

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-000410

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 15-Sep-2009

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

NCR #: ZPMC-0384

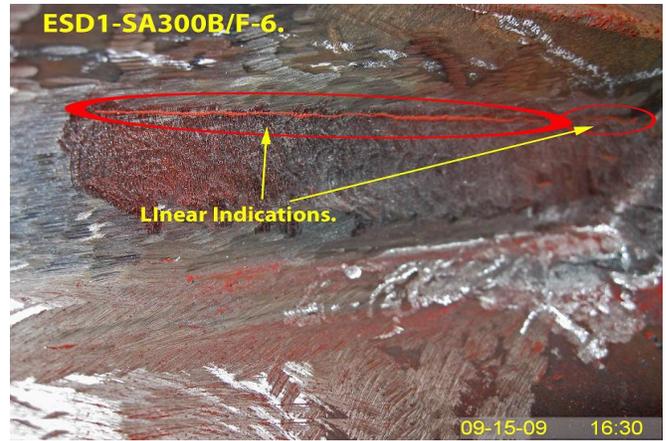
Type of problem:

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: East Tower
Procedural	Procedural	Description: East Tower, Lift 2	

Reference Description: Missed MT indications on East Tower, Lift 2 cowling plate weld

Description of Non-Conformance:

During Magnetic Particle Testing (MT) of East Shaft, Lift 2 cowling plate, QA discovered eight (8) linear indications at weld joint ESD1-SA300B/F-6. This weld was previously tested and accepted by ZPMC MT Technicians.



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 K. Juvekar

Name of individual from Contractor notified: Khang Xiong

Time and method of notification: 9/15/09, 16:45; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 9/17/09, 14:00; Verbal

QC Inspector's Name: Li Xiu Yang

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

NCT

(Continued Page 2 of 2)

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

File: 05.03.06

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000372

Subject: NCR No. ZPMC-0384

Dated: 16-Oct-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000381 **Rev:** 00

Contractor's Proposed Resolution:

Reference Resolution: ABF JV QCM has implemented training with ZPMC to improve the quality of inspections. ABF JV will provide documentation showing attendance by ZPMC QC inspectors and the subject of training.

ABF JV QCM has implemented training with ZPMC to improve the quality of inspections. ABF JV will provide documentation showing attendance by ZPMC QC inspectors and the subject of training. Topics to be covered during the instruction are: inspection of equipment prior to use, proper conditions for inspection, proper technique for MT, and UT. In addition, ABF JV has committed to perform overchecks in both the Tower and OBG. This will serve two purposes, first to monitor if the training is effective at reducing the number of missed indications and second to ensure missed indications are prevented.

Documentation of repairs and subsequent NDT specific to this report will be transmitted through Daily Welding Reports and will be available in the documentation data base. Based on this course of action, ZPMC is requesting that this proposed resolution be approved with action pending. Once training records are available to be transmitted, ZPMC will request closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000381R00

Caltrans' comments:

Status: REJ

Date: 18-Oct-2009

Even though the course of action is acceptable, the department will not consider closure of this NCR (ZPMC-0384) until all the repair documents and training documents are submitted and reviewed.

Submitted by: Lee, Ken

Date: 18-Oct-2009

Attachment(s):

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000372

Subject: NCR No. ZPMC-0384

Dated: 20-Nov-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000381 **Rev:** 01

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has completed repairs associated with the non conformance and is providing weld repair reports and NDT documentation to show the soundness of the weld. ZPMC requests closure of this NCR.

ZPMC has completed repairs associated with the non conformance and is providing weld repair reports and NDT documentation to show the soundness of the weld. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000381R01;

Caltrans' comments:

Status: CLO

Date: 10-Dec-2009

Based on the course of action described in ABF-NPR-000381R0 and the attached evidence of the acceptability of the welds and the training document, the Department concurs that Non-conformance ZPMC-0384 is closed.

Submitted by: Lee, Ken

Date: 10-Dec-2009

Attachment(s):



No. T-081

LETTER OF RESPONSE

TO: American Bridge/Flour JV
DATE: 2009-11-20
REGARDING: NCR-000410 (ZPMC-0384)

ZPMC received NCR-000410 (ZPMC-0384), it mentioned that during MT of east tower lift 2 cowling plate, CT discovered 8 linear indications at weld joint ESD1-SA300B/F-6. This weld was previously tested and accepted by ZPMC MT technicians.

About this situation we ZPMC at the first time issued the CWR, and did the repair work then give the notification to the CT people to confirm no problem on the welds.

As far as I am concerned, CT should close this NCR.

ATTACHMENT:
NCR-000410 (ZPMC-0384)
NOTIFICATION: 4357
REPORT OF MAGNETIC PARTICLE: T787-MT-6174R1
CWR:T-CWR315

Li Xiaojang
09.11.20



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: 18-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: 05.03.06-000372

Subject: NCR No. ZPMC-0384

Reference Description: Missed Indications (MT) / East Shaft Lift 2 / Cowling Plate 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: 02

Remarks:

During Magnetic Particle Testing (MT) of East Shaft, Lift 2 cowling plate, QA discovered eight (8) linear indications at weld joint ESD1-SA300B/F-6. This weld was previously tested and accepted by ZPMC MT Technicians.

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, ZPMC-0373, ZPMC-0375, ZPMC-0376, ZPMC-0377 and ZPMC-0383 related to Tower.

Transmitted by: Scott Kennedy Sr. Bridge Engineer
Attachments: ZPMC-0384

NCT

(Continued Page 2 of 2)

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

File: 05.03.06

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DIVISION OF ENGINEERING SERVICES

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Bay Area Branch

690 Walnut Ave. St. 150

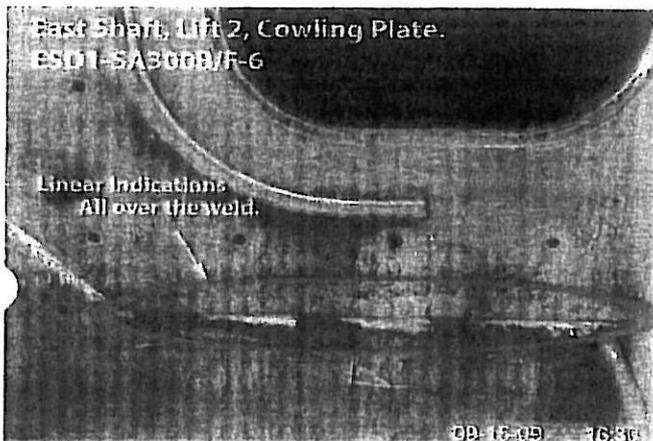
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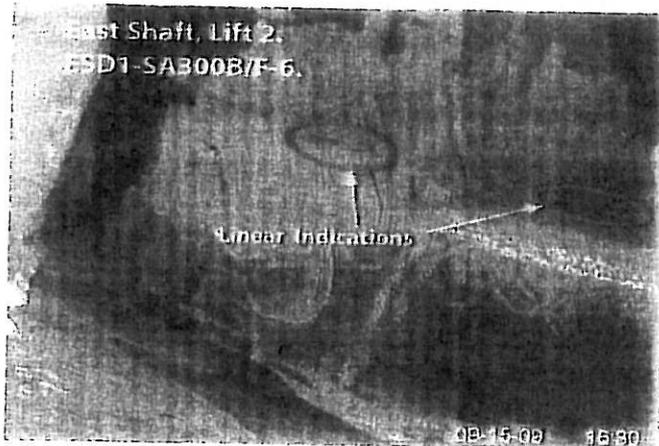
Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT****Location:** Changxing Island, Shanghai, PRC**Report No:** NCR-000410**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 15-Sep-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0384**Type of problem:**Welding Concrete Other Welding Curing Procedural **Bridge No:** 34-0006Joint fit-up Coating Other **Component:** East TowerProcedural Procedural **Description:** East Tower, Lift 2**Reference Description:** Missed MT indications on East Tower, Lift 2 cowling plate weld**Description of Non-Conformance:**

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QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)



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Was QC Inspector aware of the problem: Yes No

Contractor's proposal to correct the problem:

Comments:

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Inspected By: Sinevod, Serge

ASMR

Reviewed By: Wahbeh, Mazen

SMR

美国海湾大桥
Critical Welding Repair Report (CWR)

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	ESD1-SA300B/F	报告编号 Report No.:	T-CWR315
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	2 nd lifting Tower(E)	NDT 报告编号 NDT Report No.:	T787-MT-6174
项目编号 Project No.:	ZP06-787				

焊缝缺陷描述:

Description of Welding Discontinuity:

在对ESD1-SA300B/F-6检测时, 发现5处纵向裂纹。L1=170mm L2=90mm L3=40mm L4=100mm L5=25mm

Welder ID No. (焊工编号): 067499 Position:(位置): 2G

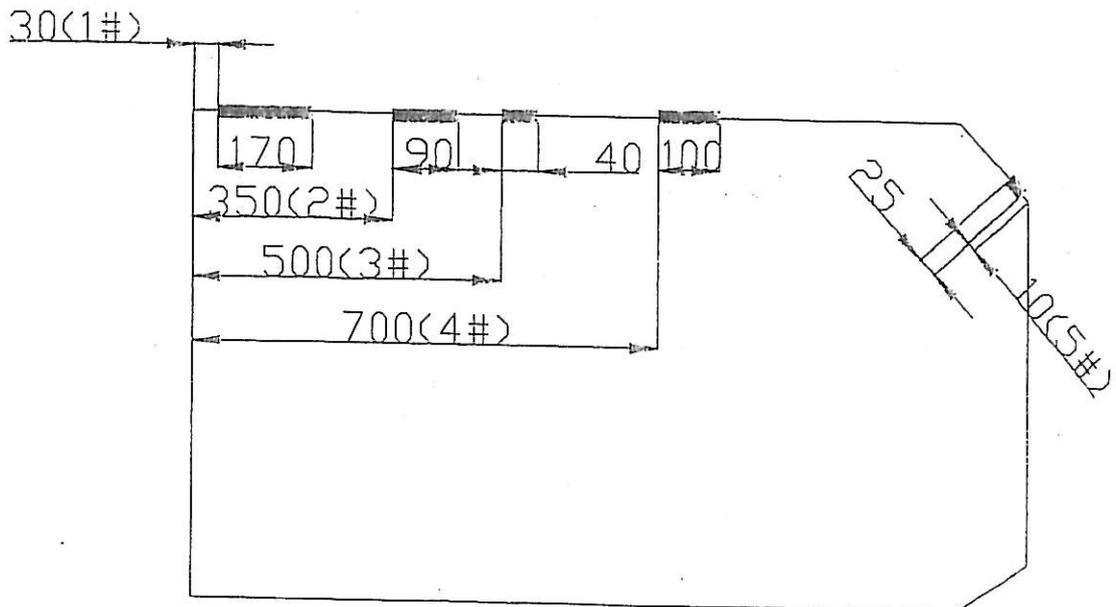
Five longitudinal cracks were found by use of MT on ESD1-SA300B/F-6.

Cai Xinxin
检验员 (Inspector): Cai Xinxin 日期 (Date): 2009.10.01

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 SPK Date: 10/02/09



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): *Li Shiqun* 日期 (Date): *09.10.01*

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 应该监督和指导焊工和打磨工;
- 2、 碳弧之前必须先进行预热, 温度不低于 65° C;
- 3、 碳弧去除缺陷;
- 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、 将碳弧打磨光滑;
- 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、 在进入下道焊缝前, 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、 打磨返修区域与邻近焊缝和母材其平;
11. VT, MT 和其它 NDT 检测焊缝。

工艺: *Li Jun*
Technical Engineer: *10.2/09*

审核: *Li Shiqun*
Approved By: *for chenbin*

日期: *10.2*
Date:

#R787-QCP-900

关键焊缝返修报告

版本
Rev No:

Critical Welding Repair Report (CWR)

项目名称 Project Name:	美国海湾大桥 SFOBB	附件序号 Drawing No.:	ESD1-SA300B/F	报告编号 Report No.:	T-CWR315
合同号 Contract No.:	04-0120F4				
项目编号 Project No.:	ZP06-787	附件名称 Item Name:	2 nd lifting Tower(E)	NDT 报告编号 NDT Report No.:	T787-MT-6174

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):

Li Shiquan

日期 (Date): 09.10.01

参照的WPS编号
Repair WPS No.:

WPS-345-FCAW-1
G (1F) -Repair
WPS-345-FCAW-2
G (2F) -Repair
WPS-345-SMAW-1
G(1F)-Repair
WPS-345-SMAW-2
G(2F)-Repair

工艺员
Technologist:

Li Jun
10.2/09

返修 (碳钎) 前预热温度
Preheat Temperature
Before Gouging:

Acc

返修的缺陷
Description
of Discontinuity:

裂纹

焊前处理检查
Inspection
Before Welding:

NA

焊前预热温度
Preheat Temperature
Before Welding:

190°C

最大碳钎深度
Max. Depth of Gouge:

碳钎总长
Total Length of Gouge:

焊工
Welder: 040690

焊接类型
Welding
Type: SMAW

焊接位置
Position: 3G, 4G

焊接电流
Current: 155

焊接电压
Voltage: 24.1

焊接速度
Speed: 112

返修后检查
Inspection After Repair:

外观检查
VT Result: VTALL

检验员
Inspector: yeyongjun

日期
Date: 09.10.30

NDT复检
NDT Result: mTAU

签字员
NDT Person: caixhxxh

日期
Date: 09.11.13

见证:
Witness/Review:

备注:
Remark:

#R787-QCP-900



REPORT OF MAGNETIC PARTICLE INSPECTION OF

磁粉检测报告

REPORT NO. 报告编号 T787-MT-5174 DATE日期 2009.10.01 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: ESD1-SA300B/F 2nd lifting Tower(E)		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 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	<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-Z 50/90 mm
WELDING PROCESS 焊接方法	FCAW	TYPE OF JOINT 焊缝类型	T-JOINT/BUTT

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			
ESD1-SA300B/F-6	1	longitudinal crack	170		REJ.	Y=30
	2	longitudinal crack	90		REJ.	Y=350
	3	longitudinal crack	40		REJ.	Y=500
	4	longitudinal crack	100		REJ.	Y=700
	5	longitudinal crack	25		REJ.	Y=10
ESD1-SA300B/F-14				ACC.		100%MT
ESD1-SA300B/F-11				ACC.		100%MT
ESD1-SA300B/F-15				ACC.		100%MT
BLANK						

EXAMINED BY 主探 Cai Xinxin <i>Cai Xinxin</i> 09.10.01	REVIEWED BY 审核 Wang Wei 09.10.01
LEVEL-II SIGN 签名 / DATE日期	LEVEL-II SIGN / DATE日期
质量经理 / QCM <i>[Signature]</i>	用户 CUSTOMER
签字 SIGN / 日期 DATE (FORM# ZPQC-MTC1)	签字 SIGN / 日期 DATE

		NDT客户检验通知单 NDT Inspection Notification Sheet			文件编号:004357 Document No.
		申请递交时间: Submit time: 2009-10-6 12:44	计划检验时间 Inspection Time 14:00 FOR GREEN TAG(NO\4213)	检验场地 Inspection Place TOWER JETTY	CT 计划赴检时间 CT Estimated Inspection Time
序号 No 1	检验内容 Inspection MT/VT AFTER REPAIR	待检验构件 Inspection part ESD1-SA300B/F-6	产品分类 Section EAST TOWER LIFT 2 COWLING PLATE AND ACCESS OPENING DOOR PLATE		

1、见证通知发出后，现场等待时间通常不超过35分钟；如有变动，现场通知。

1、When ZPMC give this table to AB/F,Zpmc will do the inspection in 35 minutes.If we change the plan, we will inform AB/F in the shop.

2、ZPMC根据自己的检验控制点 (HOLD POINT) 进行日常检验。

2、ZPMC will do any inspection according to the HOLD POINT.

3、此单为临时试用单，仅适用于完工焊缝的NDT检验见证通知。

3、This table is a temporary one, just for final NDT inspection notification.

4、QC检验完成后，QA是否需要复验，由QA自行决定，QC不再另行通知。复验等待时间通常为24小时。

4、When ZPMC QC finish NDT inspection,Caltrans QA can decide if they want to retest

5、AB/F预约CT后会在同班时间内通知ZPMC具体CT现场报验时间

5、AB/F to notify ZPMC in the same shift that CT will attend and at what time.

6、加州现场检验完成后会告知AB/F检验结果，AB/F会在24小时内告知ZPMC加州复检结果。

6、CT to notify AB/F that the work has been completed and the result. AB/ to notify ZPMC that the work has been completed and the result within 24 hours.

ZPMC 联系人:
Requested By:

AB/F 签收人:
AB/F Receiver:

签收时间:
Time:

CT 签收人:
CT Receiver:

签收时间:
Time:

Tool Box Training Agenda

Subject: MT Techniques

Reason for Refresher Training: Several CT NCR's for missed MT indications

1. Safety

- a. Safety Glasses
- b. Gloves (if required)
- c. Knee Pads
- d. Electrical shock

2. Tools

- a. Lighting
- b. MT Powder. Red for ambient, Yellow for High Temperature.
- c. Powder Bulb
- d. Powder Blower
- e. MT Yoke condition

3. Inspection Techniques

- a. Lighting
- b. Position of body (distance of eyes to the weld surface)
- c. Application of Powder
- d. Continuous method
- e. Two directions
- f. Both sides of weld

DEPARTMENT OF TRANSPORTATION

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Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000341**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 23-Nov-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0384**Type of problem:**

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

Date the Non-Conformance Report was written: 15-Sep-2009**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) of East Shaft, Lift 2 cowling plate, QA discovered eight (8) linear indications at weld joint ESD1-SA300B/F-6. This weld was previously tested and accepted by ZPMC MT Technicians.

Contractor's proposal to correct the problem:

Repair affected weld.

Corrective action taken:

The affected weld has been repaired and NDT reports indicating a sound weld have been submitted. To resolve the recurring failure for QC to detect MT indications, ABFJV QCM has implemented training with ZPMC to improve quality of inspectors. Topics include: inspection of equipment prior to use, proper conditions for inspection, proper technique for MT & UT.

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