

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, P.R. China

Report No: NCR-000599

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 05-Jan-2010

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

NCR #: ZPMC-0572

Type of problem:

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: OBG 5BE Deck Panel to Edge Plate
Procedural	Procedural	Description:	

Reference Description: ZPMC performed weld repair on 3 Transverse Indications without the Engineer's approval in Segment 5BE

Description of Non-Conformance:

During the Quality Assurance (QA) random in-process visual inspection of the OBG segments in the Trial Assembly area, this QA inspector discovered the following issue:

- ZPMC discovered three (3) transverse indications utilizing the Magnetic Particle (MT) method.
- Y location is approximately between 650~710mm measured from weld splice OBE5-006 on Cross Beam (CB) side.
- The Weld Joint is identified as: SEG24*-037 in Segment 5BE.
- The Edge Plate (EP) on the CB side of segment is identified as: EP49B
- The Deck Plate (DP) is identified as: DP630A.
- The steel material is designated as: A709 Grade 345 Seismic Performance Critical Member (SPCM).
- No approved welding procedure specification (WPS) was on site during the welding repair process.
- These excavation areas were repaired today without the prior approval of the Engineer.



QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Applicable reference:

Special Provisions Section 8-3; The Engineer shall be notified in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered and also of the proposal repair procedures to correct them.

AWS D1.5-2002 Section 3.7.4; Prior approval of the Engineer shall be obtained for repairs to base metal, repairs of major or delayed cracks.

AWS D1.5-2002 Section 6.3.1; The inspector shall make certain that all WPS's are qualified in conformance with Section 5 of this code The inspector shall make certain that each welding operation is covered by a written WPS and that such WPS's are available to the welders and inspectors for reference.

Who discovered the problem: Joe Alaniz

Name of individual from Contractor notified: Steve Lawton

Time and method of notification: 0900 hours, 01-05-10, Verbal

Name of Caltrans Engineer notified: Bill Howe

Time and method of notification: 1100 hours, 01-05-10, Verbal

QC Inspector's Name: Wu Shi Cheng

Was QC Inspector aware of the problem: Yes No

Contractor's proposal to correct the problem:

N/A

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 Mazen Wahbeh, +(86) 134.7247.7571, who represents the Office of Structural Materials for your project.

Inspected By: Carreon,Albert

Lead Reviewer/Task Leader

Reviewed By: Wahbeh,Mazen

SMR

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000563

Subject: NCR No. ZPMC-0572

Dated: 10-Mar-2010

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000614 Rev: 00

Contractor's Proposed Resolution:

Reference Resolution: ZPMC is providing the NDT of the repair witnessed by the Department to show that the weld is acceptable. Based on this ZPMC requests closure of this NCR.

ZPMC is providing the NDT of the repair witnessed by the Department to show that the weld is acceptable. Based on this ZPMC requests closure of this NCR.

Submitted by: Ishibashi, Joshua

Attachment(s): ABF-NPR-000614R00;

Caltrans' comments:

Status: CLO

Date: 18-Mar-2010

The documentation received is sufficient to close this NCR.

Submitted by: Howe, Bill

Date: 18-Mar-2010

Attachment(s):



No. B-657

LETTER OF RESPONSE

TO: American Bridge/Flour

DATE: 2010-3-10

REGARDING: NCR-000599 (ZPMC-0572)

With this letter of response, ZPMC requests closure of CT NCR-000599 (ZPMC-0572) what mentioned about the welding repair in SEG024*-037.

- Punch list item 350 what mentioning this NCR has been confirmed and closed by CT.
- Attached documentations are relating to the repair for this weld.

With attached CWR & NDT documentations, ZPMC requests closure of this NCR.

ATTACHMENT:

NCR-000599 (ZPMC-0572)

B-CWR1088

UT-5E-019R3

Long

3/10/10



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: 06-Jan-2010

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-0572

Job Name: SAS Superstructure
Document No: 05.03.06-000563

Reference Description: ZPMC performed weld repair on 3 Transverse Indications without the Engineer's approval in Segment 5BE

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: OBG

Lift: 05

Remarks:

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- Y location is approximately between 650~710mm measured from weld splice OBE5-006 on Cross Beam (CB) side.
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- The steel material is designated as: A709 Grade 345 Seismic Performance Critical Member (SPCM).
- No approved welding procedure specification (WPS) was on site during the welding repair process.
- These excavation areas were repaired today without the prior approval of the Engineer.

Action Required and/or Action Taken:

Submit the correct WPS for these repairs. Do not initiate repairs without first notifying the engineer. A response for the resolution of this issue is expected within 7 days.

Transmitted by: Bill Howe Sr. Transportation Engineer

Attachments: ZPMC-0572

cc: Rick Morrow, Gary Pursell, Peter Siegenthaler, Stanley Ku, Brian Boal, Jason Tom, Contract Files. Ching Chao

File: 05.03.06

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
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QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Changxing Island, Shanghai, P.R. China

Report No: NCR-000599

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 05-Jan-2010

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

NCR #: ZPMC-0572

Type of problem:

- Welding Concrete Other
- Welding Curing Procedural
- Joint fit-up Coating Other
- Procedural Procedural Description:

Bridge No: 34-0006

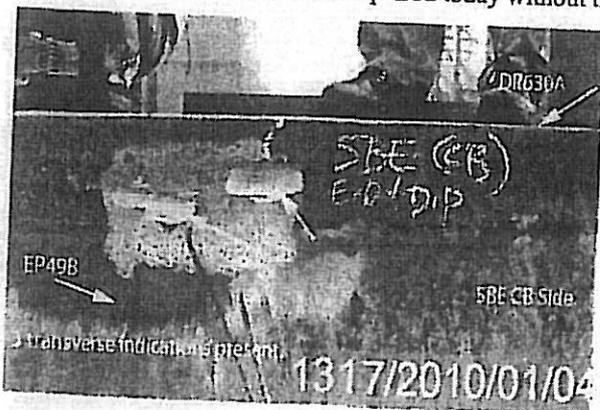
Component: OBG 5BE Deck Panel to Edge Plate

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Was QC Inspector aware of the problem: Yes No

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N/A

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 Mazen Wahbeh, +(86) 134.7247.7571, who represents the Office of Structural Materials for your project.

Inspected By: Carreon, Albert

Lead Reviewer/Task Leader

Reviewed By: Wahbeh, Mazen

SMR



关键焊缝返修报告
Critical Welding Repair Report (CWR)

版本
Rev. No.:

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	Lift 5E	报告编号 Report No.:	B-CWR1088
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	5BE + 5CE CA longitudinal corner weld	NDT 报告编号 NDT Report No.:	NA
项目编号 Project No.:	ZP06-787				

Description:

描述:

Per the result of further ultrasonic investigation to the EP to DP welds which revealed planar defects with significant flaw height characteristics, ABF and Caltrans performed the Re-Ultrasonic inspection and revealed planar linear indications by scanning pattern D for the corner assembly longitudinal welds.

Some indications in 2E were determined by ZPMC, ABFJV and CT to be transverse cracks and other kinds of defects after excavation.

The detail of the location and finding please find from the attached report and draft.

为了进一步调查焊缝内部的横向缺陷对结构的危害性, ABF和加州再次要求对单元单元的纵向成型焊缝进行UT的D向扫描, 并且所有的横向不超标点也要进行返修。

ABF和加州依据AWS D1.5第6.26.3.3(1), (2), (3)条规定的要求重新对焊缝进行UT的D向扫描时, 发现有部分不连续的存在, 其中包括超标点和不超标点。这些不连续通过三方在2E上的进一步碳刨等挖开方式验证, 存在各种内部缺陷, 包括裂纹。

具体的缺陷位置和描述详见附件报告和下述草图。

This procedure applies to the repair of all defects and other planar defects that are found by UT.

此返修程序适用于所有UT发现的超标点和不超标点的返修。

WJ No. 焊缝编号: SEG024*-035, SEG024*-037, CA023-002, CA023-004, CA023-006

Location位置: 2G/4G

Welding process焊接方法: SMAW

检验员 (Inspector): Li Liming 日期 (Date): 2010-1-14

焊缝返修位置示意图:

Draft of Welding Discontinuity:

见附件

See the attachment

1/15/10

Cause:

原因:

1. Some welder did not pay attention and weld complied with all requirements from the approved WPS.
个别焊工操作质量差, 未能符合批准WPS上所有的要求。
2. It is not fully controlled during the welding, especially there is not enough interpass cleaning.
焊缝烧焊过程中局部监控不到位。层间清理不彻底。

车间负责人 (Foreman): *Mark Wignan*

日期 (Date): *2010.1.14*

This document is APPROVED
 DEPARTMENT OF
 PUBLIC WORKS
 Singapore
 India *[Signature]* 1/15/10



Disposition:

处理方法:

1. Lay out location by ABF to remove the connection plate per sketch. Notify ABF and CT prior to removal to verify lay-out.
有 ABF 根据附图位置画出连接板割除位置。割除前通知 ABF 和加州。
2. Carefully remove connection plate per lay-out and save the cut piece for the replacement pieces
根据割除位置将连接板割除，并保留割除的连接板。
3. Verify with UT the repair locations based on CT "Y" location designations
根据已有的 UT 报告，有 ABF 或加州再次确定 Y 的位置。
4. Perform repair per the standard Edge Plate to Deck Plate weld repair procedure, including inspections
根据下文中描述的返修方法对 Y 位置的缺陷进行返修。
5. Replace the connection plate as shown in the sketch provided.
根据附图中的方案对连接板重新焊接。
6. Inspect connection plate weld to Edge Plate.
对连接板与角单元焊缝进行检验。

Provide notification to CT prior to laying out/performing repairs.

在定位/返修前通知CT。

1. Successful repairs are achievable only when careful application of all of the following process steps are carried out in sequence without variation.

只有当采用了如下所有的方法并按照顺序正确执行后，才可以成功得进行返修。

- a. Careful excavation of all defects and preparation of the repair site are paramount to a successful repair, and the grinding should be continuous unless a long portion of weld is removed
对超标和不起标的缺陷进行仔细得挖掘和焊接前对返修区域很好的处理是对成功得返修极为关键的。
- b. Provide positive controls and MT tests to ensure the complete removal of the defects.
提供正确得控制和MT检测，以确保缺陷完全被清除干净。
- c. Clean the repair site to remove foreign matter and debris before the start of any work.
在进行任何工作前，对返修区域清理干净。
- d. Apply preheat of at least 160°C to the repair and insure that the preheat covers a sufficient area of the repair.
对返修区域进行预热，并确保在足够的区域内达到足够的预热温度。
- e. Weld the repair in accordance to an approved welding procedure.
根据批准的WPS进行返修。
- f. Apply postheat blankets and heaters to maintain the proper postweld heat (at least 160°C) for the required time.
对返修后进行足够时间的后热处理，并使用电加热板进行。至少保证160°C。
- g. Allow parts to cool to ambient temperature and wait the required time (48 hours-minimum) before performing nondestructive evaluation of the repair site.
等构件冷却到室温并等待48小时后才能对返修区域进行NDT检测。

2. Excavation of the defect.

缺陷的挖掘清除

- a. Any contaminants present in the area to be repaired, such as rust, paint, UT gel etc, shall be removed before any gouging or grinding to remove the weld defect is done.
任何返修区域内的杂物，比如锈迹，油漆，UT的浆糊等，都应在对焊缝缺陷进行碳刨和打磨前清理干净。
- b. Using air-arc gouging or grinding to remove the weld defect including the material above and to either side of the defect to the prescribed limits. Removal shall be witnessed by the CWI and MT verify that the defect was located and totally removed.
使用碳刨或者打磨的方法对焊缝的缺陷清除，包括缺陷上部和左右的材料。碳刨过程需有CWI见证，确保缺陷的位置和缺陷完全被清除。之后再确认。

This document is CONTROLLED
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 410.107 of the
Standard Specifications

Initial: *JW* Date: 1/15/10

Disposition:

处理方法:

1) repair both sides of excavation

两面进行碳刨和返修

a. preheat repair area to 65°C prior to performing any gouging and grinding.

碳刨前预热至65度。

b. specify limit that the excavation to no more than 4mm per pass

每一道碳刨量深度不能大于4mm.

c. prepare excavation such that all metal is ground clean to a smooth, shiny metal finish and starts and stops are tapered to a 1:1 slope.

碳刨后将坡口打磨平滑, 且挖出的凹槽部分两个端头要有 1:1 的斜式过渡。

d. preheat to 160°C in accordance with table 1 and maintain this temperature throughout the entire repair procedure, including backgouging and welding of opposite side.

按照表一的要求预热到 160 度, 并且该温度要求持续整个焊接过程, 包括反面清根和反面的焊接。

e. weld first side of repair in accordance with the approved WPS.

按照批准的 WPS 进行第一个面的焊接。

f. excavate from the opposite side until sound weld metal is reached.

从反面进行碳刨和打磨直至露出金属光泽。

g. perform 100% MT of excavation to ensure crack has been removed entirely.

对碳刨出的坡口位置进行 100% 的 MT 检测, 确保裂纹清除干净。

h. prepare excavation such that all metal is ground clean to a smooth, shiny metal finish and starts and stops are tapered to a 1:1 slope.

对碳刨出的坡口要进行打磨平滑, 确保连个端头有 1:1 的斜式过渡。

i. weld opposite side of repair in accordance with the approved WPS.

按照 WPS 的要求进行反面的焊接。

j. after weld has been completed, apply post weld heat treatment (PWHT) in accordance with the temperature requirements of table 1 for a minimum of one hour.

焊接完成后, 按照表 1 的要求对焊缝进行后热处理, 处理时间至少 1 小时。

k. once repair has undergone the required PWHT, allow weld to cool gradually by automatic control of the heat machine. And the cooling speed has a maximum of 50°C per hour.

后热结束后, 需要对焊缝进行保温, 进行缓冷处理, 最大冷去速度为 50°C/h.

2) repairing in two stages 第2种返修方案

a. initial excavation 初步碳刨

i preheat repair area to 65°C prior to performing any gouging .

碳刨前加热到 65 度。

ii excavation of material shall be limited to no more than 4mm per pass.

碳刨的过程要注意每层刨除掉的焊缝厚度不能大于 4mm.

iii prepare excavation such that all metal is ground clean to a smooth, shiny metal finish and starts and stops are tapered to a 1:1 slope.

对碳刨出的坡口要进行打磨平滑, 确保连个端头有 1:1 的斜式过渡。

iv preheat to 160°C in accordance with table 1 and maintain this temperature throughout the entire repair procedure.

按照表一的要求预热到 160 度, 并且该温度要求持续整个焊接过程。

v weld first side of repair in accordance with the approved WPS.

按照批准的 WPS 进行第一个面的焊接。

vi after weld has been completed, apply PWHT in accordance with the temperature requirements of table 1 for a minimum of one hour.

焊接完成后, 按照表 1 的要求对焊缝进行后热处理, 处理时间至少 1 小时。

This document is APPROVED
Signed: [Signature]
DEPARTMENT OF TRANSPORTATION
Pursuant to Section 5-1.02 of the
Standard Specifications
Initial [Signature] Date: 1/15/10

vii once repair has undergone the required PWHT, allow weld to cool gradually by automatic control of the heat machine. And the cooling speed has a maximum of 50°C per hour. 后热结束后, 需要对焊缝进行保温, 进行缓冷处理, 最大冷去速度为 50°C/h.

b. repair of opposite side

反面的返修

i preheat repair area to 65°C prior to performing any gouging and grinding .

碳刨前加热到 65 度。

ii excavation of material shall be limited to no more than 4mm per pass.

碳刨的过程要注意每层刨除掉的焊缝厚度不能大于 4mm。

iii prepare excavation such that all metal is ground clean to a smooth, shiny metal finish and starts and stops are tapered to a 1:1 slope.

对碳刨出的坡口要进行打磨平滑, 确保连个端头有 1:1 的斜式过渡。

iv preheat to 160°C in accordance with table 1 and maintain this temperature throughout the entire repair procedure.

按照表一的要求预热到 160 度, 并且该温度要求持续整个焊接过程。

v perform 100% MT of excavation to ensure crack has been removed entirely.

100%MT 确保所有的裂纹已经彻底移除干净。

vi weld opposite side of repair in accordance with the approved WPS.

按照 WPS 的要求进行反面的焊接。

vii after weld has been completed, apply post weld heat treatment (PWHT) in accordance with the temperature requirements of table 1 for a minimum of one hour.

焊接完成后, 按照表 1 的要求对焊缝进行后热处理, 处理时间至少 1 小时。

viii once repair has undergone the required PWHT, allow weld to cool gradually by automatic control of the heat machine. And the cooling speed has a maximum of 50°C per hour. 后热结束后, 需要对焊缝进行保温, 进行缓冷处理, 最大冷去速度为 50°C/h.

h. When the weld defect appears to have been removed the groove shall be ground clean to bright metal and the excavation shall be tested for complete defect removal using 100% MT per approved procedure.

当缺陷看似被清理后, 对清理区域进行打磨到金属光泽并使用 100%MT 确认缺陷移除干净。

i. If all indications are removed, the weld defect is considered to have been removed. No welding shall begin except on two sided repairs until all 100% MT indications have been removed.

如果所有的 MT 指示均被移除, 则认为所有的缺陷均被移除。在 MT 指示均被移除之前, 不得进行任何焊接。除非是双面返修。

j. Once the proper depth is reached, the groove shall be tapered to the surface of the existing weld by grinding at a slope of 1 to 1. The excavation of the defect shall extend a minimum of 50mm beyond each end of the defect including the taper.

当碳刨达完成后, 碳刨表面应打磨成 1:1 的斜势。而且碳刨应在缺陷位置向两边各延伸 50mm, 包括斜势。

k. When all grinding is completed in the area to be repaired, a final 100%MT test will be run by QC personnel to verify that all indications have been removed.

返修区域打磨完成后, 应有 QC 进行 100%MT, 以确认所有的指示都已清除。

l. After the gouge is accepted by QC, the entire area shall be cleaned to remove all traces of loose debris and MT powder.

碳刨得到 QC 的验收后, 整个范围内的杂物比如小碎片和 MT 干磁粉等均需清理干净。

3. Welding.

焊接

a. Preheat shall be applied to the repair area in such a way that the entire area to be repaired and all adjacent material out to a distance of 75mm in all directions of excavation, heated to the higher of the appropriate value shown in Table 1. Preheat application is always stated as a minimum value. Higher preheat values may be required if the joint has too high a degree of restraint.

This document is APPROVED

DATE: 1/15/10

Signature: [Handwritten Signature]

Disposition:

处理方法:

必须对返修区域, 包括返修点周边 75mm 范围内进行预热, 预热温度应高于下面表 1 中的规定温度。预热温度要求始终只是一个最低值。如果接头的拘束应力很大的话, 也可以要求更高的预热温度值。

- b. SMAW filler metal shall be rated to a hydrogen level of H4 or better.
SMAW 焊材的扩散氢等级必须等于或低于 H4.
- c. The groove shall be filled using the approved SMAW or SAW filler metal in accordance with an approved WPS.
坡口应使用并根据批准的 SMAW 或者 SAW 进行焊接。
- d. d. Once the preheating process is started the repair area shall be maintained at this preheat level until all welding is completed. This includes any additional time to remove the defect from the second side gouge.
当预热开始直到焊接结束, 返修区域的温度应始终维持。这也包括从反面碳刨将缺陷移除的预热时间。
- e. The CWI shall verify that the welder understands all starts and stops which will impact fusion of the further pass are to be ground before an arc is struck on them to provide a means to tie the next weld pass into the end of the weld
CWI 应该确保焊工在层间清理时能对层间成型不好的位置进行适当的打磨, 以使下一道焊接能融合到前一道。
- f. Before welding over previously deposited metal, all slag shall be removed and the weld and adjacent base metal shall be brushed clean.
开始下一道焊接前, 所有的焊渣必须清理, 而且焊道和周边母材必须刷干净。
- g. Preheat shall be maintained on the repair continuously once it is first applied until the weld is complete and the postweld heating phase begins at once.
预热温度在整个返修过程中必须维持好, 直到焊接结束。结束后, 立即就开始后热处理。

4. Postweld Heat Treatment.

后热处理

- a. After welding is completed but before the temperature falls below that of the preheat value from Table 1, it shall be maintained at the post heat temperature shown in Table 1.
当焊接结束后, 等温度降到表1规定的最低预热温度前, 后热温度必须保持在表1中的规定温度。
- b. Post weld heating shall be maintained for a minimum of 1 hour.
后热处理至少1小时。
- c. After the post weld heating time has been reached the repair shall be cooled by removing the heating source and leaving the blankets in place or by another method that will insure the temperature is cooling down gradually. And the cooling speed has a maximum of 50°C per hour.
后热结束后, 通过移除加热源并用保温毯放在焊缝上或者其他方法, 使焊缝能够缓冷, 最大冷去速度为50°C/h.
- d. Per the specification require performing the Final UT, MT and Visual inspections, which shall be done at least after 48 hours have passed after the weld repair area has cooled to ambient temperature.
只有当焊缝冷却到室温后的48小时之后, 才能开始最终的UT, MT和VT检测。
- e. Perform all NDT in accordance with contract plans as well as ABF approved procedure by ABF/CT, ZPMC will coordinate.
返修结束之后, ABF和CT 按照标书要求和ABF批准的工艺对焊缝进行NDT检测, ZPMC进行配合。
- f. All inspection activities shall be documented which includes backgouge inspections.
所有的检验工作均应被记录成文件, 也包括碳刨的检验。

工艺: *Nixtiefang*
Technical Engineer:

2010.01.14

审核:
Approved By: *Lupankua*

日期:
Date: 11/14/10

Jan 1/15/10



关键焊缝返修报告

Critical Welding Repair Report (CWR)

版本
Rev. No.:

0

项目名称 Project Name:	美国海湾大桥 SFOBB	部件图号 Drawing No.:	Lift 5E	报告编号 Report No.:	B-CWR1088
合同号 Contract No.:	04-0120F4	部件名称 Item Name:	5BE + 6CE CA longitudinal corner weld	NDT 报告编号 NDT Report No.:	NA
项目编号 Project No.:	ZP06-787				

纠正措施:

Corrective Action to Prevent Re-occurrence:

- All new segments splice welds shall be strictly controlled by the Lead CWI
所有新的箱体拼缝的焊接应有LEAD CWI严格监控。
- All welding parameters shall be verified and recorded.
所有的焊接参数应被确认并记录成报告。
- Welds shall be made using SMAW (H4) and / or SAW only. FCAW WPS using Supercored 71H shall be approved by ABF JV prior to use. Elevated preheats and postheats may be required by this procedure above what is required for normal SMAW or SAW welding.
必须只能使用SMAW (H4) 和/或SAW进行焊接。FCAW的方法必须通过ABF的审核后才能使用。而且，FCAW的预热温度和后热温度可能相对普通的SMAW和SAW情况时，需要适当提高。
- ZPMC shall document and provide results of all the inspections conducted
ZPMC必须记录所有的检验，并将所有检验报告提交。
 - 100%VT of excavation and 50mm either side of the weld excavation.
对碳刨区域和两边50mm范围内碳刨后进行100%VT
 - 100%MT of excavation and 50mm either side of the weld excavation.
对碳刨区域和两边 50mm 范围内碳刨后进行 100%MT
 - Interpass cleaning.
层间清理
 - VT of repaired area.
返修区域返修后的VT
 - MT of repaired area.
返修区域返修后的MT
 - UT of repaired area.
返修区域返修后的UT
- All the new segment splice weld joint shall be under the fabrication and control according to the revised welding procedure which all agreed by three parties.
以后环缝烧焊要按照三方同意的最新的焊接工艺的要求进行生产和监控。

This document is APPROVED
 DEPARTMENT OF TRANSPORTATION
 Pursuant to Section 5-1.02 of the
 Standard Specifications
 Initial: *[Signature]* Date: 1/10/10

Table 1: Preheat & Postheat Requirements for Various Metal Thicknesses

表1 预热和后热温度表

Base Metal Thickness 母材厚度	Minimum Preheat 最低预热温度	Minimum Postheat 最低后热温度
T ≤ 40mm	160°C	160°C
40mm < T	200°C	200°C

车间负责人 (Foreman):

Mr. Rodriguez

日期 (Date):

2010-1-10

参照的 WPS 编号 Repair WPS No.:		WPS-345-SMAW-2 G(2F)-FCM-Repair -1 WPS-345-SMAW-4 G(4F)-FCM-Repair -1		工艺员 Technologist:		Mintefeng 2010.01.14	
返修 (碳刨) 前预热温度 Preheat Temperature Before Gouging:		85°C		返修的缺陷 Description of Discontinuity:		气孔, 夹渣, 裂纹	
焊前处理检查 Inspection Before Welding:		Acc		焊前预热温度 Preheat Temperature Before Welding:		185°C	
最大碳刨深度 Max. Depth of Gouge:		16 mm		碳刨总长 Total Length of Gouge:		7600 mm	
焊工 Welder:	044779	焊接类型 Welding Type:	SMAW	焊接位置 Position:	2G/4G		
焊接电流 Current:	178/156	焊接电压 Voltage:	24.5/23.4	焊接速度 Speed:	102/115		
返修后检查 Inspection After Repair:							
外观检查 VT Result:	Acc	检验员 Inspector:	L. Kanhu 07120701	日期 Date:	2010.1.18		
NDT 复检 NDT Result:		探伤员 NDT Person:		日期 Date:			
见证: Witness/Review:							
备注: Remark:							

#R787-QCP-900

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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, P.R. China**Report No:** NCS-000553**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 18-Mar-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0572**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: 05-Jan-2010**Description of Non-Conformance:**

During the Quality Assurance (QA) random in-process visual inspection of the OBG segments in the Trial Assembly area, this QA inspector discovered the following issue:

- ZPMC discovered three (3) transverse indications utilizing the Magnetic Particle (MT) method.
- Y location is approximately between 650~710mm measured from weld splice OBE5-006 on Cross Beam (CB) side.
- The Weld Joint is identified as: SEG24*-037 in Segment 5BE.
- The Edge Plate (EP) on the CB side of segment is identified as: EP49B
- The Deck Plate (DP) is identified as: DP630A.
- The steel material is designated as: A709 Grade 345 Seismic Performance Critical Member (SPCM).
- No approved welding procedure specification (WPS) was on site during the welding repair process.
- These excavation areas were repaired today without the prior approval of the Engineer.

Contractor's proposal to correct the problem:

Submit CWR for Engineer's approval detailing methods used for repair and perform NDT required to verify weld quality.

Corrective action taken:

Contractor submitted CWR detailing methods used for repair along with subsequent NDT report verifying weld is in conformance with Contract requirements.

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 Jim Simonis 152. 1675.3703, who represents the Office of Structural Materials for your project.

QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION

(Continued Page 2 of 2)

Inspected By: Simonis,Jim

Quality Assurance Inspector

Reviewed By: Wahbeh,Mazen

QA Reviewer