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-000465
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 29-Oct-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0438

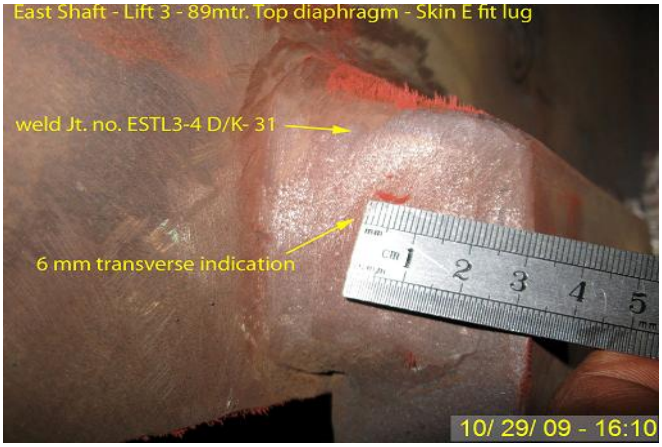
Type of problem:

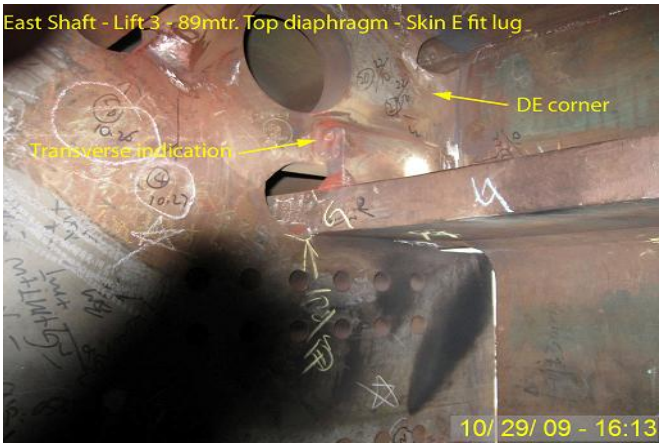
Welding	☐	**Concrete**	☐	**Other**	☑	
Welding	☐	**Curing**	☐	**Procedural**	☐	**Bridge No:** 34-0006
Joint fit-up	☐	**Coating**	☐	**Other**	☑	**Component:** East Tower
Procedural	☐	**Procedural**	☐	**Description:** East Tower, Lift 3		

Reference Description: Missed MT indication on East Tower, Lift 3 Fit Lug weld

Description of Non-Conformance:

During Magnetic Particle (MT) inspection of East Tower, Lift 3, 89 m diaphragm, Skin E fit lug weld ESTL3-4 D/K-31, QA discovered a transverse linear indication of approximately 6 mm in length. This weld has 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 D1.5-2002, Section 6.26.2 – "Welds that are subject to MT in addition to visual inspection shall have no cracks."

Who discovered the problem: Baskar Govindarajan

Name of individual from Contractor notified: Xing Xiao Guong

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Time and method of notification: 10/29/2009, 16:15; Verbal
Name of Caltrans Engineer notified: Scott Kennedy
Time and method of notification: 11/2/2009, 8:00; Verbal
QC Inspector's Name: Zhao Mao Mao
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: 510-808-4618 Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

To:	AMERICAN BRIDGE/FLUOR, A JV 375 BURMA ROAD OAKLAND CA 95607	**Date:**	03-Nov-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:**	05.03.06-000424
Subject:	NCR No. ZPMC-0438		

Reference Description: Missed indication (MT)/ East Tower, Lift 3/ Fit Lug weld / 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:** 03

Remarks:

During Magnetic Particle (MT) inspection of East Tower, Lift 3, 89 m diaphragm, Skin E fit lug weld ESTL3-4 D/K-31, QA discovered a transverse linear indication of approximately 6 mm in length. This weld has been 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 indication during magnetic particle testing of the weld. Provide documentation of the steps/actions taken by the Quality Control Manager to prevent future occurrences. It is understood that MT training was provided by the Quality Control Manager on October 21, 2009. However, the repeated incidences appear to indicate that the training was not effective. Please propose further actions by ABFJV 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.

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, ZPMC-383, ZPMC-0384, ZPMC 0386, ZPMC-0387, ZPMC-0388, ZPMC-0389, ZPMC-0390, ZPMC-0401, ZPMC-0408, ZPMC-0413, ZPMC-419, ZPMC-422, and ZPMC 437 related to Tower

Transmitted by: Ken Lee Transportation Engineer

Attachments: ZPMC-0438

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

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: 05.03.06-000424

Subject: NCR No. ZPMC-0438

Dated: **24-Nov-2009**

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

Job Name: SAS Superstructure

Document No.: **ABF-NPR-000429 Rev: 00**

Contractor's Proposed Resolution:

Reference Resolution: Attached is documentation of the repair of the missed indications and subsequent NDT. ZPMC requests closure of this NCR.

Attached is documentation of the repair of the missed indications and subsequent NDT. The NDT documentation shows that the weld is acceptable. ABFJV's QCM has conducted training with ZPMC's MT inspectors and has previously submitted the training agenda and sign in sheet to the Department for verification to showthe steps ABFJV is taking to address the missed indications. In addition, ABFJV has implemented NDT verification of welds to ensure that welds are acceptable prior to being inspected by the Engineer. On September 24, 2009 an exploration by ABFJV, ZPMC and the Department found that these indications were slag or porosities which were the result of insufficient interpass cleaning. ABFJV has reminded ZPMC of the importance of interpass cleaning of the welds and ZPMC acknowledges that interpass cleaning must be a focus. Based on these actions and the attached documentation, ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000429R00;

Caltrans' comments:

Status: CLO

Date: 10-Dec-2009

The proposed resolution is acceptable. The Department concurs that Non-conformance ZPMC-0438 is closed.

Submitted by: Lee, Ken

Date: 10-Dec-2009

Attachment(s):

No. T-087

LETTER OF RESPONSE

TO: American Bridge/Flour JV
DATE: 2009-11-23
REGARDING: NCR-000465（ZPMC-0438）

During MT inspection of East tower , lift 3, 89m diaphragm, skin 3 fit lug weld ESTL3-4D/K-31, CT discovered transverse linear indication of approximately 6mm in length. This weld has been previously tested and accepted by ZPMC NDT personnel.

We ZPMC acknowledge this problem , About this situation we ZPMC at the first time remove the linear indication which is on the surface. We used the method just grinding without welding repair. And then did the MT work to show CT people Baskar Govindarajan to make sure no problem on this weld. Then CT inspector Baskar Govindarajan received this weld and marked the triangle on the plate on the same day.

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

ATTACHMENT:
NCR-000465（ZPMC-0438）
REPORT OF MAGNETIC PARTICLE: T787-MT-7006

09.11.23

REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-7006	DATE日期 2009.11.22	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:	ESTL3-4D/K THE 3RD LIFT	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 A709M-HPS-485T2-Z 25/70 mm
WELDING PROCESS 焊接方法	FCAW	TYPE OF JOINT 焊缝类型	CORNER-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			
ESTL3-4D/K-31				ACC.		100%MT
BLANK						

EXAMINED BY主探 Cai Xinxin Cai Xin Xin 09.11.22 LEVEL - II SIGN 签名 / DATE日期	REVIEWED BY 审核 wang wei 09.11.22 LEVEL-II SIGN / DATE日期
质量经理 / QCM 签字 SIGN / 日期 DATE 09.11.22	用户CUSTOMER 签字 SIGN / 日期 DATE

(FORM# ZPQC-MT01)

ZPMC		周数	94#
		日期	2009.10.29

Visual Weld Inspection Report **焊缝目视检查报告**		**Girder/梁:**	The 3rd Lift
		Tower/塔:	Tower (E)
Caltrans Contract No. 加州合同编号	04-0120F4	Representative: 质检代表:	
Project No.: 项目名称	San Francisco Oakland Bay Bridge 美国海湾大桥	CWI: 检验员:	[illegible]
Project No.: 项目编号:	ZP06-787	Quality Assurance Manager ~Approval 质量控制经理:	

Weld No. 焊缝编号	Welder I.D.# 焊工识别号	Location 位置	Welding consumables 焊接材料	Undercut 咬边	Porosity 气孔	Over lap 焊瘤	Crater 弧坑	Arc strike 电弧擦伤	Spatters 飞溅	Crack 裂纹	Accept or Reject 接受或拒收	Repair 返修	Accept or Reject after repair 返修后接受
ESTL3-4D/K-31	068919	3G	E71T-12JH4	√	√	√	√	√	√	√	ACC	NA	NA

☐ **After root weld** ☐ **After cover pass**

☐ **After CWR or WRR No.:** ☐ **After HSR No.:** ☑ **Others**

" √ " is no defects. " X " is defects. "NA" is not applicable.

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:**	03-Nov-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:**	05.03.06-000424
Subject:	NCR No. ZPMC-0438		

Reference Description: Missed indication (MT)/ East Tower, Lift 3/ Fit Lug weld / 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:** 03

Remarks:

During Magnetic Particle (MT) inspection of East Tower, Lift 3, 89 m diaphragm, Skin E fit lug weld ESTL3-4 D/K-31, QA discovered a transverse linear indication of approximately 6 mm in length. This weld has been 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 indication during magnetic particle testing of the weld. Provide documentation of the steps/actions taken by the Quality Control Manager to prevent future occurrences. It is understood that MT training was provided by the Quality Control Manager on October 21, 2009. However, the repeated incidences appear to indicate that the training was not effective. Please propose further actions by ABFJV to prevent future occurrences.

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NCT

(Continued Page 2 of 2)

Transmitted by: Ken Lee Transportation Engineer

Attachments: ZPMC-0438

cc: Rick Morrow, Gary Pursell, Mark Woods, Doug Coe, 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-000465
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 29-Oct-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0438

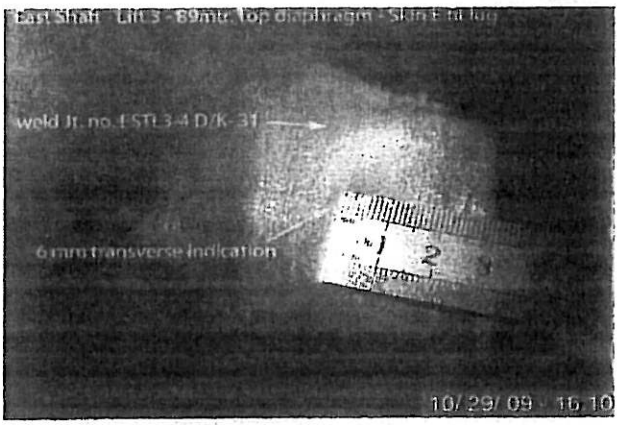
Type of problem:

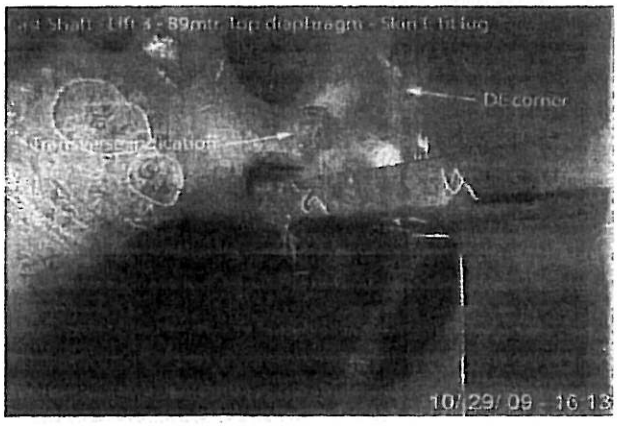
Welding	☐	**Concrete**	☐	**Other**	☑	
Welding	☐	**Curing**	☐	**Procedural**	☐	**Bridge No:** 34-0006
Joint fit-up	☐	**Coating**	☐	**Other**	☑	**Component:** East Tower
Procedural	☐	**Procedural**	☐	**Description:** East Tower, Lift 3		

Reference Description: Missed MT indication on East Tower, Lift 3 Fit Lug weld

Description of Non-Conformance:

During Magnetic Particle (MT) inspection of East Tower, Lift 3, 89 m diaphragm, Skin E fit lug weld ESTL3-4 D/K-31, QA discovered a transverse linear indication of approximately 6 mm in length. This weld has 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 D1.5-2002, Section 6.26.2 – "Welds that are subject to MT in addition to visual inspection shall have no cracks."

Who discovered the problem: Baskar Govindarajan

Name of individual from Contractor notified: Xing Xiao Guong

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Time and method of notification: 10/29/2009, 16:15; Verbal
Name of Caltrans Engineer notified: Scott Kennedy
Time and method of notification: 11/2/2009, 8:00; Verbal
QC Inspector's Name: Zhao Mao Mao
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
DIVISION OF ENGINEERING SERVICES
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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-000337
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 23-Nov-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0438

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: 29-Oct-2009

Description of Non-Conformance:
During Magnetic Particle (MT) inspection of East Tower, Lift 3, 89 m diaphragm, Skin E fit lug weld ESTL3-4 D/K-31, QA discovered a transverse linear indication of approximately 6 mm in length. This weld has been previously tested and accepted by ZPMC NDT personnel.

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

Corrective action taken:
Affected weld has been repaired, verified by QA, and green tagged. 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