

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-000427
Prime Contractor: American Bridge/Fluor Enterprises, a JV **Date:** 22-Sep-2009
Submitting Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0401

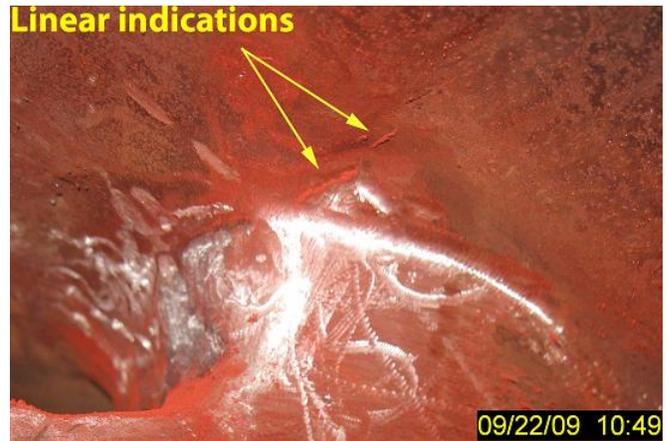
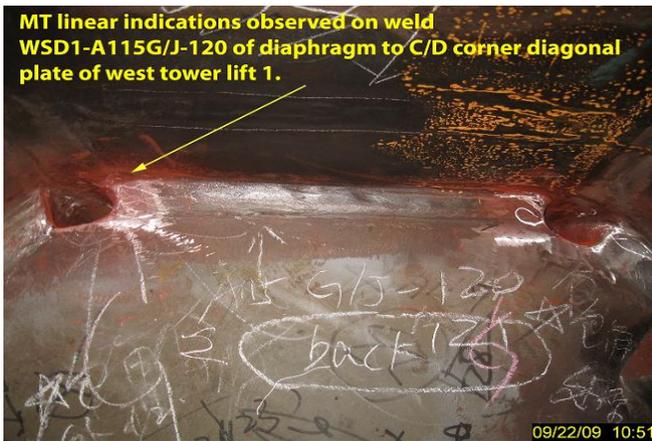
Type of problem:

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: West Tower
Procedural	Procedural	Description: West Tower, Lift 1	

Reference Description: Missed MT indications on West Tower, Lift 1, 43m Diaphragm to CD Diagonal Stiffener weld

Description of Non-Conformance:

During Magnetic Particle Testing (MT) of West Tower, Lift 1, 43m diaphragm to C/D corner diagonal stiffener weld WSD1-A115G/J-120, QA observed two (2) transverse linear indications of approximately 12mm and 4mm in length. This weld had been previously tested and accepted by ZPMC Quality Control personnel.



Applicable reference:

Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

AWS D1.5-2002 Section 6.26.2 – “Welds that are subject to MT in addition to visual inspection shall have no cracks.”

Who discovered the problem: Umesh Gaikwad

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Name of individual from Contractor notified: Luo Lai Quan

Time and method of notification: 9/22/2009, 14:00; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 9/23/2009, 10:00; E-mail

QC Inspector's Name: Zhao Mao Mao

Was QC Inspector aware of the problem: Yes No

Contractor's proposal to correct the problem:

Comments:

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By: Sinevod,Serge

ASMR

Reviewed By: Wahbeh,Mazen

SMR



DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge

333 Burma Road
Oakland CA 94607
Tel: Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

To:	AMERICAN BRIDGE/FLUOR, A JV 375 BURMA ROAD OAKLAND CA 95607	Date:	23-Sep-2009
Dear:	Mr. Charles Kanapicki	Contract No:	04-0120F4 04-SF-80-13.2 / 13.9
Attention:	Mr. Thomas Nilsson Project/Fabrication Manager	Job Name:	SAS Superstructure
Subject:	NCR No. ZPMC-0401	Document No:	05.03.06-000387

Reference Description: Missed Indications (MT) / West Shaft Lift 1 / 43m Diaphragm to CD Diagonal Stiffener / Transverse Indications

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:** 01

Remarks:

During Magnetic Particle Testing (MT) of West Tower, Lift 1, 43m diaphragm to C/D corner diagonal stiffener weld WSD1-A115G/J-120, QA observed two (2) transverse linear indications of approximately 12mm and 4mm in length. This weld had been previously tested and accepted by ZPMC Quality Control personnel.

Special Provisions Section 8.3 – “Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and to ensure that materials and workmanship conform to the requirements of the contract documents.”

AWS D1.5-2002 Section 6.26.2 – “Welds that are subject to MT in addition to visual inspection shall have no cracks.”

Action Required and/or Action Taken:

Propose a resolution for this systematic non-conformance that addresses the failure of Quality Control to identify the linear indications during magnetic particle testing of the welds. Provide documentation of the steps/actions taken by the Quality Control Manager to prevent future occurrences.

In addition to the Quality Control non-conformance, address the material/workmanship for the identified non-conformance including documentation that the deficiencies have been brought into compliance with the contract requirements. Additionally address the probable causes for the indications and the actions that will be taken to limit future occurrences.

Recent failures by Quality Control to identify linear indications (MT) have resulted in the issuance of NCR ZPMC-0358, ZPMC-0359, ZPMC-0371, ZPMC-0372, ZPMC-0373, ZPMC-0375, ZPMC-0376, ZPMC-0377, ZPMC-383, ZPMC-0384, ZPMC 0386, ZPMC-0387, ZPMC-0388, ZPMC-0389 and ZPMC-0390 related to Tower.

Transmitted by: Scott Kennedy Sr. Bridge Engineer

NCT

(Continued Page 2 of 2)

Attachments: ZPMC-0401

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

File: 05.03.06

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000387

Subject: NCR No. ZPMC-0401

Dated: 16-Oct-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000388 **Rev:** 00

Contractor's Proposed Resolution:

Reference Resolution: ABF JV QCM has implemented training with ZPMC to improve the quality of inspections. ABF JV will provide documentation showing attendance by ZPMC QC inspectors and the subject of training.

ABF JV QCM has implemented training with ZPMC to improve the quality of inspections. ABF JV will provide documentation showing attendance by ZPMC QC inspectors and the subject of training. Topics to be covered during the instruction are: inspection of equipment prior to use, proper conditions for inspection, proper technique for MT, and UT. In addition, ABF JV has committed to perform overchecks in both the Tower and OBG. This will serve two purposes, first to monitor if the training is effective at reducing the number of missed indications and second to ensure missed indications are prevented.

Documentation of repairs and subsequent NDT specific to this report will be transmitted through Daily Welding Reports and will be available in the documentation data base. Based on this course of action, ZPMC is requesting that this proposed resolution be approved with action pending. Once training records are available to be transmitted, ZPMC will request closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000388R00

Caltrans' comments:

Status: REJ

Date: 19-Oct-2009

Even though the course of action is acceptable, the department will not consider closure of this NCR (ZPMC-0383) until all the repair documents and training documents are submitted and reviewed.

Submitted by: Lee, Ken

Date: 19-Oct-2009

Attachment(s):

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000387

Subject: NCR No. ZPMC-0401

Dated: 24-Nov-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000388 Rev: 01

Contractor's Proposed Resolution:

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

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

Submitted by:

Attachment(s): ABF-NPR-000388R01;

Caltrans' comments:

Status: CLO

Date: 10-Dec-2009

The proposed resolution is acceptable. The Department concurs that Non-conformance ZPMC-0401 is closed.

Submitted by: Lee, Ken

Date: 10-Dec-2009

Attachment(s):



No. T-090

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2009-11-24

REGARDING: NCR-000427 (ZPMC-0401)

We ZPMC acknowledge this problem , About this situation we ZPMC at the first time issued the relative reports to do the repair work, when we finished the repair work ,the CT people confirmed that ,and accepted all the welds about the C/D corner diagonal stiffener weld . And Green tag was on the west tower lift 1 C/D corner diagonal stiffener.

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

ATTACHMENT:

NCR-000427 (ZPMC-0401)

REPORT OF MAGNETIC PARTICLE: T787-MT-6903,T787-MT-7010,

WR: T-WR2704,T-WR2726

Li Xiang
9.18.24

DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
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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-000427

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 22-Sep-2009

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

NCR #: ZPMC-0401

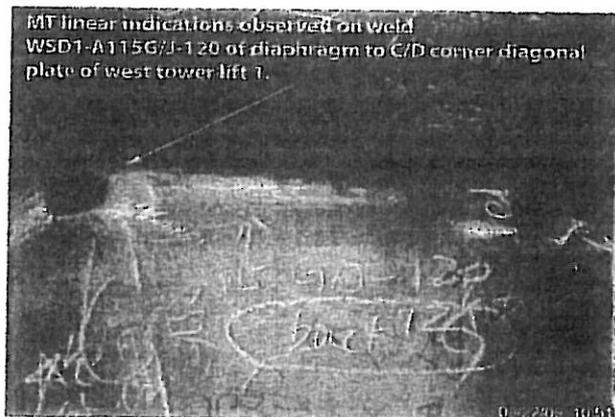
Type of problem:

Welding Concrete Other Welding Curing Procedural Bridge No: 34-0006Joint fit-up Coating Other Component: West TowerProcedural Description: West Tower, Lift 1

Reference Description: Missed MT indications on West Tower, Lift 1, 43m Diaphragm to CD Diagonal Stiffener weld

Description of Non-Conformance:

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Applicable reference:

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Who discovered the problem: Umesh Gaikwad

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Name of individual from Contractor notified: Luo Lai Quan

Time and method of notification: 9/22/2009, 14:00; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 9/23/2009, 10:00; E-mail

QC Inspector's Name: Zhao Mao Mao

Was QC Inspector aware of the problem: Yes No

Contractor's proposal to correct the problem:

Comments:

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Inspected By: Sinevod, Serge

ASMR

Reviewed By: Wahbeh, Mazen

SMR



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: 23-Sep-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: 05.03.06-000387

Subject: NCR No. ZPMC-0401

Reference Description: Missed Indications (MT) / West Shaft Lift 1 / 43m Diaphragm to CD Diagonal Stiffener / Transverse Indications

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- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

Material Location: Tower

Lift: 01

Remarks:

During Magnetic Particle Testing (MT) of West Tower, Lift 1, 43m diaphragm to C/D corner diagonal stiffener weld WSD1-A115G/J-120, QA observed two (2) transverse linear indications of approximately 12mm and 4mm in length. This weld had been previously tested and accepted by ZPMC Quality Control personnel.

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Transmitted by: Scott Kennedy Sr. Bridge Engineer

NCT

(Continued Page 2 of 2)

Attachments: ZPMC-0401

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

File: 05.03.06



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	WSD1-A115G/J	报告编号 Report No.	T-WR2704
合同号 Contract No.:	04-0120F4	部件名称 Items Name	西塔第一吊 First lifting west tower	NDT报告编号 Report No. of NDT	NA
项目编号 Project No.:	ZP06-787				

缺陷描述

Description of welding discontinuity:

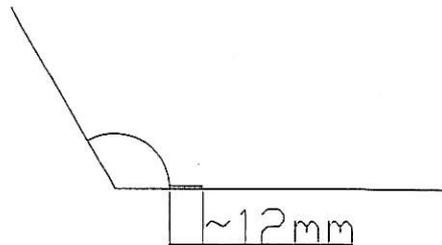
西塔第一吊装段43M隔板位置处CD角发现一线性缺陷，长约12MM，如图：

The linear defect was found at first lifting 43m diaphragm CD corner, 12mm in length, see draft.

检验员 (Inspector) : An Qinkiang 日期(Date) : 09.09.22

焊缝返修位置示意图：

Draft of welding discontinuity:



WSD1-A115G/J-120

产生原因:

Caused:

1. 火焰加热时, 水汽没有完全的去掉或者这个区域预热不够;
1. Moisture wasn't completely removed during drying operation (preheating) or the area wasn't preheated sufficiently.

车间负责人(Foreman): *Lishiqun* 日期(Date): *09.09.22*

处理意见

Disposition:

1. QC 须监控碳刨、打磨和焊接过程
 2. 碳刨去除缺陷并打磨光滑
 3. VT 检测以确保缺陷被清除
 4. 焊接须符合 WPS 要求
 5. 在进入下道焊缝前, QC 须确保所有焊渣都已被去除干净
 6. 打磨返修区域使其与临近焊缝或母材齐平
 7. 对返修区域进行 VT, MT 和 UT 检测
-
1. QC shall monitor gouging/grinding/welding
 2. Gouge defects & grind smoothly
 3. Verify that defects have been removed with VT
 4. Welding shall be in accordance with WPS
 5. QC shall ensure all slag is removed prior to deposition of subsequent weld passes
 6. Blend repair area with adjacent base metal
 7. Perform VT, MT, & UT to repaired area

工艺:
Technical engineer *Li chunqiang*

审核:
Approved by *Lu Jian huan.*

日期
Date *09.09.22*



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.	WSD1-A115G/J	报告编号 Report No.	T-WR2704
合同号 Contract No.:	04-0120F4	部件名称 Items Name	西塔第一吊 First lifting wes t tower	NDT报告编号 Report No.of NDT	NA
项目编号 Project No.:	ZP06-787				

纠正措施:

Correction action to prevent re occurrence:

1.返修前, QC确认有效的预热, 以将水汽全部去除。

1. QC shall verify sufficient preheat has been applied, to remove moisture, prior to welding.

车间负责人(Foreman):

日期(Date):

参照的WPS编号 Repair WPS No.	WPS-345+485-SMAW-1 G(1F)- Repair-2 WPS-345+485-SMAW-2 G(2F)- Repair-2	工艺员 technologist	Li chunping 9.22/24
返修(碳刨)前预热温度 Preheat temperature before gouging	NA	返修的缺陷 Description of discontinuity	线性缺陷
焊前处理检查 Inspection before welding	Am	焊前预热温度 Preheat temperature before welding	200℃
最大碳刨深度 Max. depth of gouging	NA	碳刨总长 Total length of gouging	NA
焊工 welder	202100	焊接类型 welding type	SMAW
焊接电流 Current	180	焊接电压 Voltage	25
		焊接位置 position	2G
		焊接速度 Speed	110
返修后检查 Inspection After repairing:			
外观检查 VT result	Am	检验员 Inspector	Aren 07120651
NDT复检 NDT result	MT Am	探伤员 NDT person	Cai xinxin
日期 Date		日期 Date	09.09.24
日期 Date		日期 Date	07.07.15
见证: Witness/Review:			
备注: Remark:			

#R787-QCP-900



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	WSD1-A115G/J	报告编号 Report No.	T-WR2726
合同号 Contract No.:	04-0120F4	部件名称 Items Name	西塔第一吊 The 1 st lifting Tower(W)	NDT报告编号 Report No.of NDT	NA
项目编号 Project No.:	ZP06-787				

缺陷描述

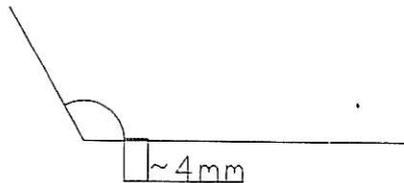
Description of welding discontinuity:

西塔第一吊装段43M隔板位置处CD角 (WSD1-A115G/J-120) 发现一线性缺陷, 长约4MM, 如图:
The linear defect was found at first lifting 43m diaphragm CD corner (WSD1-A115G/J-120), 4mm in length, see draft.

检验员 (Inspector): An Qingxiang 日期(Date): 09.09.23

焊缝返修位置示意图:

Draft of welding discontinuity:



WSD1-A115G/J-120

产生原因:

Caused:

1. 火焰加热时, 水汽没有完全的去掉或者这个区域预热不够;
1. Moisture wasn't completely removed during drying operation (preheating) or the area wasn't preheated sufficiently.

车间负责人(Foreman): *Li Shiquan* 日期(Date): *09.09.23*

处理意见

Disposition :

1. Gouge off the defect weld;
2. Grind smoothly the gouged surface;
3. If User's request ,check with VT or other NDT method to make sure the defect remove completely;
4. Preheat and the interpass temperature control according to the relative WPS-repair;
5. Check the welding according to the approved shop drawing.

- 1、请将有缺陷的焊缝碳刨去除;
- 2、将碳刨处打磨光滑;
- 3、如用户要求, 用 VT 或其它的无损检测方法证实缺陷被完全清除;
- 4、按批准后返修焊接工艺规程 WPS 要求进行预热和控制道间温度;
- 5、按图纸要求检测焊缝。

工艺: *Zhang Jitong*
Technical engineer

09.09.23 审核: *Lu Jianhua*
Approved by

日期
Date *09.9.23*



焊缝返修报告

Welding Repair Report

版本 Rev. No.

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纠正措施:

Correction action to prevent re-occurrence:

1.返修前, QC确认有效的预热, 以将水汽全部去除。

1. QC shall verify sufficient preheat has been applied, to remove moisture, prior to welding.

车间负责人(Foreman): *Lishiguan* 日期(Date): *09.09.23*

返修后检查
Inspection After repairing:

外观检查 VT result <i>An</i>	检验员 Inspector <i>An</i> <i>07120651</i>	日期 Date <i>09.09.24</i>
NDT复检 NDT result <i>MT An</i>	探伤员 NDT person <i>Cai Xincan</i>	日期 Date <i>09.09.24</i>

见证:
Witness/Review:

备注:
Remark:

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch
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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-000339**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 23-Nov-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0401**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: 22-Sep-2009**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) of West Tower, Lift 1, 43m diaphragm to C/D corner diagonal stiffener weld WSD1-A115G/J-120, QA observed two (2) transverse linear indications of approximately 12mm and 4mm in length. This weld had been previously tested and accepted by ZPMC Quality Control personnel.

Contractor's proposal to correct the problem:

Repair affected weld.

Corrective action taken:

Affected weld has been repaired, verified by QA, and green tagged. To resolve the recurring failure for QC to detect MT indications, ABFJV QCM has implemented training with ZPMC to improve quality of inspectors. Topics include: inspection of equipment prior to use, proper conditions for inspection, proper technique for MT & UT.

Did corrective action require Engineer's approval? Yes No**If so, name of Engineer providing approval:****Date:****Is Engineer's approval attached?** Yes No**Comments:**

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Inspected By: Sinevod, Serge

Quality Assurance Inspector

Reviewed By: Wahbeh, Mazen

QA Reviewer