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, PRC **Report No:** NCR-000401
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 07-Sep-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0375

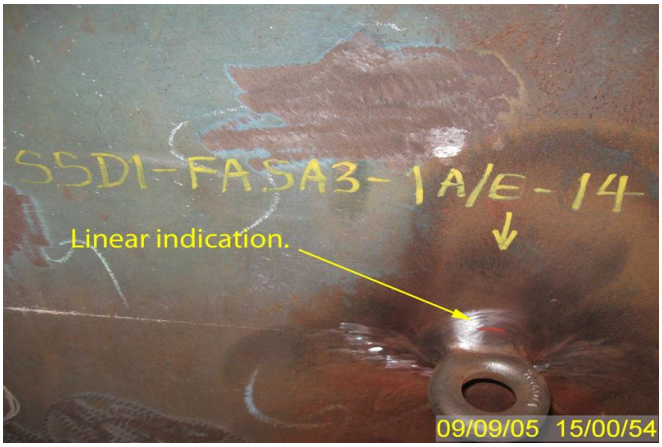
Type of problem:

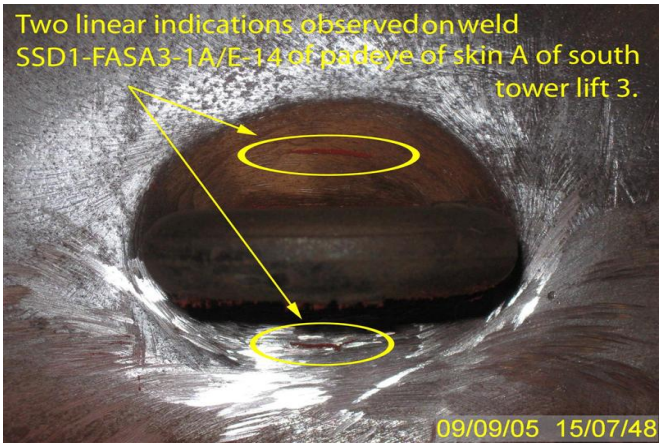
Welding	☐	**Concrete**	☐	**Other**	☑	
Welding	☐	**Curing**	☐	**Procedural**	☐	**Bridge No:** 34-0006
Joint fit-up	☐	**Coating**	☐	**Other**	☑	**Component:** South Tower
Procedural	☐	**Procedural**	☐	**Description:** South Tower, Lift 3, Skin A Padeyes		

Reference Description: Missed MT indications on South Tower, Lift 3, Skin A Padeyes

Description of Non-Conformance:

During Magnetic Particle Testing (MT) of South Tower, Lift 3, Padeye weld SSD1-FASA3-1A/E-14, QA discovered two linear indications approximately 15 and 12mm in length. This weld was 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 D1.5-2002 Section 6.26.2 – "Welds that are subject to MT in addition to visual inspection shall have no cracks.

Who discovered the problem: Umesh Gaikwad

Name of individual from Contractor notified: Yang Yi Heng

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Time and method of notification: 09-05-2009, 15:15; Verbal
Name of Caltrans Engineer notified: Scott Kennedy
Time and method of notification: 09-07-2009, 7:00; Verbal
QC Inspector's Name: Gao Zhi Chun
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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Sinevod,Serge	ASMR
Reviewed By:	Wahbeh,Mazen	SMR

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

NON-CONFORMANCE REPORT TRANSMITTAL

To:	AMERICAN BRIDGE/FLUOR, A JV 375 BURMA ROAD OAKLAND CA 95607	**Date:**	07-Sep-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:**	05.03.06-000363
Subject:	NCR No. ZPMC-0375		

Reference Description: Missed Indications (MT) / South Shaft Lift 3 Skin A / Padeye Weld

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:** 03

Remarks:

During Magnetic Particle Testing (MT) of South Tower, Lift 3, Padeye weld SSD1-FASA3-1A/E-14, QA discovered two linear indications approximately 15 and 12mm in length. This weld was previously tested and accepted by ZPMC NDT personnel.

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 D1.5-2002 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. Provide documentation of 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 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.

Recent failures by Quality Control to identify linear indications (MT) have resulted in the issuance of NCR ZPMC-0358, ZPMC-0359, ZPMC-0371, ZPMC-0372 and ZPMC-0373 related to Tower.

Transmitted by: Scott Kennedy Sr. Bridge Engineer

Attachments: ZPMC-0375

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

File: 05.03.06

AMERICAN BRIDGE/FLUOR ENTERPRISES, a JV
P.O. BOX 23223 Oakland, CA 94623
Phone (510) 419-0120 / Fax (510) 839-0666

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000363

Subject: NCR No. ZPMC-0375

Dated: **21-Sep-2009**

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

Job Name: SAS Superstructure

Document No.: **ABF-NPR-000371 Rev: 00**

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-000371R00

Caltrans' comments:

Status: REJ

Date: 21-Sep-2009

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

Submitted by: Lee, Ken

Date: 21-Sep-2009

Attachment(s):

AMERICAN BRIDGE/FLUOR ENTERPRISES, a JV
P.O. BOX 23223 Oakland, CA 94623
Phone (510) 419-0120 / Fax (510) 839-0666

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000363

Subject: NCR No. ZPMC-0375

Dated: **05-Oct-2009**

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

Job Name: SAS Superstructure

Document No.: **ABF-NPR-000371 Rev: 01**

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has now included the necessary documentation to provide objective evidence repair work has been completed. ZPMC requests closure of this NCR.

ZPMC has now included the necessary documentation to provide objective evidence repair work has been completed. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000371R01;

Caltrans' comments:

Status: CLO

Date: 07-Oct-2009

The proposed resolution is acceptable. The weld in question has been found to be acceptable by the MT results in the attached document. The Department concurs that Non-Conformance ZPMC-375 is closed.

Submitted by: Kennedy, Scott

Date: 07-Oct-2009

Attachment(s):

No. T-064

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2009-9-30
REGARDING: NCR-000401(ZPMC-0375); NCR-000403(ZPMC-0377)

ZPMC received NCR-000401(ZPMC-0375), NCR-000403(ZPMC-0377), they mentioned that CT inspector discovered linear indications on Lift 3 South Tower Padeyes(ZPMC-0375), and Lift 1 South Tower Padeyes(ZPMC-0377), which were previously tested and accepted by ZPMC. The relational welds were SSD1-FASA3-1A/E-14, SSD1-SA159B/J-24, SSD1-SA159B/J-25, SSD1-SA159B/J-28 and SSD1-SA178A/D-35.

ZPMC realized this problem, and already put forward T-CWR227 and T-CWR235 to repair them. As a result, ZPMC had removed the indications and repair them, then finally performed re-inspection by MT. Also these welds were re-inspected by CT inspector and green tagged. In order to avoid such problem occurs again ZPMC will perform NDT work according to related procedures strictly, and enhance QC be more responsible. Here attached the related documentation to prove the welds are perfect after repairing.

So ZPMC hope Caltrans could take a review and consider close these two NCRs.

ATTACHMENT:
NCR-000401(ZPMC-0375)
T-CWR227
T787-MT-5769R1
NCR-000403(ZPMC-0377)
T-CWR235
T787-MT-6109
T787-MT-6118

Zhang Trudy 2009.9.30

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

NON-CONFORMANCE REPORT TRANSMITTAL

To:	AMERICAN BRIDGE/FLUOR, A JV 375 BURMA ROAD OAKLAND CA 95607	**Date:**	07-Sep-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:**	05.03.06-000363
Subject:	NCR No. ZPMC-0375		

Reference Description: Missed Indications (MT) / South Shaft Lift 3 Skin A / Padeye Weld

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

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- ☐ Non-Conformance Resolved.

Material Location: Tower **Lift:** 03

Remarks:

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Transmitted by: Scott Kennedy Sr. Bridge Engineer
Attachments: ZPMC-0375

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

File: 05.03.06

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
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(707) 649-5453
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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, PRC **Report No:** NCR-000401
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 07-Sep-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0375

Type of problem:

Welding	☐	**Concrete**	☐	**Other**	☑	
Welding	☐	**Curing**	☐	**Procedural**	☐	**Bridge No:** 34-0006
Joint fit-up	☐	**Coating**	☐	**Other**	☑	**Component:** South Tower
Procedural	☐	**Procedural**	☐	**Description:** South Tower, Lift 3, Skin A Padeyes		

Reference Description: Missed MT indications on South Tower, Lift 3, Skin A Padeyes

Description of Non-Conformance:

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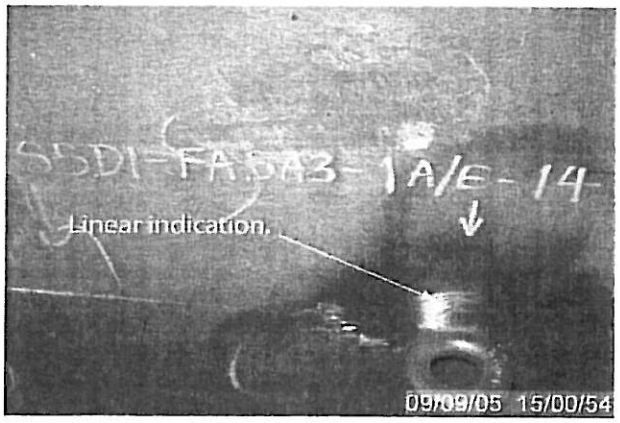

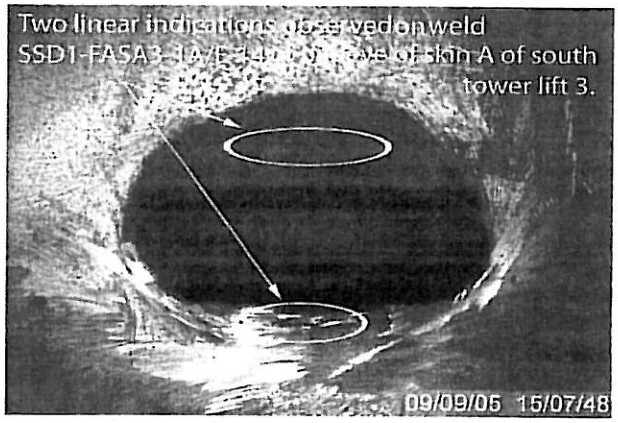

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AWS D1.5-2002 Section 6.26.2 – "Welds that are subject to MT in addition to visual inspection shall have no cracks.

Who discovered the problem: Umesh Gaikwad

Name of individual from Contractor notified: Yang Yi Heng

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Time and method of notification: 09-05-2009, 15:15; Verbal
Name of Caltrans Engineer notified: Scott Kennedy
Time and method of notification: 09-07-2009, 7:00; Verbal
QC Inspector's Name: Gao Zhi Chun
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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Sinevod,Serge	ASMR
Reviewed By:	Wahbeh,Mazen	SMR

ZPMC	关键焊缝返修报告 Critical Welding Repair Report (CWR)	版本 Rev. No.: 0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	SSD1-FASA3-1A/E	报告编号 Report No.:	T-CWR227
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	Tower(S) 3rd lifting skin A	NDT 报告编号 NDT Report No.:	T787-MT-5769
项目编号 Project No.:	ZP06-787				

焊缝缺陷描述:

Description of Welding Discontinuity:

在对SSD1-FASA3-1A/E-14检测时，发现1处线性缺陷。

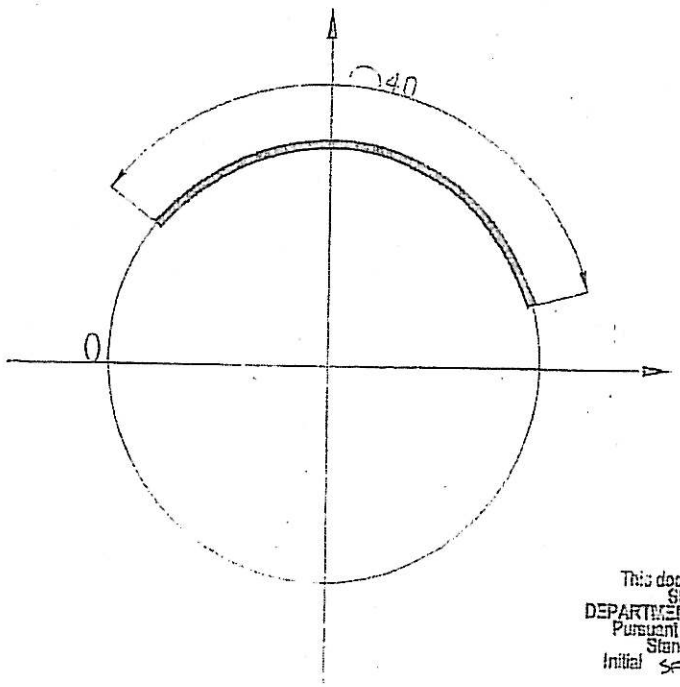
Welder ID No. (焊工编号): 040313 Position:(位置): 2F

One line indication was found by use of MT on SSD1-FASA3-1A/E-14.

检验员 (Inspector): Gu Yunwu Gu Yunwu 日期 (Date): 2009.09.05

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 SEL Date: 09/07/09

WELD NUMBER:SSD1-FASA3-1A/E-14

产生原因:

Cause:

1. 火焰加热时，水汽没有完全的去除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): Lu Yafei 日期 (Date): 09.09.05

处理意见

Disposition :

1. QC shall monitor and direct the welder and the grinder doing the repair operation.
2. Preheat before gouging; the temperature shall be at least 65°C.
3. Gouge the weld to remove identified defects.
4. Joint details shall refer to the approved WPS repair.
5. Grind the gouged areas to a smooth and shiny surface.
6. Verify with VT and MT to ensure no defects remain in the weld joint prior to welding.
7. QC shall monitor all welding passes being deposited.
8. QC shall ensure all slag has been removed prior the deposition of next pass.
9. Preheat and maintain interpass temperature control in accordance with the WPS.
10. Blend the weld repaired areas into the adjacent weld or base metal by grinding.
11. Perform VT, MT and UT NDT inspection to the repaired areas.

1、 在返修过程中，QC 应该监控和指导焊工和打磨工；

2、 碳刨之前必须先进行预热，温度不低于 65° C；

3、 碳刨去除缺陷；

4、 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)；

5、 将碳刨面打磨光滑；

6、 在准备好焊接接头焊接前，用 VT 和 MT 检测缺陷被完全清除；

7、 在返修过程中，QC 确认焊道清理干净；

8、 在进入下到焊缝前，QC 应该保证所有的缺陷已经去除，

9、 根据 WPS 控制预热和焊道的温度；

10、打磨返修区域与临近焊缝和母材其平；

11. VT,MT和其它NDT检测焊缝。

This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial SAC Date: 09/07/09

工 艺:
Technical Engineer: Zhang Jinlong 审核:
Approved By: Greg Zanderson 日期:
Date: 09.09.05

关键焊缝返修报告
Critical Welding Repair Report (CWR)

版本 Rev. No.:
0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	SSD1-FASA3-1A/E	报告编号 Report No.:	T-CWR227
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	Tower(S) 3rd lifting skin A	NDT 报告编号 NDT Report No.:	T787-MT-5769
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): Lu Yefei 日期 (Date): 09.09.05

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:	Zhang Jindong 09.09.05
返修（碳刨）前预热温度 Preheat Temperature Before Gouging:	N/A	返修的缺陷 Description of Discontinuity:	未焊合 1F
焊前处理检查 Inspection Before Welding:	VT Acc	焊前预热温度 Preheat Temperature Before Welding:	200 - 230℃
最大碳刨深度 Max. Depth of Gouge:	N/A	碳刨总长 Total Length of Gouge:	N/A

焊工 Welder:	053829	焊接类型 Welding Type:	SMAW	焊接位置 Position:	2F
焊接电流 Current:	170A	焊接电压 Voltage:	25.1V	焊接速度 Speed:	130mm/min

返修后检查 Inspection After Repair:

外观检查 VT Result:	VT. Acc	检验员 Inspector:		日 期 Date:	09.09.09.
NDT复检 NDT Result:	MT. Acc	探伤员 NDT Person:		日 期 Date:	09.09.15

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-5769R1	DATE日期 2009.09.15	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:	SSD1-FASA3-1A/E Tower(S) 3rd lifting SKIN A	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 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 ☐ CASTING 铸件 ☐ FORGING 锻造	Material & thickness 母材,厚度	A709M-345T2-Z 10/90mm
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			
SSD1-FASA3-1A/E-14	1R1			ACC.		100%MT
AFTER T - CWR 227						
BLANK						

EXAMINED BY主探 Gu Yunwu LEVEL - II SIGN 签名 / DATE日期 9.9.15	REVIEWED BY 审核 LEVEL-II SIGN / DATE日期 9.9.15
质量经理 / QCM 签字 SIGN / 日期 DATE	用户CUSTOMER 签字 SIGN / 日期 DATE

(FORM# ZPQC-MT01)

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

NON-CONFORMANCE REPORT TRANSMITTAL

To:	AMERICAN BRIDGE/FLUOR, A JV 375 BURMA ROAD OAKLAND CA 95607	**Date:**	11-Sep-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:**	05.03.06-000366
Subject:	NCR No. ZPMC-0377		

Reference Description: Missed Indications (MT) / South Shaft Lift 1 / Padeye Welds

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) of South Tower, Lift 1, Skin A pad eyes, QA observed linear indications at weld joints SSD1-SA159A/J-25 & SSD1-SA159A/J-28. ZPMC MT Technicians had previously tested and accepted 10% of the pad eye welds. After QA found the linear indications, ZPMC QC personnel Zhang Jiadi asked to cancel the request for QA inspection in order to perform 100% MT of remaining pad eyes. Following ZPMC's testing and acceptance of 100% of the pad eye welds, QA performed MT and discovered linear indications at weld joints SSD1-SA159A/J-24 & SSD1-SA178A/D-35.

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 D1.5-2002 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. Address whether this failure represents a breakdown in the QC system / NDT procedures or is specific to individual NDT personnel. Specifically considering that ZPMC requested to cancel the initial QA inspection after indications were identified and then performed 100% NDT prior to the second QA inspection. Provide documentation of 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 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.

Transmitted by: Scott Kennedy Sr. Bridge Engineer

02.02.15.04

Received
NCT-000366 11 Sep 09

Attachments: ZPMC-0377

cc: Rick Morrow, Gary Pursell, Mark Woods, Doug Coe
File: 05.03.06

STATE OF CALIFORNIA--BUSINESS,TRANSPORTACTION AND HOUSING AGENCY Arnold Schwarzenegger, Governor

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, PRC
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

Report No: NCR-000403
Date: 10-Sep-2009
NCR #: ZPMC-0377

Type of problem:

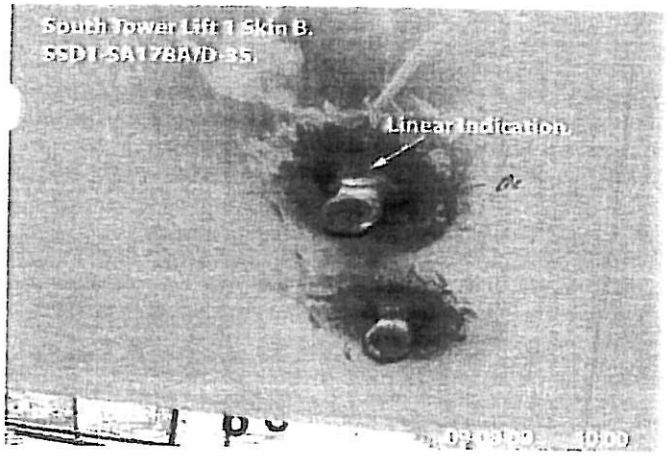
Welding	☐	**Concrete**	☐	**Other**	☑	
Welding	☐	**Curing**	☐	**Procedural**	☐	**Bridge No:** 34-0006
Joint fit-up	☐	**Coating**	☐	**Other**	☑	**Component:** South Tower
Procedural	☐	**Procedural**	☐	**Description:** South Tower, Lift 1		

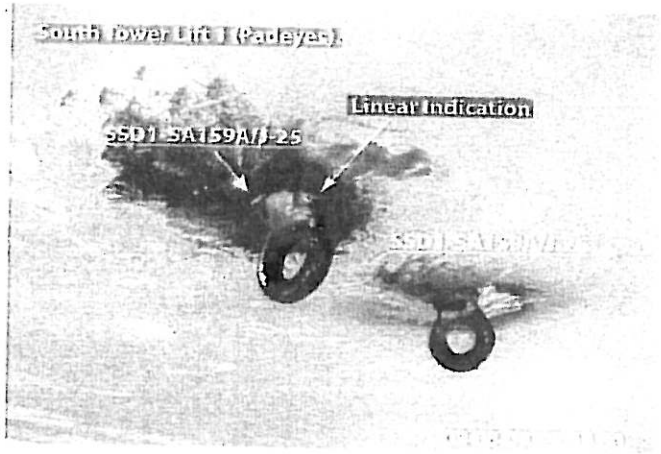
Reference Description: Missed MT indications on South Tower, Lift 1, Skin A & B Pad Eyes

Description of Non-Conformance:

During Magnetic Particle Testing (MT) of South Tower, Lift 1, Skin A pad eyes, QA observed linear indications at weld joints SSD1-SA159A/J-25 & SSD1-SA159A/J-28. ZPMC MT Technicians had previously tested and accepted 10% of the pad eye welds. After QA found the linear indications, ZPMC QC personnel Zhang Jiadi asked to cancel the request for QA inspection in order to perform 100% MT of remaining pad eyes.

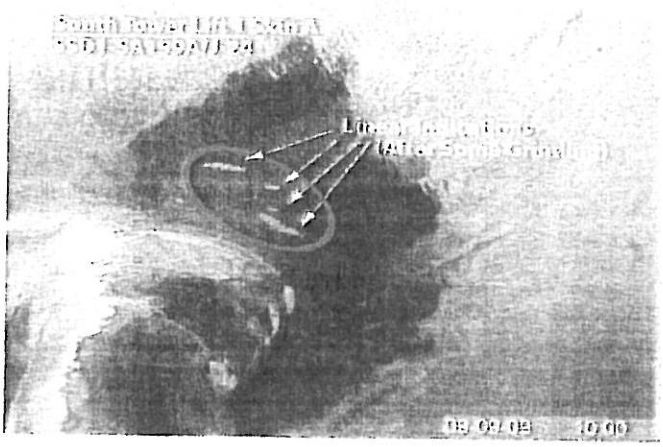
Following ZPMC's testing and acceptance of 100% of the pad eye welds, QA performed MT and discovered linear indications at weld joints SSD1-SA159A/J-24 & SSD1-SA178A/D-35.

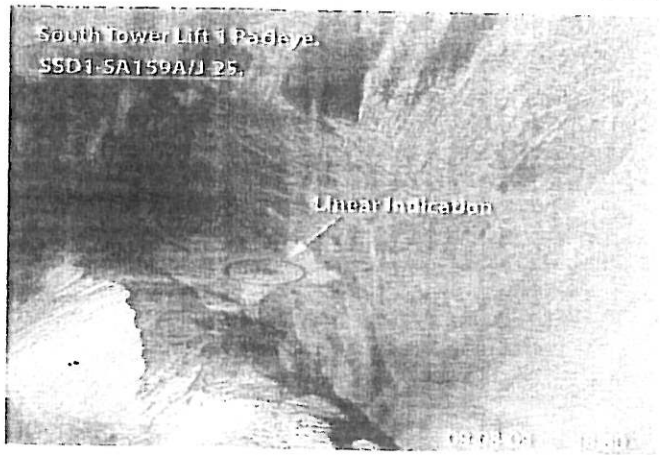




QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)





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 D1.5-2002 Section 6.26.2 – "Welds that are subject to MT in addition to visual inspection shall have no cracks.

Who discovered the problem: Amit Juvekar
Name of individual from Contractor notified: Steve Lawton
Time and method of notification: 09-09-2009, 10:45; Verbal
Name of Caltrans Engineer notified: Scott Kennedy
Time and method of notification: 09-09-2009, 11:00; Verbal
QC Inspector's Name: Ken Zhang
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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Sinevod,Serge	ASMR
Reviewed By:	Wahbeh,Mazen	SMR

ZPMC	关键焊缝返修报告 Critical Welding Repair Report (CWR)				版本 Rev. No.: 0
项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	SSD1-SA178A/D SSD1-SA159B/J	报告编号 Report No.:	T-CWR235
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	南塔一吊AB面吊环 Tower(s) first lifting Skin A&B ring	NDT 报告编号 NDT Report No.:	NA
项目编号 Project No.:	ZP06-787				

焊缝缺陷描述:

Description of Welding Discontinuity:

南塔一吊A面3个吊环B面1个吊环MT后发现裂纹:

A面: SSD1-SA159B/J-24, 25, 28

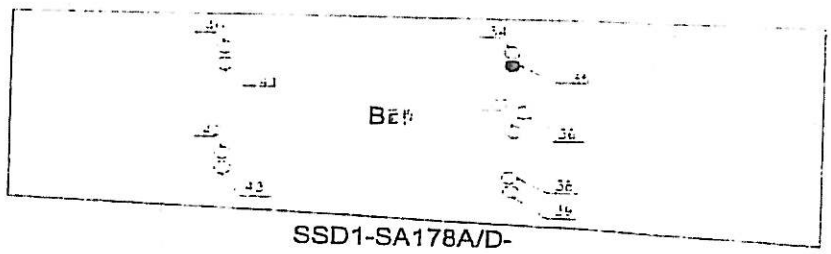
B面: SSD1-SA178A/D-35

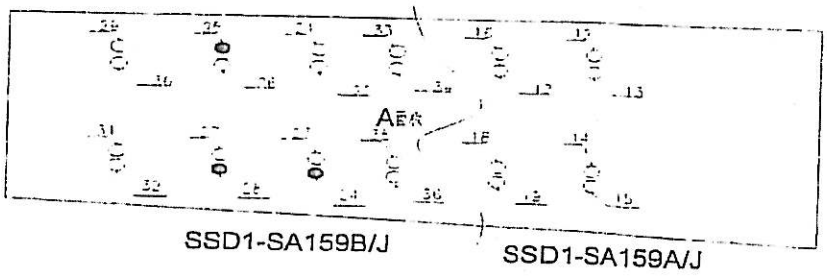
Tower(S) first lifting, the cracks were found on three lifting ring on Skin A and one lifting o n Skin B, weld ID : Skin A:SSD1-SA159B/J-24, 25, 28, Skin B SSD1-SA178A/D-35.

检验员 (Inspector): Liu Yang 日期 (Date): 2009.09.12

焊缝返修位置示意图:

Draft of Welding Discontinuity:





注: 阴影部位为返修区域。Remark: repair area in shadow.

This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial SFC Date: 9/15/09

产生原因:

Cause:

1. 火焰加热时，水汽没有完全的去除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): Lu Yefei 日期 (Date): 09.09.12

处理意见

Disposition :

3. QC shall monitor and direct the welder and the grinder doing the repair operation.
4. Preheat before gouging; the temperature shall be at least 65°C.
5. Gouge the weld to remove identified defects.
6. Joint details shall refer to the approved WPS repair.
7. Grind the gouged areas to a smooth and shiny surface.
8. Verify with VT and MT to ensure no defects remain in the weld joint prior to welding.
9. QC shall monitor all welding passes being deposited.
10. QC shall ensure all slag has been removed prior the deposition of next pass.
11. Preheat and maintain interpass temperature control in accordance with the WPS.
12. Blend the weld repaired areas into the adjacent weld or base metal by grinding.
13. Perform VT, MT inspection to the repaired areas.

1、 在返修过程中，QC 应该监控和指导焊工和打磨工；

2、 碳刨之前必须先进行预热，温度不低于 65° C；

3、 碳刨去除缺陷；

4、 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)；

5、 将碳刨面打磨光滑；

6、 在准备好焊接接头焊接前，用 VT 和 MT 检测缺陷被完全清除；

7、 在返修过程中，QC 确认焊道清理干净；

8、 在进入下到焊缝前，QC 应该保证所有的缺陷已经去除，

9、 根据 WPS 控制预热和焊道的温度；

10、打磨返修区域与临近焊缝和母材其平；

11. VT,MT检测焊缝。

This document is APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial SFIC Date: 09/15/09

工 艺: Zhang Fudong 审核: Lu Jianhua 日期: 09.09.12

Technical Engineer: Approved By: Date:

REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-6109	DATE日期 2009.09.27	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:	SSD1-SA159A/J B/J THE 1st Lifting Tower(S)	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 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 ☐ CASTING 铸件 ☐ FORGING 锻造	Material & thickness 母材,厚度	A709M-345T2-Z 90/10 mm
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			
SSD1-SA159B/J-24				ACC.		10%MT
SSD1-SA159B/J-25				ACC.		10%MT
SSD1-SA159B/J-28				ACC.		10%MT
AFTER T-CWR 235						
BLANK						

EXAMINED BY主探 Fu Zhigiang Fu zhigiang 09.09.27 LEVEL - II SIGN 签名 / DATE日期	REVIEWED BY 审核 LEVEL-II SIGN / DATE日期
质量经理 / QCM 签字 SIGN / 日期 DATE	用户CUSTOMER 签字 SIGN / 日期 DATE

(FORM# ZPQC-MT01)

ZPMC

REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-6118	DATE日期 2009.09.27	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:	SSD1-SA178A/D THE 1st Lifting Tower(S)	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 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 ☐ CASTING 铸件 ☐ FORGING 锻造	Material & thickness 母材,厚度	A709M-345T2-Z 45/10 mm
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			
SSD1-SA178A/D-35				ACC.		10%MT
AFTER T-CWR 235						
BLANK						

EXAMINED BY主探 Fu Zhiqiang LEVEL - II SIGN 签名 / DATE日期 2009.09.27	REVIEWED BY 审核 LEVEL-II SIGN / DATE日期 2009.9.27
质量经理 / QCM 签字 SIGN / 日期 DATE	用户CUSTOMER 签字 SIGN / 日期 DATE

(FORM# ZPQC-MT01)

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 #: xx.25A

QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION

Location: Changxing Island, Shanghai, PRC **Report No:** NCS-000307
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 08-Oct-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0375

Type of problem:

Welding	☐	**Concrete**	☐	**Other**	☑	
Welding	☐	**Curing**	☐	**Procedural**	☐	**Bridge No:** 34-0006
Joint fit-up	☐	**Coating**	☐	**Other**	☑	**Component:**
Procedural	☐	**Procedural**	☐	**Descripton:**		

Date the Non-Conformance Report was written: 07-Sep-2009

Description of Non-Conformance:
During Magnetic Particle Testing (MT) of South Tower, Lift 3, Padeye weld SSD1-FASA3-1A/E-14, QA discovered two linear indications approximately 15 and 12mm in length. This weld was previously tested and accepted by ZPMC NDT personnel.

Contractor's proposal to correct the problem:
Repair affected welds.

Corrective action taken:
Weld have been repaired and Non-Destructive Testing (NDT) documentation indicating a sound weld has been submitted. To resolve the recurring failure for QC to detect MT indications, ABF has held verbal interviews with ZPMC QC and MT technicians on several occasions. ABF has requested ZPMC to provide an analysis of missed indications to determine if they can be traced to a personnel trend, such as an inspector, welder, or weld location. ABF has informed ZPMC to ensure adequate lighting is provided during inspections. Tests have also been administered to ZPMC MT technicians to demonstrate their ability to detect MT indications.

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

Inspected By:	Sinevod,Serge	Quality Assurance Inspector
Reviewed By:	Wahbeh,Mazen	QA Reviewer