

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave. St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT****Location:** Changxing Island, Shanghai, PRC**Report No:** NCR-000600**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 05-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0573**Type of problem:****Welding****Concrete****Other****Welding****Curing****Procedural****Bridge No:** 34-0006**Joint fit-up****Coating****Other****Component:** Tower Strut**Procedural****Procedural****Description:** Tower Strut SD1-STSA3-1-99M-1**Reference Description:** Missed MT indication on Tower Strut SD1-STSA3-1-99M-1**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) of Tower Strut Web to Stiffener weld SD1-STSA3-1-99M-1-32, QA discovered one linear indication, transverse to the weld axis, approximately 10mm in length. Notice of Witness Inspection (NWIT) # 004999 indicates that ZPMC previously completed their 100% MT review on the affected weld.

**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.”

**Who discovered the problem:** Umesh Gaikwad**Name of individual from Contractor notified:** Xie Yan**Time and method of notification:** 1/5/2010; 16:15; Verbal

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## QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

( Continued Page 2 of 2 )

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**Name of Caltrans Engineer notified:** Scott Kennedy  
**Time and method of notification:** 1/6/2010, 9:30; Verbal  
**QC Inspector's Name:** Yu Dong Ping  
**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, 139-1686-1597, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Sinevod,Serge	ASMR
<b>Reviewed By:</b>	Wahbeh,Mazen	SMR

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

**NON-CONFORMANCE REPORT TRANSMITTAL**

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

**Date:** 06-Jan-2010

**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:** 05.03.06-000559

**Subject:** NCR No. ZPMC-0573

**Reference Description:** Missed MT indication/ Tower Strut SD1-STSA3-1-99M-1/ Transverse Indication

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:** N/A

**Remarks:**

During Magnetic Particle Testing (MT) of Tower Strut Web to Stiffener weld SD1-STSA3-1-99M-1-32, QA discovered one linear indication, transverse to the weld axis, approximately 10mm in length. Notice of Witness Inspection (NWT) # 004999 indicates that ZPMC previously completed their 100% MT review on the affected weld.

Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

**Action Required and/or Action Taken:**

Propose a resolution for this non-conformance that addresses the failure of Quality Control to identify the linear indication during magnetic particle testing of the weld. 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 deficiency has been brought into compliance with the contract requirements. Additionally address the probable causes for the indication and the actions that will be taken to limit future occurrences.

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

**Transmitted by:** Ken Lee Transportation Engineer  
**Attachments:** ZPMC-0573

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# NCT

( Continued Page 2 of 2 )

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

**File:** 05.03.06

## NCR PROPOSED RESOLUTION

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

**Attention:** Pursell, Gary  
Resident Engineer

**Ref:** 05.03.06-000559

**Subject:** NCR No. ZPMC-0573

**Dated:** 18-Jan-2010

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

**Job Name:** SAS Superstructure

**Document No.:** ABF-NPR-000489 Rev: 00

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**Contractor's Proposed Resolution:**

**Reference Resolution:** ZPMC has repaired this defect and subsequently re-MT'd and found acceptable. The ABF QCM has conducted MT refresher training regarding MT missed indications.

ZPMC has reviewed this NCR with the MT technician and acknowledged this missed indication as per ZPMC attached letter. ZPMC has repaired this defect and subsequently re-MT'd and found acceptable. The ABF QCM has conducted MT refresher training regarding MT missed indications. See attachment for training agenda and training roster.

**Submitted by:** Lawton, Steve

**Attachment(s):** ABF-NPR-000489R00;

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**Caltrans' comments:**

**Status:** CLO

**Date:** 19-Jan-2010

The proposed resolution is acceptable. The Department concurs that Non-conformance ZPMC-0573 is closed.

**Submitted by:** Lee, Ken

**Attachment(s):**

**Date:** 19-Jan-2010



No. T-116

## LETTER OF RESPONSE

**TO: American Bridge/Flour JV**

**DATE: 2010-1-15**

**REGARDING: NCR-000600(ZPMC-0573)**

ZPMC received NCR-000600(ZPMC-0573), it mentioned that QA discovered one missed MT indication on SD1-STSA3-1-99M-1-32, approximately 10mm in length.

We acknowledged this condition and confirmed it. Relative person were educated in the site, but we still realize that sense of responsibility should be more enhanced in the future work.

Here attach Welding Repair Report and MT report to convince the quality of this weld be acceptable. Hope you can take a review and close this NCR.

**ATTACHMENT:**

**NCR-000600(ZPMC-0573)**

**T-WR3001**

**T787-MT-7851**

*Zhao Jianing*  
2010-1-15



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

## NON-CONFORMANCE REPORT TRANSMITTAL

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

**Date:** 06-Jan-2010

**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:** 05.03.06-000559

**Subject:** NCR No. ZPMC-0573

**Reference Description:** Missed MT indication/ Tower Strut SD1-STSA3-1-99M-1/ Transverse Indication

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:** N/A

### Remarks:

During Magnetic Particle Testing (MT) of Tower Strut Web to Stiffener weld SD1-STSA3-1-99M-1-32, QA discovered one linear indication, transverse to the weld axis, approximately 10mm in length. Notice of Witness Inspection (NWIT) # 004999 indicates that ZPMC previously completed their 100% MT review on the affected weld.

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### Action Required and/or Action Taken:

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

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**Transmitted by:** Ken Lee Transportation Engineer  
**Attachments:** ZPMC-0573

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NCT

( Continued Page 2 of 2 )

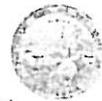
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cc: Rick Morrow, Gary Pursell, Mark Woods, Scott Kennedy

File: 05.03.06

**DEPARTMENT OF TRANSPORTATION**  
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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-000600

**Prime Contractor:** American Bridge/Fluor Enterprises, a JV

**Date:** 05-Jan-2010

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

**NCR #:** ZPMC-0573

### Type of problem:

Welding  Concrete  Other

Welding  Curing  Procedural  **Bridge No:** 34-0006

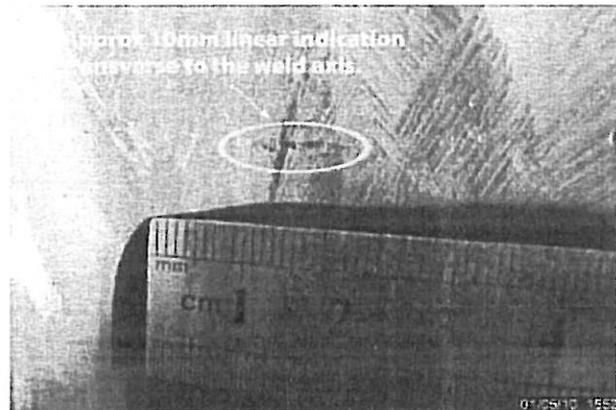
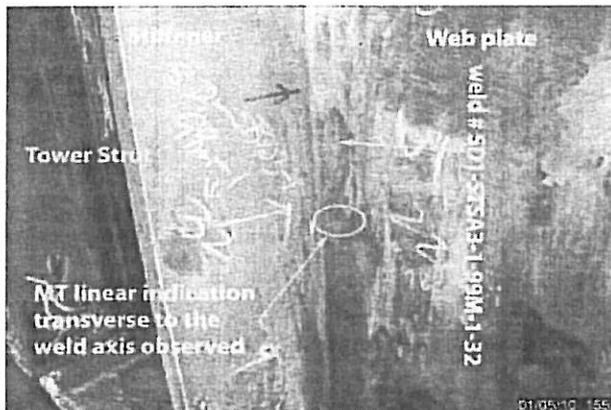
Joint fit-up  Coating  Other  **Component:** Tower Strut

Procedural  Procedural  **Description:** Tower Strut SD1-STSA3-1-99M-1

**Reference Description:** Missed MT indication on Tower Strut SD1-STSA3-1-99M-1

### Description of Non-Conformance:

During Magnetic Particle Testing (MT) of Tower Strut Web to Stiffener weld SD1-STSA3-1-99M-1-32, QA discovered one linear indication, transverse to the weld axis, approximately 10mm in length. Notice of Witness Inspection (NWIT) # 004999 indicates that ZPMC previously completed their 100% MT review on the affected weld.



### 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."

**Who discovered the problem:** Umesh Gaikwad

**Name of individual from Contractor notified:** Xie Yan

**Time and method of notification:** 1/5/2010; 16:15; Verbal

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## QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

( Continued Page 2 of 2 )

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**Name of Caltrans Engineer notified:** Scott Kennedy

**Time and method of notification:** 1/6/2010, 9:30; Verbal

**QC Inspector's Name:** Yu Dong Ping

**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, 139-1686-1597, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Sinevod,Serge	ASMR
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<b>Reviewed By:</b>	Wahbeh,Mazen	SMR
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# 焊缝返修报告

## Welding Repair Report

版本 Rev. No.

0

项目名称 Project Name	美国海湾大桥 SFOBB	部件图号 Drawing No	SD1-STSA3-1	报告编号 Report No.	T-WR3001
合同号 Contract No.:	04-0120F4	部件名称 Items Name	第三吊装段联系梁 Third lifting strut plate	NDT报告编号 Report No. of NDT	NA
项目编号 Project No.:	ZP06-787				

### 缺陷描述

#### Description of welding discontinuity:

第三吊装段联系梁报检MT时,发现一处缺陷,需要补焊.具体如图:

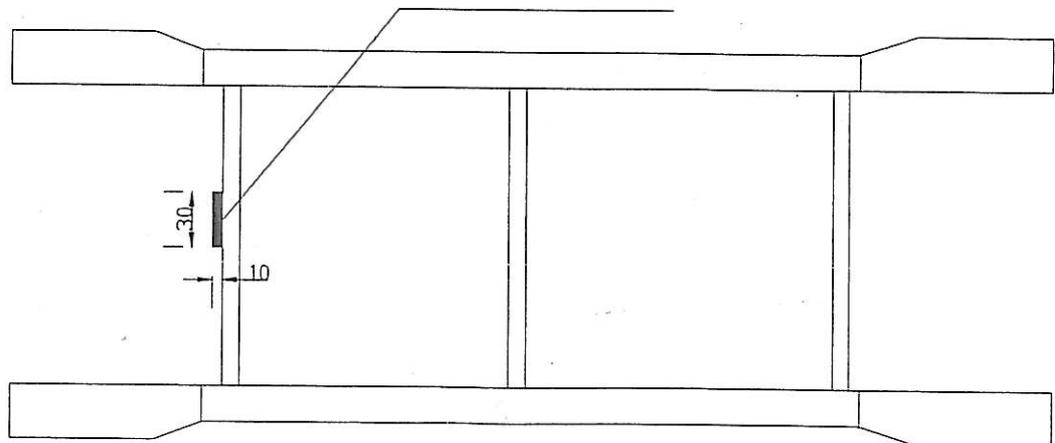
The defect was found at third lifting strut plate by use of MT and needed to build up, the detail see the following draft.

检验员 (Inspector) : maobinbin 日期(Date) : 10.01.05

### 焊缝返修位置示意图:

#### Draft of welding discontinuity:

### SD1-STSA3-1-99M-1-32



注: 阴影处为补焊区域。

Remark: repair area in shadow.

产生原因:

**Caused:**

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):

*Lu Ye Fei*

日期(Date):

*10.01.05*

处理意见

**Disposition :**

1. QC 须监控碳刨、打磨和焊接过程
2. 碳刨去除缺陷并打磨光滑
3. VT 检测以确保缺陷被清除
4. 焊接须符合 WPS 要求
5. 在进入下道焊缝前, QC 须确保所有焊渣都已被去除干净
6. 打磨返修区域使其与临近焊缝或母材齐平
7. 对返修区域进行 VT, MT 和 UT 检测

1. QC shall monitor gouging/grinding/welding
2. Gouge defects & grind smoothly
3. Verify that defects have been removed with VT
4. Welding shall be in accordance with WPS
5. QC shall ensure all slag is removed prior to deposition of subsequent weld passes
6. Blend repair area with adjacent base metal
7. Perform VT, MT, & UT to repaired area

工艺: *Lilhan ping*  
Technical engineer

审核:  
Approved by

日期  
Date

*10.01.05*



# 焊缝返修报告

## Welding Repair Report

版本 Rev. No.

0

项目名称 Project Name	美国海湾大桥 SFOBB	部件图号 Drawing No.	SD1-STSA3-1	报告编号 Report No.	T-WR3001
合同号 Contract No.:	04-0120F4	部件名称 Items Name	第三吊装段联系梁 Third lifting strut plate	NDT报告编号 Report No. of NDT	NA
项目编号 Project No.:	ZP06-787				

纠正措施:

**Correction action to prevent re occurrence:**

加强制作过程中的监控, 减少误差。

Enhance supervision in process of fabrication to reduce error.

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): Liuyefei 日期(Date): 2010.01.05

参照的WPS编号 Repair WPS No.	WPS-345+485-SMAW-1G(1F)-FCM-Repair-1 WPS-345+485-SMAW-2G(2F)-FCM-Repair-1 WPS-345+485-SMAW-3G(3F)-FCM-Repair	工艺员 technologist	<u>Li chuangang</u> 1.9/10
返修(碳刨)前预热温度 Preheat temperature before gouging	/	返修的缺陷 Description of discontinuity	/
焊前处理检查 Inspection before welding	VT MT <u>Acc</u>	焊前预热温度 Preheat temperature before welding	180°C
最大碳刨深度 Max. depth of gouging	/	碳刨总长 Total length of gouging	30
焊工 welder	202/w	焊接类型 welding type	SMAW
焊接电流 Current	170 (0.60)	焊接电压 Voltage	23k
		焊接位置 position	3F
		焊接速度 Speed	102

返修后检查

**Inspection After repairing:**

外观检查 VT result	Acc	检验员 Inspector	日期 Date
		<u>Yudongping</u> 07121251	2010.1.5
NDT复检 NDT result	Acc	探伤员 NDT person	日期 Date
		<u>Cai Xiaohu</u>	2010.1.07

见证:

Witness/Review:

备注:

Remark:

#R787-QCP-900

# Tool Box Training Agenda

**Subject:** MT Techniques

**Reason for Training:** Several CT NCR's of indications missed during ZPMC NDT inspection.

## 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 Adequate working condition
- f. Pie Gage

## 3. Inspection Techniques

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



教育培训纪录

培训编号: MT-22-Dec-09

培训内容:	MT Techniques
培训对象:	项目质检
授课人员:	Steve Lawton
培训类型:	内部培训
培训时间:	22-Dec-09 5:00 PM
计划培训地点:	ZPMC QC office

人员签到:

姓名	部门	姓名	部门
孙力杰 Sunlei	钢桥	狄坤伦 Di Kunlun	钢桥
孙广强 Sun Guangqiang	钢桥	蔡新鑫 Cai Xinxin	钢桥
徐海 Xu Hai	钢桥	傅春强 Fu Zhongqiang	钢桥
卞源源 Bian Yuanyuan	钢桥	顾云武 Gu Yunwu	钢桥
许兵 Xu Bing	钢桥	金建廷 Jin Jianting	钢桥 MT
李振华 Li Zhenhua	钢桥	常方杰 Chang Fangjie	钢桥
李坤阳 Li Xunyang	QA	袁俊 Yuan Jun	钢桥
王威 Wang Wei	钢桥	刘章敏 Liu Zhangmin	
孙林 Sun Lin	钢桥 MT	徐华祥 Xu Huaxiang	钢桥
丁阿成 Ding A Cheng	钢桥 MT	周东超 Zhou Dongchao	钢桥
贺佳佳 He Jiajia	钢桥	赵成功 Zhao Chenggong	钢桥
黄瑞 Huang Rui	钢桥	孙广强 Sun Guangqiang	钢桥
李黎明 Li Liming	钢桥	徐辉 Xu Hui	钢桥
李昌涛 Li Changtao		刘宏斌 Liu Hongbin	

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000480**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:****Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0573**Type of problem:**

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

**Date the Non-Conformance Report was written:** 05-Jan-2010**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) of Tower Strut Web to Stiffener weld SD1-STSA3-1-99M-1-32, QA discovered one linear indication, transverse to the weld axis, approximately 10mm in length. Notice of Witness Inspection (NWIT) # 004999 indicates that ZPMC previously completed their 100% MT review on the affected weld.

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

Perform repair and verify with NDT, conduct training to prevent reoccurrence.

**Corrective action taken:**

Weld repair was performed and verified by MT (T-WR3001 and T787-MT-7851). MT refresher training was conducted on 12/22/09.

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

**Inspected By:** Guest, Skyler

Quality Assurance Inspector

**Reviewed By:** Wahbeh, Mazen

QA Reviewer