

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-000606**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 06-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0579**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: West Tower
Procedural	Procedural	Description: West Tower Lift 5	

Reference Description: Improper WPS for welding West Tower Lift 5 temporary lifting eye**Description of Non-Conformance:**

During in-process Visual Testing (VT) of West Tower, Lift 5, Skin A, QA observed ZPMC personnel performing Shielded Metal Arc Welding (SMAW) weld passes attaching a temporary lifting eye with the incorrect WPS. WPS-B-T-43(1)14, presented by ZPMC QC for the full-length weld passes performed, is a tack welding WPS and therefore not applicable.

**Applicable reference:**

Welding Procedure Specification WPS-B-T-43(1)14 is a tack weld WPS.

Who discovered the problem: Subhasis Bera**Name of individual from Contractor notified:** Man Kam Hon**Time and method of notification:** 1/6/2010, 8:30; Verbal**Name of Caltrans Engineer notified:** Scott Kennedy**Time and method of notification:** 1/6/2010, 15:30; Verbal**QC Inspector's Name:** Li Bin

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

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.

Inspected By:	Sinevod,Serge	ASMR
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Reviewed By:	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: 07-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: 05.03.06-000569

Subject: NCR No. ZPMC-0579

Reference Description: Improper WPS for welding / West Tower Lift 5 / temporary lifting eye

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:** 05

Remarks:

During in-process Visual Testing (VT) of West Tower, Lift 5, Skin A, QA observed ZPMC personnel performing Shielded Metal Arc Welding (SMAW) weld passes attaching a temporary lifting eye with the incorrect WPS. WPS-B-T-43(1)14, presented by ZPMC QC for the full-length weld passes performed, is a tack welding WPS and therefore not applicable.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance including documentation that the weld placed is in compliance with the contract requirements. In addition to the material/workmanship non-conformance, propose a resolution that addresses the apparent failure of Quality Control to identify the non-conformance with the appropriate Welding Procedure Specification (WPS). Provide documentation of the steps taken by the Quality Control Manager to prevent future occurrences.

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

Transmitted by: Ken Lee Transportation Engineer

Attachments: ZPMC-0579

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: 05.03.06-000569

Subject: NCR No. ZPMC-0579

Dated: 19-Jan-2010

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000528 Rev: 00

Contractor's Proposed Resolution:

Reference Resolution: ABF has instructed the ZPMC QA and QC to verify the correct WPS's are present on the shop floor and accessible to both QC and production to prevent the recurrence of this non conformance.

ZPMC has acknowledged the WPS presented to the CT inspector at the time was for tacking and not for a full weld. This tacking WPS is supported by the same PQR as fillet and groove welds, therefore the welding parameters are identical. As shown in the ZPMC letter, some confusion occurred when asked to produce the WPS. ABF has instructed the ZPMC QA and QC to verify the correct WPS's are present on the shop floor and accessible to both QC and production to prevent the recurrence of this non conformance. ZPMC requests closure of this NCR.

Submitted by: Lawton, Steve

Attachment(s): ABF-NPR-000528R00;

Caltrans' comments:

Status: CLO

Date: 21-Jan-2010

Even though, those two WPS's share the same parameter, the fact that the ZPMC QC presented the wrong one warrants the NCR.

No further action is required. Non-conformance ZPMC-0579 is closed.

Submitted by: Lee, Ken

Attachment(s):

Date: 21-Jan-2010



No. T-113

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2010-1-15

REGARDING: NCR-000606(ZPMC-0579)

This NCR said we use the incorrect WPS. About this NCR I have two point to solution:

1、 May be at that time our QC guys can't understand English very well . So he took another WPS to the CT inspector.

2、 The WPS our QC guys take out (WPS-B-T-43(1)14),All the weld parameters are the same to the WPS-B-T-4114 which is only use to weld the lifting lugs.

So we can make sure we according to the right WPS for the welds to make sure no problem on the weld. Hope CT close this NCR.

ATTACHMENT:

NCR-000606(ZPMC-0579)

WPS-B-T-4114

WPS-B-T-43(1)14

L: King

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: 07-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: 05.03.06-000569

Subject: NCR No. ZPMC-0579

Reference Description: Improper WPS for welding / West Tower Lift 5 / temporary lifting eye

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:** 05

Remarks:

During in-process Visual Testing (VT) of West Tower, Lift 5, Skin A, QA observed ZPMC personnel performing Shielded Metal Arc Welding (SMAW) weld passes attaching a temporary lifting eye with the incorrect WPS. WPS-B-T-43(1)14, presented by ZPMC QC for the full-length weld passes performed, is a tack welding WPS and therefore not applicable.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance including documentation that the weld placed is in compliance with the contract requirements. In addition to the material/workmanship non-conformance, propose a resolution that addresses the apparent failure of Quality Control to identify the non-conformance with the appropriate Welding Procedure Specification (WPS). Provide documentation of the steps taken by the Quality Control Manager to prevent future occurrences.

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

Transmitted by: Ken Lee Transportation Engineer

Attachments: ZPMC-0579

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-000606

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 06-Jan-2010

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

NCR #: ZPMC-0579

Type of problem:

Welding Concrete Other
 Welding Curing Procedural **Bridge No:** 34-0006
 Joint fit-up Coating Other **Component:** West Tower
 Procedural **Description:** West Tower Lift 5

Reference Description: Improper WPS for welding West Tower Lift 5 temporary lifting eye

Description of Non-Conformance:

During in-process Visual Testing (VT) of West Tower, Lift 5, Skin A, QA observed ZPMC personnel performing Shielded Metal Arc Welding (SMAW) weld passes attaching a temporary lifting eye with the incorrect WPS. WPS-B-T-43(1)14, presented by ZPMC QC for the full-length weld passes performed, is a tack welding WPS and therefore not applicable.



Applicable reference:

Welding Procedure Specification WPS-B-T-43(1)14 is a tack weld WPS.

Who discovered the problem: Subhasis Bera

Name of individual from Contractor notified: Man Kam Hon

Time and method of notification: 1/6/2010, 8:30; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 1/6/2010, 15:30; Verbal

QC Inspector's Name: Li Bin

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

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.

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



焊接工艺规程 B*
WELDING PROCEDURE SPECIFICATION

编号 No. WPS-B-T-43(1)14
(定位焊 tack weld)
有效期 Period of validity
FCM: 2007.5~2010.5
NON-FCM: 2007.5~2012.5

母材技术条件 (Material specification) ASTM A.709M Gr.345F2 + A.709M HPS 485WT2
焊接方法 (Welding process) 药皮焊条手工电弧焊(SMAW)
手工或机械 (Manual or machine or semi-auto) 手工(Manual)
焊接位置 (Position of welding) 仰焊(4G4F)
填充金属技术条件 (Filler metal specification) AWS A5.1 填充金属级别 (Filler metal classification) E7018-1
填充金属牌号 (Filler metal brand) THJ506Fe-1 (Φ4.0)

焊剂 (Flux) N/A
保护气体 (Shielding gas) N/A 流率 (Flow rate) N/A
单焊道或多焊道 (Single or multiple pass) 多道(Multiple Pass)
单弧或多弧 (Single or multiple arc) 单弧(Single arc)
焊接电流 (Welding current) 直流(DC) 极性 (Polarity)
焊丝伸出长度 (Electrode extension) N/A
焊接方向 (Welding progression) N/A
根部处理 (Root treatment) N/A

焊前最低预热温度和道间温度 (Minimum preheat and interpass temperature before welding)

40°C [T≤20mm] 100°C [20mm<T≤40mm] 140°C [40mm<T≤60mm] 180°C [60mm<T]

最高预热和道间温度 (Preheat and interpass temperature Max) 230°C

后热温度 (Postheat temperature) N/A
热输入 (线能量) (Heat input) 最小 (Min) 1.64KJ/mm

焊接工艺
(Welding procedure)

APPROVED
 APPROVED AS NOTED
 NOT APPROVED
反接 (EP)
Pursuant to Section 5-1.02
of the Standard Specifications
State of California
DEPARTMENT OF TRANSPORTATION
Signature: [Signature]
Structure Representative
Date: 10-1-2007
2.57KJ/mm

焊道序号 Pass No.	焊条 (丝) 规格 Electrode Size (mm)	焊接电流 Welding Current		焊接速度 Travel Speed (mm/min)	接头详图 Joint Detail
		安培 Amp(s)	伏特 Volts		
1~n	4.0	160~210	19~27	71~207	该 WPS 用于已批准的符合 AWS D1.5-2002 图 2.4 和图 2.5 的焊接坡口。 This WPS is to be used for all preapproved WPSs weld joints as identified in accordance with Figures 2.4 and 2.5 of AWS D1.5M/D1.5—2002 Edition.

选定适用的电流、电压后在 WPS 焊接参数选用表中查到焊接速度范围。
Refer to WPS parameters table to determine operating parameter to stay within the heat input limit.

该工艺可以因制造工序、装配、焊道尺寸等而变化, 但应在 AASHTO/AWS D1.5 第 5 章给出的变量限值之内。
(This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in section 5.)

修订号 (Revision No.) 0

批准 (Authorized by) [Signature]

工艺评定记录编号 (PQR No.) HP2007249-2/HP2007250

日期 (Date) 2007.9.20

* 本 WPS 符合 AASHTO/AWS D1.5 2002, 用于桥梁结构。

(This WPS is conformable with the current edition of AASHTO/AWS D1.5 2002, used for BRIDGE structure.)

注: 该 WPS 仅适用于定位焊。 Note: This WPS is used for the tack welds.



焊接参数选用表 B[#]
SELECTED LIST OF WELDING
PARAMETER

编号 No.
WPS-B-T-43(1)14

PQR 编号: HP2007249-2
PQR No.

根据 5.13 评定的 $\phi 4.0$ 焊条 WPS
For WPS qualified to 5.13 For SMAW $\phi 4.0$ Electrode

	电流 Amps	电压 Volts	焊接速度	热输入						
			Travel Speed (mm/min)	Heat Input (KJ/mm)						
平均值 Average										
范围 Range										
最大值 Maximum	210.0	27.0	207.0	2.57						
最小值 Minimum	160.0	19.0	71.0	1.64						

WPS 焊接参数选用表
WPS Parameters Table

电压 Volts	电流 Amps									
	160.0	172.5		185.0		197.5		210.0		
19.0	71.0	111.2	76.5	119.9	82.1	128.6	87.6	137.3	93.2	146.0
21.0	78.4	122.9	84.6	132.5	90.7	142.1	96.8	151.7	103.0	161.3
21.7	80.9	126.8	87.3	136.7	93.6	146.6	99.9	156.6	106.2	166.5
25.0	93.4	146.3	100.7	157.8	108.0	169.2	115.3	180.6	122.6	192.1
27.0	100.9	158.0	108.7	170.4	116.6	182.7	124.5	195.1	132.4	207.0

焊接速度 Travel Speed in mm/min

选用示例: 如选用 185A 和 21.7V, 在表中纵横相交查到的焊接速度范围为 93.6~146.6mm/min.
EX.: 185A \times 21.7V \times Travel speed Range 93.6~146.6mm/min.

APPROVED
 APPROVED AS NOTED
 NOT APPROVED

Pursuant to Section 5-1.02
of the Standard Specifications
State of California
DEPARTMENT OF TRANSPORTATION

Signed *Rick Moreau* for RICK MOREAU
Structure Representative

Date 10-1-2007

批准(Authorized By): *[Signature]*
 日期(Date): 2007.9.20



焊接工艺规程 B*

WELDING PROCEDURE SPECIFICATION

WPS-B-T-4114
(吊耳焊接 Welding of lifting lugs)

有效期 Period of validity

FCM: 2007.5~2010.5

NON-FCM: 2007.5~2012.5

母材技术条件 (Material specification) ASTM A-709M-Gr.345F2 ± A-709M HPS 485WT2

焊接方法 (Welding process) 药皮焊条手工电弧焊(SMAW)

手工或机械 (Manual or machine or semi-auto) 手工(Manual)

焊接位置 (Position of welding) 仰角焊(4F)

填充金属技术条件 (Filler metal specification) AWS A5.1 填充金属级别 (Filler metal classification) E7018-1

填充金属牌号 (Filler metal brand) THJ506Fe-1 (Φ4.0)

焊剂 (Flux) N/A

保护气体 (Shielding gas): N/A 流率 (Flow rate) N/A

单焊道或多焊道 (Single or multiple pass) 多道(Multiple Pass)

单弧或多弧 (Single or multiple arc) 单弧(Single arc)

焊接电流 (Welding current) 直流(DC) 极性 (Polarity) 反接(EP)

焊丝伸出长度 (Electrode extension) N/A

焊接方向 (Welding progression) N/A 根部处理 (Root treatment) N/A

焊前最低预热温度和道间温度 (Minimum preheat and interpass temperature before welding)

40°C [T≤20mm] 100°C [20mm<T≤40mm] 140°C [40mm<T≤60mm] 180°C [60mm<T]

最高预热和道间温度 (Preheat and interpass temperature Max) 230°C

后热温度(Postheat temperature) N/A

热输入 (线能量) (Heat input) 最小(Min) 1.64KJ/mm 最大(Max) 2.57KJ/mm

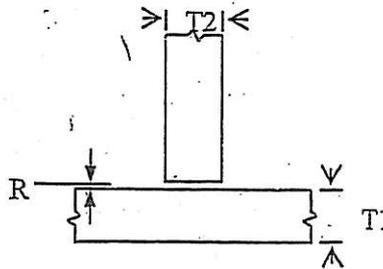
最大单道角焊缝尺寸 (Maximum size of single pass) 7.3mm

最小多道角焊缝尺寸 (Minimum size of multiple pass) 10mm

This document is: APPROVED
State of California
DEPARTMENT OF TRANSPORTATION
Pursuant Section 5-1.02 of the
Standard Specifications
Initial SJE Date: 3/17/08

焊接工艺

(Welding procedure)

焊道序号 Pass No.	焊条(丝)规格 Electrode Size (mm)	焊接电流 Welding Current		焊接速度 Travel Speed (mm/min)	接头详图 Joint Detail
		安培 Amp(s)	伏特 Volts		
1~n	4.0	160~210	19~27	71~207	$T1=T2=3\sim\infty\text{mm}$ $R=0\sim5\text{mm}$ 
选定适用的电流、电压后在 WPS 焊接参数选用表中查到焊接速度范围。 Refer to WPS parameters table to determine operating parameter to stay within the heat input limit.					

该工艺可以因制造工序、装配、焊道尺寸等而变化, 但应在 AASHTO/AWS D1.5 第 5 章给出的变量限值之内。

(This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variable given by section 5.)

修订号(Revision No.) 0

批准(Authorized by) [Signature]

工艺评定记录编号(PQR No.) HP2007249-2/HP2007250

日期(Date) 2008-3-19

* 本 WPS 符合 AASHTO/AWS D1.5 2002, 用于桥梁结构。

(This WPS is conformable with the current edition of AASHTO/AWS D1.5 2002, used for BRIDGE structure.)

注: 该 WPS 仅适用于烧焊吊耳。 Note: This WPS is only used for welding of lifting lugs.

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
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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-000482**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 19-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0579**Type of problem:**

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

Date the Non-Conformance Report was written: 06-Jan-2010**Description of Non-Conformance:**

During in-process Visual Testing (VT) of West Tower, Lift 5, Skin A, QA observed ZPMC personnel performing Shielded Metal Arc Welding (SMAW) weld passes attaching a temporary lifting eye with the incorrect WPS. WPS-B-T-43(1)14, presented by ZPMC QC for the full-length weld passes performed, is a tack welding WPS and therefore not applicable.

Contractor's proposal to correct the problem:

Make correct WPSs available on the shop floor.

Corrective action taken:

The incorrect WPS for the tack weld and the correct WPS for the full length weld were provided and both have the same parameters. ABF has instructed the ZPMC QA and QC to verify the correct WPSs are present on the shop floor and accessible to both QC and production to prevent recurrence of this non-conformance.

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: Ng, Michael

Quality Assurance Inspector

Reviewed By: Wahbeh, Mazen

QA Reviewer