

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection

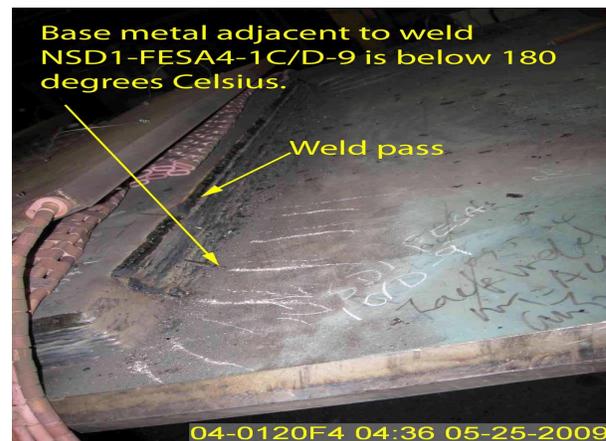
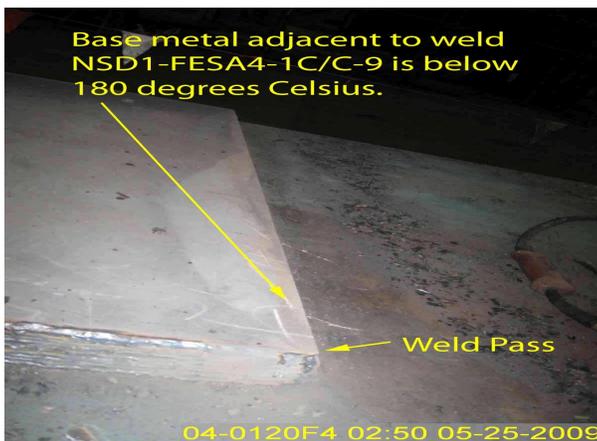


Bay Area Branch
690 Walnut Ave. St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

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-000275**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 25-May-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0249**Type of problem:****Welding****Concrete****Other****Welding****Curing****Procedural****Bridge No:** 34-0006**Joint fit-up****Coating****Other****Component:** North Tower, Lift 3, Skin E**Procedural****Procedural****Description:** North Tower, Lift 3, Skin E**Reference Description:** Inadequate preheat on North Tower, Lift 3, Skin E doubler plate welds**Description of Non-Conformance:**

QA observed ZPMC personnel welding North Tower, Skin E, Lift 3 doubler plate welds

NSD1-FESA3-1D/D-9, NSD1-FESA3-1DD-18 and NSD1-FESA3-1C/D-9 without the required base metal preheat. The photographs below indicate an unmelted 180 degree Celsius temperature indicating crayon adjacent to welds NSD1-FESA3-1C/D-9 and NSD1-FESA3-1D/D-9.

**Applicable reference:**

Welding procedure WPS B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degrees Celsius.

Who discovered the problem: Paul Dawson**Name of individual from Contractor notified:** Zhang Qin Jian**Time and method of notification:** 5-25-09, 04:40; Verbal**Name of Caltrans Engineer notified:** Scott Kennedy**Time and method of notification:** 5-25-09, 13:00; Verbal

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

QC Inspector's Name:

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
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Reviewed By:	Wahbeh,Mazen	SMR
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NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000240

Subject: NCR No. ZPMC-0249

Dated: 22-Jun-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000244 **Rev:** 00

Contractor's Proposed Resolution:

Reference Resolution: ABF QCM has informed ZPMC QA and QC to first educate the person (s) performing the pre-heat of the WPS requirements to pre-heat based on material thickness as well as the welder.

ABF QCM has informed ZPMC QA and QC to first educate the person (s) performing the pre-heat of the WPS requirements to pre-heat based on material thickness as well as the welder. ABF QCM has explained the consequences of hydrogen embrittlement and that these thicker materials should be heated from the opposite side to ensure through thickness heat distribution as materials at these thicknesses lend themselves to cooling faster than thinner materials. ZPMC will provide the inspection documentation for this weld at a later date for close out.

Submitted by:

Attachment(s): ABF-NPR-000244R00

Caltrans' comments:

Status: AAP

Date: 30-Jun-2009

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

Please provide documentation of the weld repairs that were performed and that the repairs were acceptable. The Department will review the Contractor's proposal to close Non-Conformance ZPMC-0249 at that time.

The Non-Destructive Testing (NDT) for these welds should be at least 72 hours after welding to ensure that there are no delayed cracks from any possible hydrogen contamination.

Submitted by: Wright, Doug

Date: 30-Jun-2009

Attachment(s):

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000240

Subject: NCR No. ZPMC-0249

Dated: 14-Aug-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000244 Rev: 01

Contractor's Proposed Resolution:

Reference Resolution: Attached is remedial action taken by ZPMC to prevent the recurrence of this NCR as well as supporting inspection documentation. ZPMC requests closure of this NCR.

Attached is remedial action taken by ZPMC to prevent the recurrence of this NCR as well as supporting inspection documentation. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000244R01;

Caltrans' comments:

Status: REJ

Date: 19-Aug-2009

The proposed resolution is not acceptable. The Magnetic Particle Testing (MT) attached was done immediately after welding instead of after 72 hours as requested in the response to NPR-0244R00.

For the welds in question, please submit documentation of Non-Destructive Testing (NDT) at least 72 hours after welding to ensure that there are no delayed cracks from any possible hydrogen contamination. The Department will review the Contractor's proposal to close Non-Conformance ZPMC-0249 at that time.

Submitted by: Wright, Doug

Date: 19-Aug-2009

Attachment(s):



No. T-037

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2009-7-9

REGARDING: NCR-000285 (ZPMC-0259), NCR-000275 (ZPMC-0249)

ZPMC received NCR-000285(ZPMC-0259),NCR-000275(ZPMC-0249), it mentioned that ZPMC personnel welded North Tower Lift 3 Skin E double plate welds and North Tower Lift 2 Skin A double plate weld without the required base metal preheating according to WPS B-T-4332-TC-P6-F. The related welds no are: NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18, NSD1-FESA3-1C/D-9 and NSD1-SA166B/F-6.

ZPMC acknowledged this problem, and put forward ZPMC's NCR-T-040. ZPMC had already inculcated the work team to enhance the management and control of preheating, and it must be checked by QC before welding in compliance with proper WPS. Here attached the related parts' VT and NDT reports, the result shows the preheating issue didn't influence the weld quality.

So ZPMC hope CT could take a review and close these NCR.

ATTACHMENT:

NCR-000285 (ZPMC-0259)

T-VT-6598

T787-MT-4507

NCR-000275 (ZPMC-0249)

T-VT-6238

T787-MT-4246

陈建华 8/11/09



Nonconformance Report

不符合项报告

Project Name: S.F.O.B.B 项目名称: 美国加州海湾大桥		NCR Number: ZPMC-0244, ZPMC-0258 NCR 编号: NCR-T-040	
Item: inadequate preheating 名称描述: 焊缝预热温度不够	Item Number: 件号: North tower lift 3 skin E double plate North tower lift 2 skin A double plate	Drawing: 图号: NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18 NSD1-FESA3-1C/D-9 NSD1-SA166B/F-6	
Location: bay 10 位置: 10#车间		Date: 日期: 2009-06-03	
Description of Nonconformance: 不符合项状态描述: <p>CT inspector observed ZPMC personnel welding North Tower Lift 3 Skin E double plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18, NSD1-FESA3-1C/D-9 and North tower lift 2 skin A double plate weld NSD1-SA166B/F-6 without the required base metal preheating. According to the WPS B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degree Celsius, yet the 180 degree Celsius indicating crayon adjacent to welds was unmelted.</p> <p>加州检验员发现 ZPMC 在对北塔第三吊装段 E 面板双层板焊缝 NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18, NSD1-FESA3-1C/D-9 以及北塔第二吊装段 A 面板双层板焊缝 NSD1-SA166B/F-6 进行焊接时预热温度不够没有达到 WPS B-T-4332-TC-P6-F 最低 180℃ 的要求。</p>			
Work By: 施工方: <i>B. Mj</i>	Prepared by: <i>Zhang Jindao</i> 准备: 2009.6.4	Reviewed by QCE: <i>Lujianhua</i> 质量工程师批准: 6/4/09	
<input type="checkbox"/> Drawing Error 图纸错误 <i>69.6.4</i>	<input type="checkbox"/> Material Defect 材料缺陷	<input checked="" type="checkbox"/> Fabrication Error 制作错误	<input type="checkbox"/> Other 其他原因
Disposition: 处理措施:	<input type="checkbox"/> Use as is 回用	<input type="checkbox"/> Repair 返修	<input type="checkbox"/> Reject 拒收
Recommendation: 建议: <p>1) 加强对预热温度的控制, 焊接前必须经QC确认。 2) 严格执行按照 WPS 要求进行制作。</p> <p>1) Enhance controlling preheat and it start check by qc before welding 2) perform according to WPS requirement.</p>			
Prepared by: <i>Du Wenli</i> 准备	Approved by QCA: <i>Lujianhua</i> 质量经理批准		

Reason for Nonconformance:

不符合原因:

焊缝区域加热方法不正确, 导致焊缝层间温度不够, 且加热过程中测量工具控制不到位.

Heat method was incorrect caused interpass temperature was inadequately in process of heating and measure tool was inadequately.

Prevention of Re-occurrence:

预防措施:

加强焊缝层间温度控制, 提高焊工责任心, 焊接过程中监督控制及加热过程中监督控制, 加大抽检力度.

Enhance controlling interpass temperature to improve welder responsibility.

Enhance supervision of heating.

Approved by/批准:



66

Technical Justification for Use-As-Is/Repair:

Attachment

Non-attachment

回用或返修的技术依据:

附件

无附件

Reviewed /批准: _____

Verification:

Acceptable

Unacceptable

确认:

可接受

不可接受

Verified by QCI/质检确认: _____

Reviewed by QCA/质检主任审核: _____

#R787-QCP-1300

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

Failure

NON-CONFORMANCE REPORT TRANSMITTAL

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

Date: 26-May-2009

Contract No: 04-0120F4

04-SF-80-13.2 / 13.9

Dear: Mr. Charles Kanapicki

Job Name: SAS Superstructure

Attention: Mr. Thomas Nilsson Project/Fabrication Manager

Document No: 05.03.06-000240

Subject: NCR No. ZPMC-0249

Reference Description: Preheat / North Shaft Lift 3 Skin E / Doubler Plate to Skin 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: 03

Remarks:

QA observed ZPMC personnel welding North Tower, Skin E, Lift 3 doubler plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1DD-18 and NSD1-FESA3-1C/D-9 without the required base metal preheat.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance including documentation that the welds placed are in compliance with the contract requirements. In addition to the material/workmanship non-conformance, propose a resolution that addresses the failure of Quality Control to identify the lack of preheat of the base material. Provide documentation of the steps taken by the Quality Control Manager to prevent future occurrences.

Recent failures by Quality Control to identify Production's failure to perform the required preheating of the material have resulted in the issuance of NCR ZPMC-0202, ZPMC-0233 and an additional Incident Report concerning lack of preheating on 03/28/09 (Tower).

Transmitted by: Scott Kennedy Sr. Bridge Engineer

Attachments: ZPMC-0249

cc: Rick Morrow, Gary Pursell, Mark Woods, Jason Tom

File: 05.03.06

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection

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

Contract #: 04-0120F4City: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT**

Location: Changxing Island, Shanghai, PRC

Report No: NCR-000275

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 25-May-2009

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

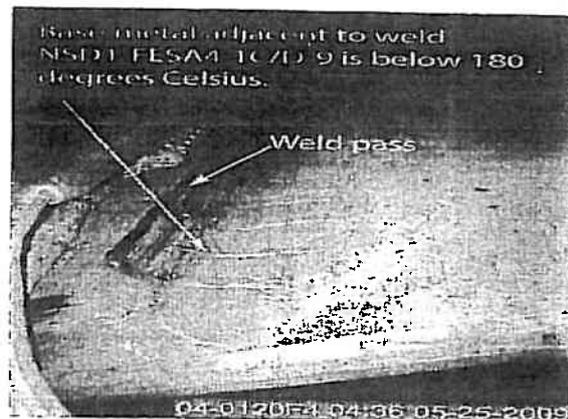
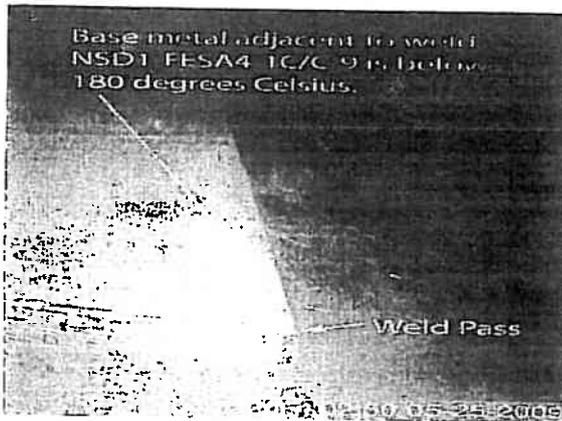
NCR #: ZPMC-0249

Type of problem:Welding Concrete Other Welding Curing Procedural Bridge No: 34-0006Joint fit-up Coating Other Component: North Tower, Lift 3, Skin EProcedural Procedural Description: North Tower, Lift 3, Skin E

Reference Description: Inadequate preheat on North Tower, Lift 3, Skin E doubler plate welds

Description of Non-Conformance:

QA observed ZPMC personnel welding North Tower, Skin E, Lift 3 doubler plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1DD-18 and NSD1-FESA3-1C/D-9 without the required base metal preheat. The photographs below indicate an unmelted 180 degree Celsius temperature indicating crayon adjacent to welds NSD1-FESA3-1C/D-9 and NSD1-FESA3-1D/D-9.

**Applicable reference:**

Welding procedure WPS B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degrees Celsius.

Who discovered the problem: Paul Dawson

Name of individual from Contractor notified: Zhang Qin Jian

Time and method of notification: 5-25-09, 04:40; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 5-25-09, 13:00; Verbal

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

QC Inspector's Name:

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

1-VI-62)8



周数
日期

7L#

2009.05.26

Visual Weld Inspection Report
焊缝目视检查报告

Girder/梁: 3rd lifting
Tower/塔: Tower (N) Skin E
Quality Control Representative: Xu Jun
质检代表: Xu Jun
CWI: huiyanggao2017
检验员: huiyanggao2017
Quality Assurance Manager ~Approval: Lu Jianhua
质量控制经理: Lu Jianhua

Caltrans Contract No. 州合同编号: 04-0120F4
Project No.: 项目名称: San Francisco Oakland Bay Bridge 美国海湾大桥
Project No.: 项目编号: ZP06-787

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 返修后接受或拒收
NSD1-FESA3-1C/D-9	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1C/D-1	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1C/D-2	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-9	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-1	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-2	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-18	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-10	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-11	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
<input checked="" type="checkbox"/> After root weld <input type="checkbox"/> After CWR or WRR No.:													

After cover pass
 After HSR No.: HSR1(T) - Others

#R787-QCP-603

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



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-4246 DATE日期 2009.05.26 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: NSD1-FESA3-1C/D(D/D) THE 3RD LIFTING TOWER(N) SKIN 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
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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
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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

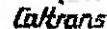
MATERIAL TO BE EXAMINED 检测材料	<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材, 厚度	A709M-345T2 A709M-HPS-485WT2 55/75/100 mm
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WELDING PROCESS 焊接方法: FCAW TYPE OF JOINT 焊缝类型: T JOINT

WELD I.D. 焊缝编号	DISCONTINUITY不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度			
NSD1-FESA3-1C/D-9				ACC.		100%MT
NSD1-FESA3-1C/D-1				ACC.		100%MT
NSD1-FESA3-1C/D-2				ACC.		100%MT
NSD1-FESA3-1D/D-9				ACC.		100%MT
NSD1-FESA3-1D/D-1				ACC.		100%MT
NSD1-FESA3-1D/D-2				ACC.		100%MT
NSD1-FESA3-1D/D-18				ACC.		100%MT
NSD1-FESA3-1D/D-10				ACC.		100%MT
NSD1-FESA3-1D/D-11				ACC.		100%MT

BLANK

EXAMINED BY主探 Gu Yunwu <i>[Signature]</i>	REVIEWED BY审核 <i>[Signature]</i>
LEVEL-II SIGN 签名 / DATE日期 Lv Jianhua 2009.06.02	LEVEL-II SIGN / DATE日期 2009.05.26
质量经理 / QCM	用户CUSTOMER
签字 SIGN / 日期 DATE	签字 SIGN / 日期 DATE



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: 01-Jun-2009

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

Dear: Mr. Charles Kanapicki
 Attention: Mr. Thomas Nilsson Project/Fabrication Manager
 Subject: NCR No. ZPMC-0259

Job Name: SAS Superstructure
 Document No: 05.03.06-000250

Reference Description: Preheat / North Shaft Lift 2 Skin A / Doubler Plate

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:

QA observed ZPMC personnel welding North Tower, Lift 2, Skin A doubler plate weld NSD1-SA166B/F-6 without preheating the weld and adjacent base material.

Welding procedure WPS-B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degrees Celsius.

Action Required and/or Action Taken:

Propose a resolution for this systematic non-conformance including documentation that the welds placed are in compliance with the contract requirements. In addition to Production's failure to perform the required preheat of the base material, address the failure of Quality Control to identify the lack of preheat. Provide documentation of the steps/actions taken with Production and Quality Control to prevent future occurrences.

Recent failures by Quality Control to identify and Production to perform the required preheating of the material have resulted in the issuance of NCR ZPMC-0202, ZPMC-0233, ZPMC-0249 and an additional Incident Report concerning lack of preheating on 03/28/09 (Tower).

Transmitted by: Scott Kennedy Sr. Bridge Engineer

Attachments: ZPMC-0259

cc: Rick Morrow, Gary Pursell, Mark Woods, Jason Tom

File: 05.03.06

02:02:15 04
 05.03.06-000250,NCT

Received
 NCT-000250 01 Jun 09 Page 1 of 1

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-000285

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 28-May-2009

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

NCR #: ZPMC-0259

Type of problem:

Welding Concrete Other

Welding Curing Procedural

Joint fit-up Coating Other

Procedural Procedural

Bridge No: 34-0006

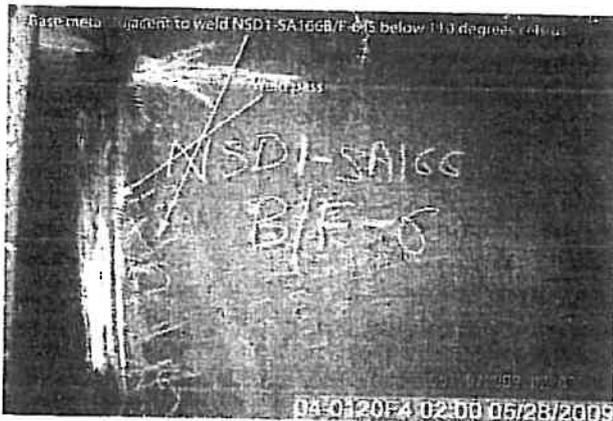
Component: North Tower, Lift 2

Description: Inadequate pre-heat on North Tower, Lift 2, Skin A

Reference Description: Inadequate pre-heat on North Tower, Lift 2, Skin A Doubler Plate

Description of Non-Conformance:

QA observed ZPMC personnel welding North Tower, Lift 2, Skin A doubler plate weld NSD1-SA166B/F-6 without preheating the weld and adjacent base material.



Applicable reference:

Welding procedure WPS-B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degrees Celsius.

Who discovered the problem: Shrikant Utekar

Name of individual from Contractor notified: Wen Zhang Wan

Time and method of notification: 9:00, 5/28/2009; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 13:00, 5/28/2009; Verbal

QC Inspector's Name:

Was QC Inspector aware of the problem:

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

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



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-4507		DATE日期 2009.06.13	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: NSD1-SA166B/F Tower(N) 2nd lifting skin A and stiffener		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 50/90mm			
WELDING PROCESS 焊接方法 FCAW	TYPE OF JOINT 焊缝类型 T-JOINT			

WELD I.D. 焊缝编号	DISCONTINUITY不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度			
NSD1-SA166B/F-6				ACC.		100%MT
NSD1-SA166B/F-8				ACC.		100%MT
BLANK						

EXAMINED BY 主探 Gu Yunwu <i>Gu Yunwu</i> LEVEL-II SIGN 签名 / DATE日期 <i>09.06.13</i>	REVIEWED BY 审核 <i>Xu Hai</i> LEVEL-II SIGN / DATE日期 <i>09.06.13</i>
质量经理 / QCM <i>Liu...</i> 签字 SIGN / 日期 DATE	用户 CUSTOMER 签字 SIGN / 日期 DATE

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000240

Subject: NCR No. ZPMC-0249

Dated: 18-Sep-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000244 **Rev:** 02

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-000244R02;

Caltrans' comments:

Status: CLO

Date: 20-Sep-2009

The proposed resolution is acceptable. The welding repair report is included, and the weld in question has been accepted by MT as shown in the attached documents. The Department concurs that Non-Conformance ZPMC-0249 is closed.

Submitted by: Lee, Ken

Date: 20-Sep-2009

Attachment(s):



No. T-059

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2009-9-17

REGARDING: NCR-000275 (ZPMC-0249)

ZPMC received NCR-000275(ZPMC-0249), it mentioned that ZPMC personnel welded North Tower Lift 3 Skin E double plate welds without the required base metal preheating according to WPS B-T-4332-TC-P6-F. The related welds no are: NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18, NSD1-FESA3-1C/D-9.

ZPMC acknowledged this problem, and put forward ZPMC's NCR-T-040. ZPMC had already inculcated the work team to enhance the management and control of preheating, and it must be checked by QC before welding in compliance with proper WPS. Here attached the related parts' VT and NDT reports after welding, and T787-MT-5891 proved the welds were satisfied with the relative requirement after 72 hours' nondestructive testing.

So ZPMC hope CT could take a review and close these NCR according to ABF-NPR-000244 R1.

ATTACHMENT:

NCR-000275 (ZPMC-0249)

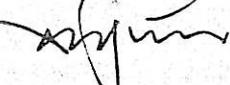
ZPMC NCR: NCR-T-40

T-VT-6238

T787-MT-4246

NPR: ABF-NPR-000244 R1

T787-MT-5891


2009-9-17

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: 26-May-2009
Contract No: 04-0120F4
04-SF-80-13.2 / 13.9
Dear: Mr. Charles Kanapicki
Job Name: SAS Superstructure
Attention: Mr. Thomas Nilsson Project/Fabrication Manager
Document No: 05.03.06-000240
Subject: NCR No. ZPMC-0249

Reference Description: Preheat / North Shaft Lift 3 Skin E / Doubler Plate to Skin 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:** 03

Remarks:

QA observed ZPMC personnel welding North Tower, Skin E, Lift 3 doubler plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1DD-18 and NSD1-FESA3-1C/D-9 without the required base metal preheat.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance including documentation that the welds placed are in compliance with the contract requirements. In addition to the material/workmanship non-conformance, propose a resolution that addresses the failure of Quality Control to identify the lack of preheat of the base material. Provide documentation of the steps taken by the Quality Control Manager to prevent future occurrences.

Recent failures by Quality Control to identify Production's failure to perform the required preheating of the material have resulted in the issuance of NCR ZPMC-0202, ZPMC-0233 and an additional Incident Report concerning lack of preheating on 03/28/09 (Tower).

Transmitted by: Scott Kennedy Sr. Bridge Engineer

Attachments: ZPMC-0249

cc: Rick Morrow, Gary Pursell, Mark Woods, Jason Tom

File: 05.03.06

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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

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

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Changxing Island, Shanghai, PRC

Report No: NCR-000275

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 25-May-2009

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

NCR #: ZPMC-0249

Type of problem:

Welding Concrete Other

Welding Curing Procedural Bridge No: 34-0006

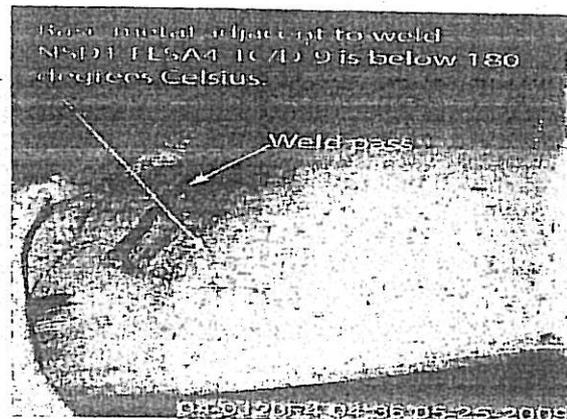
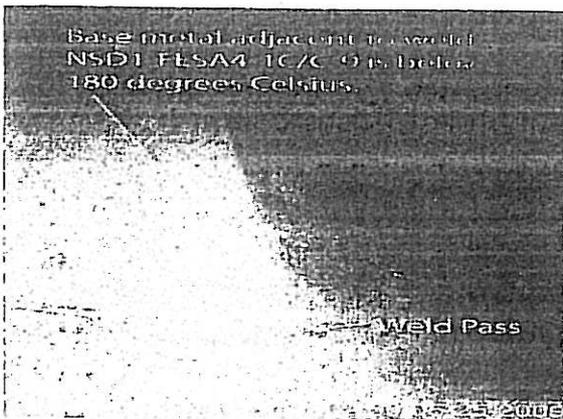
Joint fit-up Coating Other Component: North Tower, Lift 3, Skin E

Procedural Procedural Description: North Tower, Lift 3, Skin E

Reference Description: Inadequate preheat on North Tower, Lift 3, Skin E doubler plate welds

Description of Non-Conformance:

QA observed ZPMC personnel welding North Tower, Skin E, Lift 3 doubler plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1DD-18 and NSD1-FESA3-1C/D-9 without the required base metal preheat. The photographs below indicate an unmelted 180 degree Celsius temperature indicating crayon adjacent to welds NSD1-FESA3-1C/D-9 and NSD1-FESA3-1D/D-9.



Applicable reference:

Welding procedure WPS B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degrees Celsius.

Who discovered the problem: Paul Dawson

Name of individual from Contractor notified: Zhang Qin Jian

Time and method of notification: 5-25-09, 04:40; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 5-25-09, 13:00; Verbal

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

QC Inspector's Name:

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



Nonconformance Report

不符合项报告

Project Name: S.F.C.B.B
 项目名称: 美国加州海湾大桥
 NCR Number: ZPMC-0248
 ZPMC-0250
 NCR 编号: NCR-T-040

Item: inadequate preheating 名称描述: 焊缝预热温度不够	Item Number: 件号: North tower lift 3 skin E double plate North tower lift 2 skin A double plate	Drawing: 图号: NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18 NSD1-FESA3-1C/D-9 NSD1-SA166B/F-6
---	---	--

Location: bay 10
位置: 10#车间
Date: 2009-06-03
日期:

Description of Nonconformance: 不符合项状态描述:
 CT inspector observed ZPMC personnel welding North Tower Lift 3 Skin E double plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18, NSD1-FESA3-1C/D-9 and North tower lift 2 skin A double plate weld NSD1-SA166B/F-6 without the required base metal preheating. According to the WPS B-T-4332-TC-P6-F requires a minimum base material preheat temperature of 180 degree Celsius, yet the 180 degree Celsius indicating crayon adjacent to welds was unmelted.
 加州检验员发现 ZPMC 在对北塔第三吊装段 E 面板双层板焊缝 NSD1-FESA3-1D/D-9, NSD1-FESA3-1D/D-18, NSD1-FESA3-1C/D-9 以及北塔第二吊装段 A 面板双层板焊缝 NSD1-SA166B/F-6 进行焊接时预热温度不够没有达到 WPS B-T-4332-TC-P6-F 最低 180°C 的要求。

Work By: [Signature]
 施工方: [Signature]
 Prepared by: Zhang Jundi
 准备: 2009.6.4
 Reviewed by QCE: Lu Jianhua
 质量工程师批准: 6/4/09

Drawing Error Material Defect Fabrication Error Other
 图纸错误 材料缺陷 制作错误 其他原因

Disposition: Use as is Repair Reject
 处理措施: 回用 返修 拒收

Recommendation:
 建议:
 1) 加强对预热温度的控制, 焊接前必须经QC确认.
 2) 严格按照WPS要求进行操作.
 1) Enhance controlling preheat and it shall check by qc before welding
 2) perform according to WPS requirement.

Prepared by: Du Weidong
 准备
 Approved by QCA: Lu Jianhua
 质量经理批准

不符合原因:

焊缝区域加热方法不正确, 导致焊缝层间温度不够, 且加热过程中测量工具控制不到位.

Heat method was incorrect caused interpass temperature was inadequately; in process of heating and measure tool was inadequately.

Prevention of Re-occurrence:

预防措施:

加强焊缝层间温度控制, 提高焊工责任心, 焊接过程中做好控制, 及加热过程中做好控制, 加大抽检力度.

Enhance controlling interpass ^{层间加热} temperature to improve welder responsibility.

Enhance supervision of heating.

Approved by/批准:

6.6

Technical Justification for Use-As-Is/Repair:

Attachment

Non-attachment

回用或返修的技术依据:

附件

无附件

Reviewed /批准:

Verification:

Acceptable

Unacceptable

确认:

可接受

不可接受

Verified by QCI/质检确认:

Reviewed by QCA/质检主任审核:

#R787-QCP-1300

1-VF-6238



周数 72#
日期 2009.05.21

Visual Weld Inspection Report
焊缝目视检查报告

Girder/梁: 3rd lifting
Tower/塔: Tower (N) Skin E

Caltrans Contract No. 州合同编号 04-0120F4
Project No.: 项目名称 San Francisco Oakland Bay Bridge 美国海湾大桥
Quality Control Representative: 质检代表: Xu Jun

Project No.: 项目编号 ZP06-787
Quality Assurance Manager - Approval 质量控制经理: Lu Jianhua

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 Reject 接受 拒收
NSD1-FESA3-1C/D-9	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1C/D-1	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1C/D-2	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-9	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-1	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-2	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-18	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-10	066482	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA
NSD1-FESA3-1D/D-11	068858	2G	K-71TSR	✓	✓	✓	✓	✓	✓	✓	ACC	NA	NA

After root weld
 After CWR or WRR No. :
 After cover pass
 After HSR No. : HSR1 (T) -
 Others

#R787-QCP-603

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



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-4246		DATE日期 2009.05.26		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: NSD1-FESA3-1C/D(D/D) THE 3RD LIFTING TOWER(N) SKIN 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 A709M-HPS-485WT2 55/75/100 mm	
WELDING PROCESS 焊接方法		FCAW		TYPE OF JOINT 焊缝类型		T JOINT	
WELD I.D. 焊缝编号	DISCONTINUITY不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注	
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度				
NSD1-FESA3-1C/D-9				ACC.		100%MT	
NSD1-FESA3-1C/D-1				ACC.		100%MT	
NSD1-FESA3-1C/D-2				ACC.		100%MT	
NSD1-FESA3-1D/D-9				ACC.		100%MT	
NSD1-FESA3-1D/D-1				ACC.		100%MT	
NSD1-FESA3-1D/D-2				ACC.		100%MT	
NSD1-FESA3-1D/D-18				ACC.		100%MT	
NSD1-FESA3-1D/D-10				ACC.		100%MT	
NSD1-FESA3-1D/D-11				ACC.		100%MT	
BLANK							
EXAMINED BY 主探 Gu Yunwu <i>Gu Yunwu</i>				REVIEWED BY 审核 <i>maxlxly</i>			
LEVEL-II SIGN 签名 / DATE日期 <i>Gu Yunwu</i> 2009.06.02				LEVEL-II SIGN / DATE日期 <i>maxlxly</i> 09-05-26			
质量经理 / QCM <i>Lu Jianhua</i> 2009.06.02				用户CUSTOMER			
签字 SIGN / 日期 DATE				签字 SIGN / 日期 DATE			



AMERICAN BRIDGE/FLUOR ENTERPRISES, a JV

375 Burma Road
Oakland, CA 94607
Telephone (510) 808-4600 Fax (510) 808-4601

NCR PROPOSED RESOLUTION

To: California Department of Transportation
333 Burma Road
Oakland, CA 94607
Attention: Pursell, Gary
Resident Engineer
Ref: 05.03.06-000240
Subject: NCR No. ZPMC-0249

Dated: 14-Aug-2009
Contract No.: 04-0120F4
04-SF-80-13.2/13.9
Job Name: Self-Anchored Suspension Bridge
Document No: ABF-NPR-000244 Rev: 1

Contractor's Proposed Resolution:

Reference Resolution: Attached is remedial action taken by ZPMC to prevent the recurrence of this NCR as well as supporting
Attached is remedial action taken by ZPMC to prevent the recurrence of this NCR as well as supporting inspection documentation.
ZPMC requests closure of this NCR.

Submitted By: Lawton, Steve
Attachment(s): ABF-NPR-000244R01;

Status: REJ

Date: 19-Aug-2009

Caltrans' comments:

The proposed resolution is not acceptable. The Magnetic Particle Testing (MT) attached was done immediately after welding instead of after 72 hours as requested in the response to NPR-0244R00.

For the welds in question, please submit documentation of Non-Destructive Testing (NDT) at least 72 hours after welding to ensure that there are no delayed cracks from any possible hydrogen contamination. The Department will review the Contractor's proposal to close Non-Conformance ZPMC-0249 at that time.

Submitted By: Wright, Doug Date: 19-Aug-2009
Attachment(s): ABF-NPR-000244





REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-5891 DATE日期 2009.08.20 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: NSD1-FESA3-1C/D
NSD1-FESA3-1D/D
THE 3RD LIFTING TOWER (N) 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
A709M-HPS-485WT2
75/100 mm

WELDING PROCESS 焊接方法: FCAW TYPE OF JOINT 焊缝类型: T-JOINT

WELD I.D. 焊缝编号	DISCONTINUITY不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度			
NSD1-FESA3-1C/D-9				ACC.		100%MT
NSD1-FESA3-1D/D-9				ACC.		100%MT
NSD1-FESA3-1D/D-18				ACC.		100%MT

BLANK

EXAMINED BY主操: Gu Yunwu *Gu Yunwu* 09.08.20 REVIEWED BY 审核: Cai Xiaohua *Cai Xiaohua* 09.08.20
LEVEL-II SIGN 签名 / DATE日期

质量经理 / QCM: *Lu Jianhua* 09.8.20 用户CUSTOMER: _____
签字 SIGN / 日期 DATE

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000285**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 25-Aug-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0249**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: 25-May-2009**Description of Non-Conformance:**

QA observed ZPMC personnel welding North Tower, Skin E, Lift 3 doubler plate welds NSD1-FESA3-1D/D-9, NSD1-FESA3-1DD-18 and NSD1-FESA3-1C/D-9 without the required base metal preheat.

Contractor's proposal to correct the problem:

Submit NDT results indicating sound welds.

Corrective action taken:

NDT results indicating a sound weld have been submitted. ABF QCM has informed ZPMC QC to educate the persons performing the pre-heat of the WPS requirements to pre-heat based on material thickness and that tack welding has the same requirements as the balance of the welding. ABF QCM has explained the consequences of hydrogen embrittlement and that these thicker materials should be heated from the opposite side to ensure through thickness heat distribution.

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