BY 审核 Shang Shou Chen <i>Shang Shou Chen</i> LEVEL-II SIGN / DATE日期 <i>09.25.09</i>
质量经理 / QCM 签字 SIGN / 日期 DATE	用户CUSTOMER 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, P.R. China**Report No:** NCS-000229**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 29-Jul-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0244**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component:
Procedural	Procedural	Descriptor:	

Date the Non-Conformance Report was written: 19-May-2009**Description of Non-Conformance:**

During random verification Magnetic Particle Testing (MT) of 1AAW, Top plate and Top plate to Bulkhead plate welds (SEG001-001, 017, 019, 020, 022, 023 and 026), Caltrans Quality Assurance (QA) Inspector discovered a total of forty nine (49) linear indications from 5 to 75mm in length. These areas have been previously tested and accepted by ZPMC NDT personnel.

Contractor's proposal to correct the problem:

Contractor shall perform proper repair and NDT to verify that the repair is acceptable.

Corrective action taken:

The repair was completed. ABF provided NDT documentation to verify that the repair is acceptable.

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, +(86) 134.7247.7571, who represents the Office of Structural Materials for your project.

Inspected By: Lowry, Patrick

Quality Assurance Inspector

Reviewed By: Wahbeh, Mazen

QA Reviewer