

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, P.R. China**Report No:** NCR-000660**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 28-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0631**Type of problem:**

| | | | |
|---------------------|-------------------|--|---|
| Welding | Concrete | Other | |
| Welding | Curing | Procedural | Bridge No: 34-0006 |
| Joint fit-up | Coating | Other | Component: Segment 8CE Floorbeam to Deck Stiffener |
| Procedural | Procedural | Description: Missed UT Indication by QC | |

Reference Description: Missed UT indication by QC on Segment 8CE Floorbeam to Deck Stiffener**Description of Non-Conformance:**

During the Quality Assurance Ultrasonic Testing (UT) review of welds located on Orthotropic Box Girder (OBG) segment 8CE, this Quality Assurance Inspector discovered the following issues:

- Two (2) Class "A" longitudinal indications measuring approximately 70mm and 220mm in length.
- The indication dB ratings are +4 and -3 respectively.
- Material thickness is 18mm.
- The depth of the indications are approximately 14mm and 11mm.
- The 1st weld is identified as SSD18-PP70-144 at Panel Point PP70 Crossbeam Side.
- The 2nd weld is identified as SSD17-PP69-136 at Panel Point PP69 Crossbeam Side.
- The welds are designated as Seismic Performance Critical Material (SPCM).
- The indications found are clearly marked near the weld.
- The Y locations are 70 mm and 0mm when measured from the deck plate.
- The welds are shown as fillet welds on the contract drawings but due to excessive gaps at the time of fit up were changed to Complete Joint Penetration (CJP) "T" joints.
- The 1st joint joining Floor beam FB28A(X12H) SPCM to Deck plate 'I' stiffener RS62HA (Non SPCM).
- The 2nd joint joining Floor beam FB24A (X25B) SPCM to Deck plate 'I' stiffener RS62HA (Non SPCM).
- Segment 8CE is located in the Segment Repair yard north of the blast shop.
- The Notice of Witness Inspection (NWIT) No. is 005144. The indication is located in an area previously tested and accepted by ZPMC Quality Control (QC) personnel. As per the contract documents, ZPMC's QC personnel are required to perform hundred (100%) percent UT inspection of this weld.

Applicable reference:

AWS D1.5-02 Section 6; Table 6.3 specifies a class "A" indication as having a rating of 10dBs and under for material thicknesses 8mm through 20mm.

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

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

Who discovered the problem: Subhasis Bera

Name of individual from Contractor notified: Li Min Kit

Time and method of notification: 10:30_01-28-10_Verbal

Name of Caltrans Engineer notified: Bill Howe, Ching Chao

Time and method of notification: 9:30_01-29-10_Verbal

QC Inspector's Name: Wang Xian Pin

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: | Tsang, Eric | SMR |
|----------------------|-------------|-----|

| | | |
|---------------------|---------------|-----|
| Reviewed By: | Wahbeh, Mazen | SMR |
|---------------------|---------------|-----|



DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
666 Feng Bin Road Room 708, Changxing Island
Shanghai 201913 PR China
Tel: 021-56856666 ext 207061 Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

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

Date: 29-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: 05.03.06-000620

Subject: NCR No. ZPMC-0631

Reference Description: Missed UT indication by QC on Segment 8CE Floorbeam to Deck Stiffener

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:** 08

Remarks:

- During the Quality Assurance Ultrasonic Testing (UT) review of welds located on Orthotropic Box Girder (OBG) segment 8CE, this Quality Assurance Inspector discovered the following issues:
- Two (2) Class "A" longitudinal indications measuring approximately 70mm and 220mm in length.
 - The indication dB ratings are +4 and -3 respectively.
 - Material thickness is 18mm.
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 - Segment 8CE is located in the Segment Repair yard north of the blast shop.
 - The Notice of Witness Inspection (NWIT) No. is 005144. The indication is located in an area previously tested and accepted by ZPMC Quality Control (QC) personnel. As per the contract documents, ZPMC's QC personnel are required to perform hundred (100%) percent UT inspection of this weld.

Please see attached NCR ZPMC-631 for details.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance with revised procedures to prevent future occurrences and provide documentation to show that the missed indications have been properly repaired to meet contract requirements.

NCT

(Continued Page 2 of 2)

Transmitted by: Ching Chao

Attachments: ZPMC-0631

cc: Rick Morrow, Gary Pursell, Contract Files, Ching Chao, Bill Howe

File: 05.03.06

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000620

Subject: NCR No. ZPMC-0631

Dated: 08-Feb-2010

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000562 Rev: 00

Contractor's Proposed Resolution:

Reference Resolution: The ABFJV QCM has instituted training sessions for ZPMC inspectors. In addition to training, ABF has purchased new equipment to standardize both ABF and ZPMC with the equipment used by Caltrans.

ZPMC and ABFJV have taken steps to reduce the number of both MT and UT missed indications. The ABFJV QCM has instituted training sessions for ZPMC inspectors to reinforce key points of performing UT and MT, the most recent was held in December 2009. The ZPMC Level III has conducted training with the inspectors as well. In addition to training, ABF has purchased new equipment to standardize both ABF and ZPMC with the equipment used by Caltrans. Examples of this are the powder bulbs with magnetic caps, and the same transducers used by Caltrans. Documents of the acceptable NDT will be provided when they are available at a later date. Based on this ZPMC requests that this NCR be approved with actions pending.

Submitted by: Ishibashi, Joshua

Attachment(s): ABF-NPR-000562R00;

Caltrans' comments:

Status: AAP

Date: 08-Feb-2010

AAP approved.

Submitted by: Howe, Bill

Date: 08-Feb-2010

Attachment(s):

Tool Box Training Agenda

Subject: MT Techniques

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

1. Safety

- a. Safety Glasses
- b. Gloves (if required)
- c. Knee Pads
- d. Electrical shock

2. Tools

- a. Lighting
- b. MT Powder. Red for ambient, Yellow for High Temperature.
- c. Powder Bulb
- d. Powder Blower
- e. MT Yoke Adequate working condition
- f. Pie Gage

3. Inspection Techniques

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



教育培训纪录

培训编号: MT-22-Dec-09

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

人员签到:

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



教育培训纪录

培训编号:

| | |
|---------|------------------------------|
| 培训内容: | UT复习培训教程 UT Techniques |
| 培训对象: | ZPMC UT GUYS |
| 授课人员: | STEVE LAWTON |
| 培训类型: | UT Refresher Training Agenda |
| 培训时间: | 2009. 12. 24. 16:30 |
| 计划培训地点: | ZPMC NDT OFFICE |

人员签到:

| 姓名 | 部门 | 姓名 | 部门 |
|-------------------|----------------|----|----|
| 戴斌 Dai Gouf sheng | 江江 Jiang Jiang | | |
| 薛宇 Xuellamang | 黄廷 Huang Ting | | |
| 马志长 Majzhang | 黄廷 Huang Ting | | |
| 谭善 Tanxingshan | 李黎明 Li Liming | | |
| 马建 Ma Jian | 李黎明 Li Liming | | |
| 王福 Wangfu | 徐坤 Xu Kun | | |
| 沈健 Sheng Jian | 李黎明 Li Liming | | |
| 黄宇 Huang Yu | | | |
| 金峰 Jin Feng | | | |
| 吴文 Wu Wen | | | |
| 解坤 Jie Kun | | | |
| 周海周 Zhou Hai Zhou | | | |
| 徐坤 Xu Kun | | | |

UT Refresher Training Agenda

Subject: UT Techniques

Reason for Training: Several CT NCR's for missed UT indications

1. **Safety**
 - a. Safety Glasses
 - b. Gloves (if required)
 - c. Knee Pads
 - d. Electrical Shock

2. **Tools**
 - a. Calibrated UT Machine condition of machine
 - b. Coaxial cable condition of cable
 - c. Transducer condition of transducer
 - d. IIW Block
 - e. Scraper
 - f. UT couplant

3. **Inspection Techniques**
 - a. Surface preparation
 - b. Location of weld UT from beveled plate
 - c. Scanning patterns
 - d. Correct choice of Angles
 - e. Calibration per ZPMC procedure at regular intervals
 - f. Scanning speed
 - g. Know where your sound is at.... First leg, second leg etc...

4. **Inspection Criteria**
 - a. Table 6.3 or Table 6.4
 - b. Are surface inspections complete VT and or MT should always occur before UT
 - c. Scanning Levels
 - d. Criteria dictated by the thinner of the two members
 - e. Planar flaws

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000620

Subject: NCR No. ZPMC-0631

Dated: 15-Mar-2010

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000562 Rev: 01

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has written an internal NCR for this incident and repaired the indications. Attached are the repair documents and NDT to show that the weld is acceptable.

ZPMC has written an internal NCR for this incident and repaired the indications. Attached are the repair documents and NDT to show that the weld is acceptable. Based on this ZPMC requests closures of this NCR.

Submitted by: Ishibashi, Joshua

Attachment(s): ABF-NPR-000562R01;

Caltrans' comments:

Status: CLO
Date: 18-Mar-2010

The documentation received is sufficient to close this NCR.

Submitted by: Howe, Bill

Attachment(s):

Date: 18-Mar-2010



No. B-671

LETTER OF RESPONSE

TO: American Bridge/Flour

DATE: 2010-3-15

REGARDING: NCR-000660(ZPMC-0631)

ZPMC acknowledged this problem and has issued internal NCR to warn the same cases. Repair has been completed. ZPMC is providing WRRs and NDT records show the welds are acceptable after repair. Based on this, ZPMC requests closure of this NCR.

ATTACHMENT:

NCR-000660(ZPMC-0631)

B-WR10558

B787-UT-11106 R1

B-WR10557

B787-UT-11105 R1

A handwritten signature in black ink, appearing to be "J. Z.", is located below the attachment list.

3/15/10

WR 10555
WR 10557



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: NCR 编号: NCR-B-437(ZPMC-0631) |
| Item: Miss UT Indication 名称描述: UT 漏检 | Item Number: 件号: | Drawing: 图号: 8CE |
| Location: 位置: 外场 | Date: 日期: 2010-02-09 | |

Description of Nonconformance:

During the Quality Assurance Ultrasonic Testing (UT) review of welds located on Orthotropic Box Girder (OBG) segment 8CE, this Quality Assurance Inspector discovered the following issues:

- Two (2) Class "A" longitudinal indications measuring approximately 70mm and 220mm in length.
- The indication dB ratings are +4 and -3 respectively.
- Material thickness is 18mm.
- The depth of the indications are approximately 14mm and 11mm.
- The 1st weld is identified as SSD18-PP70-144 at Panel Point PP70 Crossbeam Side.
- The 2nd weld is identified as SSD17-PP69-136 at Panel Point PP69 Crossbeam Side.
- The welds are designated as Seismic Performance Critical Material (SPCM).
- The indications found are clearly marked near the weld.
- The Y locations are 70 mm and 0mm when measured from the deck plate.
- The welds are shown as fillet welds on the contract drawings but due to excessive gaps at the time of fit up were changed to Complete Joint Penetration (CJP) "T" joints.
- The 1st joint joining Floor beam FB28A(X12H) SPCM to Deck plate 'I' stiffener RS62HA (Non SPCM).
- The 2nd joint joining Floor beam FB24A (X25B) SPCM to Deck plate 'I' stiffener RS62HA (Non SPCM).
- Segment 8CE is located in the Segment Repair yard north of the blast shop.
- The Notice of Witness Inspection (NWIT) No. is 005144. The indication is located in an area previously tested and accepted by ZPMC Quality Control (QC) personnel. As per the contract documents, ZPMC's QC personnel are required to perform hundred (100%) percent UT inspection of this weld.

在对 8CE 进行 UT 随机检验的过程中, 加州检验员发现以下问题:

两条“A”级纵向线性缺陷长度分别将近 70mm 和 220mm。dB 值分别是+4 和-3。板材厚度是 18mm。深度分别是 14mm 和 11mm。第一条焊缝是 SSD18-PP70-144 在联系梁侧。第二条焊缝是 SSD17-PP69-136 在联系梁侧。焊缝都是在 SPCM 材质上。Y 值从顶板开始测分别是 70mm 和 0mm。焊缝在图纸上显示是角焊缝但是由于间隙超标问题改成 CJP 焊缝。

第一条焊缝连接 FB28A (X12H) SPCM 材质至顶板 I 肋 RS62HA (非 SPCM 材质)。第二条焊缝是连接 FB24A (X25B) SPCM 材质至顶板 I 肋 RS62HA (非 SPCM 材质)。

该缺陷位置之前已经被 ZPMC UT 检验人员所检验并接受。

| | | |
|--|--|--|
| Work By: <i>Liziming</i> | Prepared by: <i>Zhangwei</i> | Reviewed by QCE: <i>Lu yanhua</i> |
| 施工方: <i>10.03.14</i> | 准备: <i>02/09/10</i> | 质量工程师批准: <i>2/9/10</i> |
| <input type="checkbox"/> Drawing Error | <input type="checkbox"/> Material Defect | <input type="checkbox"/> Fabrication Error |
| 图纸错误 | 材料缺陷 | 制作错误 |
| <input type="checkbox"/> Other | <input type="checkbox"/> Other | |
| | 其他原因 | |

| | | | |
|--------------|------------------------------------|---------------------------------|---------------------------------|
| Disposition: | <input type="checkbox"/> Use as is | <input type="checkbox"/> Repair | <input type="checkbox"/> Reject |
| 处理措施: | 回用 | 返修 | 拒收 |

Recommendation:

建议:

根据报告进行返修
Repair according to report.

Prepared by: 李松明 Li Songming 10.03.14
准备 质量经理批准 Approved by QCA:

Reason for Nonconformance:

不符合原因:

缺陷过大
Defect dB error.

Prevention of Re-occurrence:

预防措施:

发现缺陷时, A面不超过, B面进行确认
If it finds defect, Measure from face A and confirm from face B.
10.03.14
Li Songming
李松明

Approved by/批准: 李松明

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: _____



DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
666 Feng Bin Road Room 708, Changxing Island
Shanghai 201913 PR China
Tel: 021-56856666 ext 207061 Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

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

Date: 29-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: 05.03.06-000620

Subject: NCR No. ZPMC-0631

Reference Description: Missed UT indication by QC on Segment 8CE Floorbeam to Deck Stiffener

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: 08

Remarks:

During the Quality Assurance Ultrasonic Testing (UT) review of welds located on Orthotropic Box Girder (OBG) segment 8CE, this Quality Assurance Inspector discovered the following issues:

- Two (2) Class "A" longitudinal indications measuring approximately 70mm and 220mm in length.
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- Segment 8CE is located in the Segment Repair yard north of the blast shop.
- The Notice of Witness Inspection (NWIT) No. is 005144. The indication is located in an area previously tested and accepted by ZPMC Quality Control (QC) personnel. As per the contract documents, ZPMC's QC personnel are required to perform hundred (100%) percent UT inspection of this weld.

Please see attached NCR ZPMC-631 for details.

Action Required and/or Action Taken:

Propose a resolution for the identified non-conformance with revised procedures to prevent future occurrences and provide documentation to show that the missed indications have been properly repaired to meet contract requirements.

NCT

(Continued Page 2 of 2)

Transmitted by: Ching Chao

Attachments: ZPMC-0631

cc: Rick Morrow, Gary Pursell, Contract Files, Ching Chao, Bill Howe

File: 05.03.06

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

Contract #: 04-0120F4

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

Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.25B

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Changxing Island, Shanghai, P.R. China**Report No:** NCR-000660**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 28-Jan-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0631**Type of problem:**Welding Concrete Other Welding Curing Procedural **Bridge No:** 34-0006Joint fit-up Coating Other **Component:** Segment 8CE Floorbeam to Deck StiffenerProcedural Procedural **Description:** Missed UT Indication by QC**Reference Description:** Missed UT indication by QC on Segment 8CE Floorbeam to Deck Stiffener**Description of Non-Conformance:**

During the Quality Assurance Ultrasonic Testing (UT) review of welds located on Orthotropic Box Girder (OBG) segment 8CE, this Quality Assurance Inspector discovered the following issues:

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Applicable reference:

AWS D1.5-02 Section 6; Table 6.3 specifies a class "A" indication as having a rating of 10dBs and under for material thicknesses 8mm through 20mm.

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

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

Who discovered the problem: Subhasis Bera

Name of individual from Contractor notified: Li Min Kit

Time and method of notification: 10:30_01-28-10_Verbal

Name of Caltrans Engineer notified: Bill Howe, Ching Chao

Time and method of notification: 9:30_01-29-10_Verbal

QC Inspector's Name: Wang Xian Pin

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: Tsang, Eric SMR

Reviewed By: Wahbeh, Mazen SMR



焊缝返修报告

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Welding Repair Report

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| | | | | | |
|----------------------|-----------------|--------------------|-------------------------|-----------------------------|---------------|
| 项目名称 Project Name | 美国海湾大桥 SFOBB | 部件图号 Drawing No | SSD18 | 报告编号 Report No. | B-WR10558 |
| 合同号 Contract No. | 04-0120F4 | 部件名称 Items Name | 8CE CORNER ASS EMBLY | NDT报告编号 Report No.of NDT | B787-UT-11106 |
| 项目编号 Project No.: | ZP06-787 | | | | |

焊缝缺陷描述:

Description of welding discontinuity:

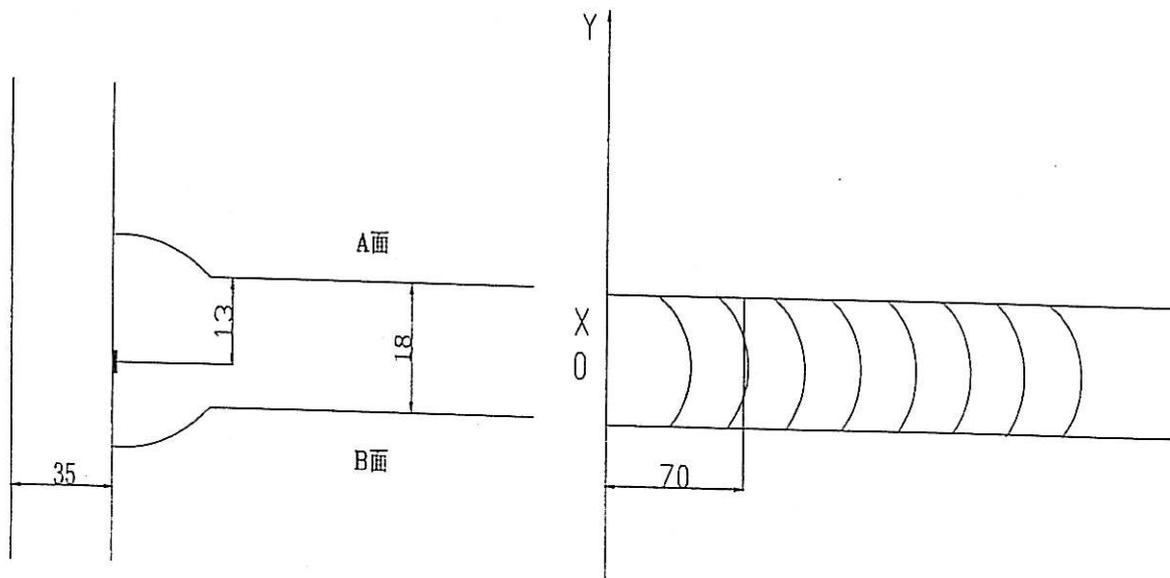
Rejected indication found by ultrasonic inspection is less than the maximum allowance aggregate length.

(UT探伤发现的缺陷总长度小于最大允许长度。) SSD18-PP70-144

检验员 (Inspector) : Zhou Haijun 日期(Date) : 2010.01.28

焊缝返修位置示意图:

Draft of welding discontinuity:



WELD NUMBER: SSD18-PP70-144

产生原因:

Caused:

1. 焊道未及时处理干净。
1. Did not clear the weld pass completely in time.

车间负责人(Foreman):

日期(Date):

Lacshiguan

10.1.30

处理意见

Disposition :

1. 从缺陷距离端面较近一侧 ($D \leq 0.65T$, D 为缺陷深度, T 为板厚) 采用碳刨或打磨的方法去除焊缝缺陷;
 2. 参照返修焊接工艺规程 (WPS) 准备正确的接头型式, 预热和焊接;
 3. 焊前对修补区域进行VT检测保证缺陷完全被清除;
 4. 将修补区域打磨到与母材或邻近焊缝平齐;
 5. 对焊缝进行UT检测, 检测范围为返修区域以及其两端各延长50mm。
-
1. Gouge or grind from nearer side from metal edge ($D \leq 0.65T$, "D" is depth of defects, "T" is thickness of metal) to remove all defects;
 2. Follow repair WPS for joint preparation, preheat, and weld deposit;
 3. Verify with VT no defects remain in the weld joint prior to welding;
 4. Grind the repaired area flush with base metal or the adjacent weld;
 5. Perform UT inspection to the weld along with 50mm on each end of the repair area;

工艺: *Hexiao*
Technical engineer

10.1.30

审核:
Approved by

日期
Date



焊缝返修报告

Welding Repair Report

版本 Rev. No.

0

| | | | | | |
|----------------------|-----------------|--------------------|--------------------------|-----------------------------|---------------|
| 项目名称 Project Name | 美国海湾大桥 SFOBB | 部件图号 Drawing No | SSD18 | 报告编号 Report No. | B-WR10558 |
| 合同号 Contract No.: | 04-0120F4 | 部件名称 Items Name | 8CE CORNER ASS EMBL Y | NDT报告编号 Report No.of NDT | B787-UT-11106 |
| 项目编号 Project No.: | ZP06-787 | | | | |

纠正措施:

Correction action to prevent re occurrence:

1.加强焊接监控和道间清理。

1. Improve monitoring of welding and interpass cleaning.

车间负责人(Foreman):

Maoshi Guan

日期(Date):

10.1.30

| | | | |
|--|--|---|-----------------------|
| 参照的WPS编号 Repair WPS No. | WPS-345+485-SM AW-3G(3F)-FCM- Repair-1 | 工艺员 technologist | ue stanlin 10.1.30 |
| 返修(碳刨)前预热温度 Preheat temperature before gouging | 75 | 返修的缺陷 Description of discontinuity | ZF |
| 焊前处理检查 Inspection before welding | All | 焊前预热温度 Preheat temperature before welding | 120 |
| 最大碳刨深度 Max. depth of gouging | 9 | 碳刨总长 Total length of gouging | 150 |
| 焊工 welder | 04472 | 焊接类型 welding type | SMAW |
| 焊接电流 Current | 181 | 焊接电压 Voltage | 24.5 |
| | | 焊接位置 position | 36 |
| | | 焊接速度 Speed | 165 |

返修后检查

Inspection After repairing:

| | | | | | |
|---------------------|-----|-------------------|------------------------|------------|----------|
| 外观检查 VT result | All | 检验员 Inspector | Zhuizhongqi 0702/01 | 日期 Date | 2010.3.9 |
| NDT复检 NDT result | Acc | 探伤员 NDT person | Huang Jing | 日期 Date | 10-3-9 |

见证:

Witness/Review:

备注:

Remark:



REPORT OF ULTRASONIC EXAMINATION

UT探伤报告

REPORT NO. 报告编号 B787-UT-11106 DATE 2010.01.28 PAGE 1 OF 1 Revision No: 0

PROJECT NO.: 工程编号 ZP06-787

ITEMS NAME: 8CE CORNER ASSEMBLY DRAWING NO.: SSD18 CONTRACTOR: CALTRANS

部件名称 图号 CALTRANS CONTRACT NO.: 04-0120F4

加州工程编号

REFERENCING CODE 参考规范 AWS D1.5-2002 ACCEPTANCE STANDARD 接受标准 AWS D1.5-2002(Table 6.3) PROCEDURE NO. 程序编号 ZPQC-UT-01

WELDING PROCESS 焊接方法 SMAW JOINT TYPE 焊缝类型 T-JOINT CALIBRATION DUE DATE 仪器校正有效期 Dec. 28ST, 2010

EQUIPMENT 设备 MANUFACTURER 制造商 PANAMETRICS MODEL NO. 样式编号 EPOCH-4B SERIAL NO. 序列编号 071565311, 061488510, 061495811, 070152011,

CALIBRATION BLOCK 试块 AWS IIV BLOCK TYPE II COUPLANT 耦合剂 C.M.C MATERIAL/THICKNESS 材料厚度 A709M-345T2-X 18/35mm

TRANSDUCER 探头

| MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 | MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 |
|------------------|----------|--------------|---------|------------------|----------|--------------|---------|
| Changchao | 70° | 2.5MHz | 18×18mm | | | | |
| Changchao | 0° | 2.5MHz | 20mm | | | | |

Base metal inspected per AWS D1.5-2002 Section 6.19.5 Reference Level 参考灵敏度 20dB

0° UT OK.

| WELD IDENTIFICATION 焊缝部件编号 | INDICATION NO. 指示号 | PROBE ANGLE 探测角度 | FROM FACE 检测面 | LEG (次数) | DECIBELS分贝 | | | | DISCONTINUITY 不连续性 | | | | | Discontinuity Evaluation 缺陷估计 | Remark 备注 |
|----------------------------|--------------------|------------------|---------------|----------|------------------|-----------------|--------------------|-------------------|-------------------------------------|----|----|---|-----------|-------------------------------|-----------|
| | | | | | Indication Level | Reference Level | Attenuation Factor | Indication Rating | LOCATION OF DISCONTINUITY 不连续位置(mm) | | | | | | |
| | | | | | | | | | a | b | c | d | Length 长度 | | |
| SSD18-PP70-144 | 1 | 70 | A | 1 | 43 | 32 | 1 | +10 | 70 | 35 | 13 | 0 | 0 | REJ. | 100% |

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EXAMINED BY 主探 Zhou Haidun REVIEWED BY 审核 Jin Feng

LEVEL - II SIGN / DATE 2010.1.28 LEVEL - II SIGN / DATE 2010.1.28

质量经理 / QCM 用户 CUSTOMER

签字 SIGN / 日期 DATE 签字 SIGN / 日期 DATE



REPORT OF ULTRASONIC EXAMINATION

UT探伤报告

REPORT NO. 报告编号 B787-UT-11106R1 DATE 2010.03.09 PAGE 1 OF 1 Revision No: 0

PROJECT NO.: 工程编号 ZP06-787 CONTRACTOR: CALTRANS

ITEMS NAME: 8CE CORNER ASSEMBLY DRAWING NO.: SSD18 CALTRANS CONTRACT NO.: 04-0120F4
 部件名称 图号 加州工程编号

REFERENCING CODE 参考规范 ACCEPTANCE STANDARD 接受标准 PROCEDURE NO. 程序编号
 AWS D1.5-2002 AWS D1.5-2002(Table 6.3) ZPQC-UT-01

WELDING PROCESS 焊接方法 JOINT TYPE 焊缝类型 CALIBRATION DUE DATE 仪器校正有效期
 SMAW T-JOINT Dec. 28ST, 2010

EQUIPMENT 设备 MANUFACTURER 制造商 MODEL NO. 样式编号 SERIAL NO. 序列编号
 UT SCOPE PANAMETRICS EPOCH-4B 071565311, 061488510, 061495811, 070152011,

CALIBRATION BLOCK 试块 COUPLANT 耦合剂 MATERIAL/THICKNESS 材料厚度
 AWS IIV BLOCK TYPE II C.M.C A709M-345T2-X 18/35mm

TRANSDUCER 探头

| MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 | MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 |
|------------------|----------|--------------|---------|-----------------------|----------|--------------|---------|
| Changchao | 70° | 2.5MHz | 18×18mm | | | | |
| Changchao | 0° | 2.5MHz | 20mm | Reference Level 参考灵敏度 | | | 20dB |

Base metal inspected per AWS D1.5-2002 Section 6.19.5 0° UT OK.

| WELD IDENTIFICATION 焊缝部件编号 | INDICATION NO. 指示号 | PROBE ANGLE 探测角度 | FROM FACE 检测面 | LEG (次数) | DECIBELS 分贝 | | | | DISCONTINUITY 不连续性 | | | | | Discontinuity Evaluation 缺陷估计 | Remark 备注 |
|-------------------------------|-----------------------|---------------------|------------------|----------|------------------|-----------------|--------------------|-------------------|--|------------------|-----------------------------|--------------|--------------|----------------------------------|--------------|
| | | | | | Indication Level | Reference Level | Attenuation Factor | Indication Rating | LOCATION OF DISCONTINUITY 不连续位置(mm) | | | | | | |
| | | | | | a | b | c | d | Length 长度 | Sound Path 声程 | Depth from Surface 距表面深度 | From X 距X | From Y 距Y | | |
| SSD18-PP70-144 | 1R1 | 70 | | | | 32 | | | | | | | | ACC. | 100% |

AFTER B-WR10558

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EXAMINED BY 主探 REVIEWED BY 审核
Huang jing *WJ chuo*
 LEVEL - I SIGN / DATE LEVEL - II SIGN / DATE

质量经理 / QCM 用户 CUSTOMER
 签字 SIGN / 日期 DATE 签字 SIGN / 日期 DATE



焊缝返修报告

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|----------------------|-----------------|--------------------|--------------------------|-----------------------------|---------------|
| 项目名称 Project Name | 美国海湾大桥 SFOBB | 部件图号 Drawing No | SSD17 | 报告编号 Report No. | B-WR10557 |
| 合同号 Contract No. | 04-0120F4 | 部件名称 Items Name | 8CE CORNER ASS EMBL Y | NDT报告编号 Report No.of NDT | B787-UT-11105 |
| 项目编号 Project No.: | ZP06-787 | | | | |

焊缝缺陷描述:

Description of welding discontinuity:

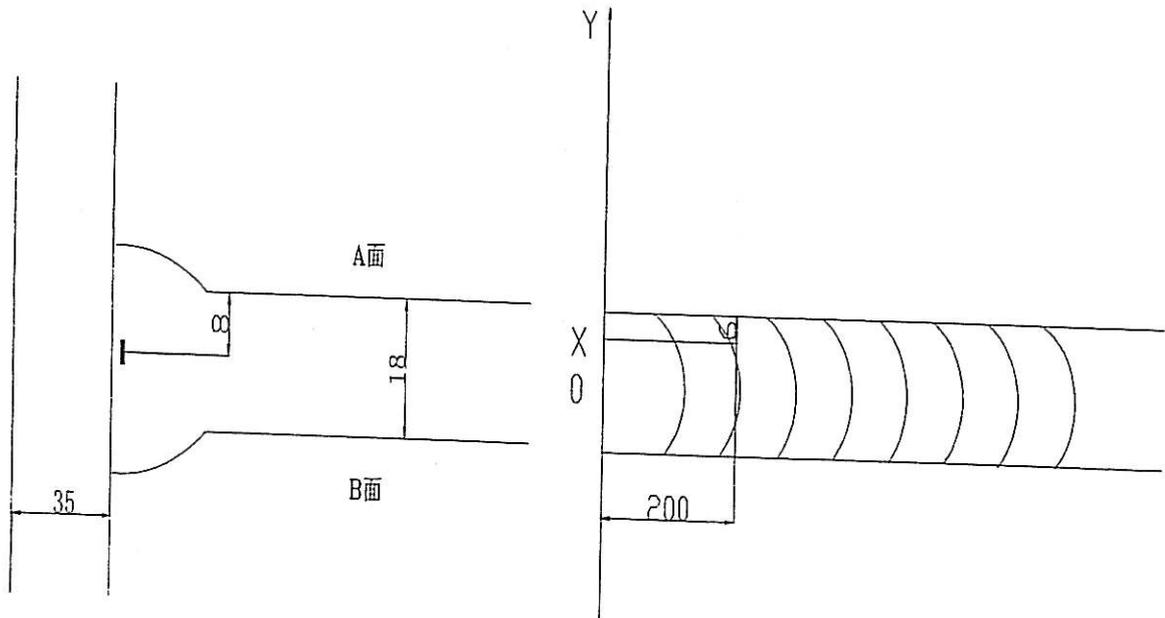
Rejected indication found by ultrasonic inspection is less than the maximum allowance aggregate length.

(UT探伤发现的缺陷总长度小于最大允许长度。) SSD17-PP69-136

检验员 (Inspector): Zhou Haijun 日期(Date): 2010.01.28

焊缝返修位置示意图:

Draft of welding discontinuity:



WELD NUMBER: SSD17-PP69-136

产生原因:

Caused:

1. 焊道未及时处理干净。
1. Did not clear the weld pass completely in time.

车间负责人(Foreman):

Kashiguan

日期(Date):

10.1.30

处理意见

Disposition:

1. 从缺陷距离端面较近一侧 ($D \leq 0.65T$, D 为缺陷深度, T 为板厚) 采用碳刨或打磨的方法去除焊缝缺陷;
 2. 参照返修焊接工艺规程 (WPS) 准备正确的接头型式, 预热和焊接;
 3. 焊前对修补区域进行VT检测保证缺陷完全被清除;
 4. 将修补区域打磨到与母材或邻近焊缝平齐;
 5. 对焊缝进行UT检测, 检测范围为返修区域以及其两端各延长50mm。
-
1. Gouge or grind from nearer side from metal edge ($D \leq 0.65T$, "D" is depth of defects, "T" is thickness of metal) to remove all defects;
 2. Follow repair WPS for joint preparation, preheat, and weld deposit;
 3. Verify with VT no defects remain in the weld joint prior to welding;
 4. Grind the repaired area flush with base metal or the adjacent weld;
 5. Perform UT inspection to the weld along with 50mm on each end of the repair area;

工艺:

Wenxiao Lin

Technical engineer

审核:

Approved by

日期

Date

10.1.30



焊缝返修报告

版本 Rev. No.

Welding Repair Report

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|----------------------|-----------------|--------------------|-------------------------|-----------------------------|---------------|
| 项目名称 Project Name | 美国海湾大桥 SFOBB | 部件图号 Drawing No | SSD17 | 报告编号 Report No. | B-WR10557 |
| 合同号 Contract No.: | 04-0120F4 | 部件名称 Items Name | BCE CORNER ASS EMBLY | NDT报告编号 Report No.of NDT | |
| 项目编号 Project No.: | ZP06-787 | | | | B787-UT-11105 |

纠正措施:

Correction action to prevent re occurrence:

1. 加强焊接监控和道间清理。

1. Improve monitoring of welding and interpass cleaning.

车间负责人(Foreman):

Lashiguan

日期(Date): 10.1.30

| | | | |
|--|--|---|----------------|
| 参照的WPS编号 Repair WPS No. | WPS-345+485-SM AW-3G(3F)-FCM- Repair-1 | 工艺员 technologist | 何志斌 10.1.30 |
| 返修(碳刨)前预热温度 Preheat temperature before gouging | 86 | 返修的缺陷 Description of discontinuity | IF |
| 焊前处理检查 Inspection before welding | ALL | 焊前预热温度 Preheat temperature before welding | 125 |
| 最大碳刨深度 Max. depth of gouging | 9 | 碳刨总长 Total length of gouging | 200 |
| 焊工 welder | 04472 | 焊接类型 welding type | SMBW |
| 焊接电流 Current | 188 | 焊接电压 Voltage | 26.3 |
| | | 焊接位置 position | 36 |
| | | 焊接速度 Speed | 181 |

返修后检查

Inspection After repairing:

| | | | | | |
|---------------------|-----|-------------------|-----------------------|------------|----------|
| 外观检查 VT result | ALL | 检验员 Inspector | Zhuzhonghai 07/2/1 | 日期 Date | 2010.3.9 |
| NDT复检 NDT result | ALL | 探伤员 NDT person | Huang Jing | 日期 Date | 10.3.9 |

见证:

Witness/Review:

备注:

Remark:



REPORT OF ULTRASONIC EXAMINATION

UT探伤报告

REPORT NO. 报告编号 B787-UT-11105 DATE 2010.01.28 PAGE 1 OF 1 Revision No: 0

PROJECT NO.: 工程编号 ZP06-787

ITEMS NAME: 8CE CORNER ASSEMBLY DRAWING NO.: SSD17 CONTRACTOR: CALTRANS
 部件名称 图号 加州工程编号

REFERENCING CODE 参考规范: AWS D1.5-2002 ACCEPTANCE STANDARD 接受标准: AWS D1.5-2002(Table 6.3) PROCEDURE NO. 程序编号: ZPQC-UT-01

WELDING PROCESS 焊接方法: SMAW JOINT TYPE 焊缝类型: T-JOINT CALIBRATION DUE DATE 仪器校正有效期: Dec. 28ST, 2010

EQUIPMENT 设备: MANUFACTURER 制造商: PANAMETRICS MODEL NO. 样式编号: EPOCH-4B SERIAL NO. 序列编号: 071565311, 061488510, 061495811, 070152011

CALIBRATION BLOCK 试块: AWS IIV BLOCK TYPE II COUPLANT 耦合剂: C.M.C MATERIAL/THICKNESS 材料厚度: A709M-345T2-X 18/35mm

TRANSDUCER 探头

| MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 | MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 |
|-----------------------|----------|--------------|---------|------------------|----------|--------------|---------|
| Changchao | 70° | 2.5MHz | 18×18mm | | | | |
| Changchao | 0° | 2.5MHz | 20mm | | | | |
| Reference Level 参考灵敏度 | | | | | | | 20dB |

Base metal inspected per AWS D1.5-2002 Section 6.19.5

0° UT OK.

| WELD IDENTIFICATION 焊缝部件编号 | INDICATION NO. 指示号 | PROBE ANGLE 探测角度 | FROM FACE 检测面 | LEG (次数) | DECIBELS分贝 | | | | DISCONTINUITY 不连续性 | | | | | Discontinuity Evaluation 缺陷估计 | Remark 备注 |
|----------------------------|--------------------|------------------|---------------|----------|------------------|-----------------|--------------------|-------------------|-------------------------------------|----|---|----|-----------|-------------------------------|-----------|
| | | | | | Indication Level | Reference Level | Attenuation Factor | Indication Rating | LOCATION OF DISCONTINUITY 不连续位置(mm) | | | | | | |
| | | | | | | | | | a | b | c | d | Length 长度 | | |
| SSD17-PP69-136 | 1 | 70 | A | 1 | 42 | 32 | 4 | +6 | 200 | 72 | 8 | -6 | 0 | REJ. | 100% |

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EXAMINED BY 主探: Zhou Haijun
 LEVEL - II SIGN / DATE 2010.1.28
 质量经理 / QCM
 签字 SIGN / 日期 DATE

REVIEWED BY 审核: Jin Feng
 LEVEL - II SIGN / DATE 2010.1.28
 用户 CUSTOMER
 签字 SIGN / 日期 DATE



REPORT OF ULTRASONIC EXAMINATION

UT探伤报告

REPORT NO. 报告编号 B787-UT-11105R1 DATE 2010.03.09 PAGE 1 OF 1 Revision No: 0

PROJECT NO.: 工程编号 ZP06-787 CONTRACTOR: CALTRANS

ITEMS NAME: 8CE CORNER ASSEMBLY DRAWING NO.: SSD17 CALTRANS CONTRACT NO.: 04-0120F4
 部件名称 图号 加州工程编号

REFERENCING CODE 参考规范 ACCEPTANCE STANDARD 接受标准 PROCEDURE NO. 程序编号
 AWS D1.5-2002 AWS D1.5-2002(Table 6.3) ZPQC-UT-01

WELDING PROCESS 焊接方法 JOINT TYPE 焊缝类型 CALIBRATION DUE DATE 仪器校正有效期
 SMAW T-JOINT Dec. 28ST, 2010

EQUIPMENT 设备 MANUFACTURER 制造商 MODEL NO. 样式编号 SERIAL NO. 序列编号
 UT SCOPE PANAMETRICS EPOCH-4B 071565311, 061488510, 061495811, 070152011,

CALIBRATION BLOCK 试块 COUPLANT 耦合剂 MATERIAL/THICKNESS 材料厚度
 AWS IIV BLOCK TYPE II C.M.C A709M-345T2-X 18/35mm

TRANSDUCER 探头

| MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 | MANUFACTURER 制造商 | ANGLE 角度 | FREQUENCY 频率 | SIZE 尺寸 |
|------------------|----------|--------------|---------|-----------------------|----------|--------------|---------|
| Changchao | 70° | 2.5MHz | 18×18mm | | | | |
| Changchao | 0° | 2.5MHz | 20mm | Reference Level 参考灵敏度 | | 20dB | |

Base metal inspected per AWS D1.5-2002 Section 6.19.5 0° UT OK.

| WELD IDENTIFICATION 焊缝部件编号 | INDICATION NO. 指示号 | PROBE ANGLE 探测角度 | FROM FACE 检测面 | LEG (次数) | DECIBELS分贝 | | | | DISCONTINUITY 不连续性 | | | | | Discontinuity Evaluation 缺陷估计 | Remark 备注 |
|-------------------------------|-----------------------|---------------------|------------------|----------|------------------|-----------------|--------------------|-------------------|--|---|---|---|--------------|----------------------------------|--------------|
| | | | | | Indication Level | Reference Level | Attenuation Factor | Indication Rating | LOCATION OF DISCONTINUITY 不连续位置(mm) | | | | | | |
| | | | | | | | | | a | b | c | d | Length 长度 | | |
| SSD17-PP69-136 | 1R1 | 70 | | | | 32 | | | | | | | | ACC. | 100% |

AFTER B-WR10557

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| | |
|--|---|
| EXAMINED BY 主探 <i>Huangjing</i> 2010-03-09 LEVEL <u>II</u> SIGN / DATE | REVIEWED BY 审核 <i>WU CHAO</i> 2010-03-09 LEVEL - II SIGN / DATE |
| 质量经理 / QCM _____ 签字 SIGN / 日期 DATE | 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, P.R. China**Report No:** NCS-000559**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 18-Mar-2010**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0631**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: 28-Jan-2010**Description of Non-Conformance:**

During the Quality Assurance Ultrasonic Testing (UT) review of welds located on Orthotropic Box Girder (OBG) segment 8CE, this Quality Assurance Inspector discovered the following issues:

- Two (2) Class "A" longitudinal indications measuring approximately 70mm and 220mm in length.
- The indication dB ratings are +4 and -3 respectively.
- Material thickness is 18mm.
- The depth of the indications are approximately 14mm and 11mm.
- The 1st weld is identified as SSD18-PP70-144 at Panel Point PP70 Crossbeam Side.
- The 2nd weld is identified as SSD17-PP69-136 at Panel Point PP69 Crossbeam Side.
- The welds are designated as Seismic Performance Critical Material (SPCM).
- The indications found are clearly marked near the weld.
- The Y locations are 70 mm and 0mm when measured from the deck plate.
- The welds are shown as fillet welds on the contract drawings but due to excessive gaps at the time of fit up were changed to Complete Joint Penetration (CJP) "T" joints.
- The 1st joint joining Floor beam FB28A(X12H) SPCM to Deck plate 'I' stiffener RS62HA (Non SPCM).
- The 2nd joint joining Floor beam FB24A (X25B) SPCM to Deck plate 'I' stiffener RS62HA (Non SPCM).
- Segment 8CE is located in the Segment Repair yard north of the blast shop.
- The Notice of Witness Inspection (NWIT) No. is 005144. The indication is located in an area previously tested and accepted by ZPMC Quality Control (QC) personnel. As per the contract documents, ZPMC's QC personnel are required to perform hundred (100%) percent UT inspection of this weld.

Contractor's proposal to correct the problem:

Repair said indications and perform NDT required to verify weld quality.

Corrective action taken:

Contractor submitted WRRs used to perform repairs along with subsequent NDT reports verifying the welds are in conformance with Contract specifications. An internal NCR was also issued by the Contractor in regards to this issue.

