

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-000412**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 21-Sep-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0386**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: South Tower
Procedural	Procedural	Description: South Tower, Lift 3	

Reference Description: Missed base metal MT indication in South Tower, Lift 3**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) of South Tower, Lift 3, 102.5 m Diaphragm to Skin C weld SSTL3-1H/K-12, QA discovered a 20mm long transverse linear indication in the base metal which was previously tested and accepted by ZPMC Quality Control personnel. ZPMC proceeded to excavated 3mm to 4mm deep to remove the base metal indication and repaired it without prior Engineer approval.

**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.

AWS D1.5-2002, Section 3.7.4 – “Prior approval of the engineer shall be obtained for repairs to base metal (other than those required by 3.2)...”

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Who discovered the problem: Nagalingam Pandaram Pillai
Name of individual from Contractor notified: Liu Cheng
Time and method of notification: 9/17/2009, 14:30; Verbal
Name of Caltrans Engineer notified: Scott Kennedy
Time and method of notification: 9/21/2009, 8:00; Verbal
QC Inspector's Name: Sun Tian Liang
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:	21-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-0386	Document No:	05.03.06-000374

Reference Description: Missed Indication (MT) & Repair Without Engineer Approval / South Shaft Lift 3 / Base Metal / Transverse Indication

The attached Non-Conformance Report describes an occurrence where the contractor did not comply with a requirement of the contract document as indicated below:

- Material or Workmanship not in conformance with contract documents.
- Quality Control (QC) not performed in conformance with contract documents.
- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

Material Location: Tower **Lift:** 03

Remarks:

During Magnetic Particle Testing (MT) of South Tower, Lift 3, 102.5 m Diaphragm to Skin C weld SSTL3-1H/K-12, QA discovered a 20mm long transverse linear indication in the base metal which was previously tested and accepted by ZPMC Quality Control personnel. ZPMC proceeded to excavated 3mm to 4mm deep to remove the base metal indication and repaired it without prior Engineer approval.

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.

AWS D1.5-2002, Section 3.7.4 – “Prior approval of the engineer shall be obtained for repairs to base metal(other than those required by 3.2)...”

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 indication during magnetic particle testing of the welds. Provide documentation of the steps/actions taken by the Quality Control Manager to prevent future occurrences.

Address the material/workmanship for the identified non-conformance including documentation that the deficiency has been brought into compliance with the contract requirements. Additionally address the probable causes for the indication and the actions that will be taken to limit future occurrences.

Furthermore address the failure by both Production and Quality Control in proceeding with the repair of the base metal without prior approval from the engineer. Provide documentation of the steps/actions taken by Production and Quality Control to prevent future occurrences.

Recent failures by Quality Control to identify linear indications (MT) have resulted in the issuance of NCR ZPMC-0358, ZPMC-0359,

NCT

(Continued Page 2 of 2)

ZPMC-0371, ZPMC-0372, ZPMC-0373, ZPMC-0375, ZPMC-0376, ZPMC-0377, ZPMC-383 and ZPMC-0384 related to Tower.

Transmitted by: Scott Kennedy Sr. Bridge Engineer

Attachments: ZPMC-0386

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: 05.03.06-000374

Subject: NCR No. ZPMC-0386

Dated: 16-Oct-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000382 **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-000382R00

Caltrans' comments:

Status: REJ

Date: 18-Oct-2009

Even though the course of action is acceptable, the department will not consider closure of this NCR (ZPMC-0386) until all the repair documents and training documents are submitted and reviewed.

Submitted by: Lee, Ken

Date: 18-Oct-2009

Attachment(s):

NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000374

Subject: NCR No. ZPMC-0386

Dated: 06-Nov-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000382 Rev: 01

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has removed the indications by grinding, tested the welds and found them acceptable. ZPMC requests closure of this NCR.

ZPMC has removed the indications by grinding, tested the welds and found them acceptable. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000382R01;

Caltrans' comments:

Status: AAP

Date: 08-Nov-2009

The Department finds the repair documents to be acceptable. However, all issues listed on the Department's transmittal letter need to be addressed.

Please address the failure of Quality Control to identify the linear indication during magnetic particle testing of the welds and provide documentation of the steps/ actions taken by the Quality Control Manager to prevent future occurrences. Please also address the probable causes for the indication and the action that will be taken to limit future occurrences. Furthermore, address the failure by both Production and Quality Control in proceeding with the repair of the base metal without prior approval from the engineer. Please provide documentation by Production and Quality Control of the steps/ actions taken to prevent future occurrences.

Submitted by: Lee, Ken

Date: 08-Nov-2009

Attachment(s):



No. T-073

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2009-11-6

REGARDING: NCR-000412(ZPMC-0386)

ZPMC received NCR-000412(ZPMC-0386), it mentioned QA discovered a 20mm long transverse linear indication in the base metal during MT of south tower, lift 3, 102.5m diaphragm to skin C weld SSTL3-1H/K-12.

ZPMC acknowledged this. When ZPMC received this information, the grinder was arranged and the indication was removed from the weld surface. ZPMC MT technician and CT inspector retested the weld subsequently.

So ZPMC hope Caltrans could take a review and close this NCR basing on attached document.

ATTACHMENT:

NCR-000412(ZPMC-0386)

T787-MT-5917

Picture of CT verification


2009-11-6



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: 21-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: 05.03.06-000374
Subject: NCR No. ZPMC-0386

Reference Description: Missed Indication (MT) & Repair Without Engineer Approval / South Shaft Lift 3 / Base Metal / Transverse Indication

The attached Non-Conformance Report describes an occurrence where the contractor did not comply with a requirement of the contract document as indicated below:

- Material or Workmanship not in conformance with contract documents.
- Quality Control (QC) not performed in conformance with contract documents.
- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

Material Location: Tower

Lift: 03

Remarks:

During Magnetic Particle Testing (MT) of South Tower, Lift 3, 102.5 m Diaphragm to Skin C weld SSTL3-1H/K-12, QA discovered a 20mm long transverse linear indication in the base metal which was previously tested and accepted by ZPMC Quality Control personnel. ZPMC proceeded to excavated 3mm to 4mm deep to remove the base metal indication and repaired it without prior Engineer approval.

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.

AWS D1.5-2002, Section 3.7.4 – "Prior approval of the engineer shall be obtained for repairs to base metal (other than those required by 3.2)..."

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 indication during magnetic particle testing of the welds. Provide documentation of the steps/actions taken by the Quality Control Manager to prevent future occurrences.

Address the material/workmanship for the identified non-conformance including documentation that the deficiency has been brought into compliance with the contract requirements. Additionally address the probable causes for the indication and the actions that will be taken to limit future occurrences.

Furthermore address the failure by both Production and Quality Control in proceeding with the repair of the base metal without prior approval from the engineer. Provide documentation of the steps/actions taken by Production and Quality Control to prevent future occurrences.

Recent failures by Quality Control to identify linear indications (MT) have resulted in the issuance of NCR ZPMC-0358, ZPMC-0359,

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-000412

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 21-Sep-2009

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

NCR #: ZPMC-0386

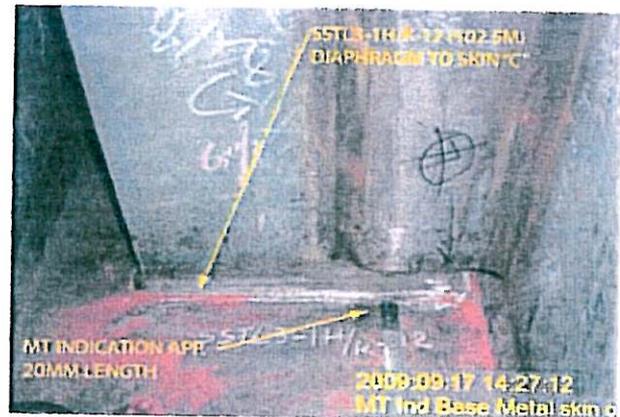
Type of problem:

- Welding Concrete Other
 Welding Curing Procedural Bridge No: 34-0006
 Joint fit-up Coating Other Component: South Tower
 Procedural Procedural Description: South Tower, Lift 3

Reference Description: Missed base metal MT indication in South Tower, Lift 3

Description of Non-Conformance:

During Magnetic Particle Testing (MT) of South Tower, Lift 3, 102.5 m Diaphragm to Skin C weld SSTL3-1H/K-12, QA discovered a 20mm long transverse linear indication in the base metal which was previously tested and accepted by ZPMC Quality Control personnel. ZPMC proceeded to excavated 3mm to 4mm deep to remove the base metal indication and repaired it without prior Engineer approval.



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.
- AWS D1.5-2002, Section 3.7.4 – “Prior approval of the engineer shall be obtained for repairs to base metal (other than those required by 3.2)...”



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-5917 DATE日期 2009.09.19 PAGE OF页码 1/1 Revision No: 0

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

DRAWING NO. 图号: SSTL3-1H/K The 3rd lifting Tower(S) Skin C CALTRANS CONTRACT NO.: 加州工程编号 04-0120F4

REFERENCING CODE 参考规范编码 AWS D1.5-2002	ACCEPTANCE STANDARD 接受标准 AWS D1.5-2002	PROCEDURE NO. 程序编号 ZPQC-MT-01	CALIBRATION DUE DATE 仪器校正有效期 Dec. 28 ST , 2009
--	---	----------------------------------	--

EQUIPMENT 设备 MT YOKE	MANUFACTURER 制造商 PARKER	MODEL NO. 样式编号 B310S	SERIAL NO. 连续编号 5620 5395 5617
-------------------------	----------------------------	-------------------------	-----------------------------------

MAGNETIZING METHOD 磁化方法	Continuous magnetic yoke 磁轭式连续法	CURRENT 电流	AC
-------------------------	---------------------------------	------------	----

PARTICLE TYPE 磁粉类型	Dry magnet powder 干磁粉	YOKE SPACING 磁轭间距	70~150mm
--------------------	-----------------------	-------------------	----------

MATERIAL TO BE EXAMINED 检测材料	<input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材,厚度	A709M-345T2-Z 60/90/38mm
------------------------------	---	----------------------------	-----------------------------

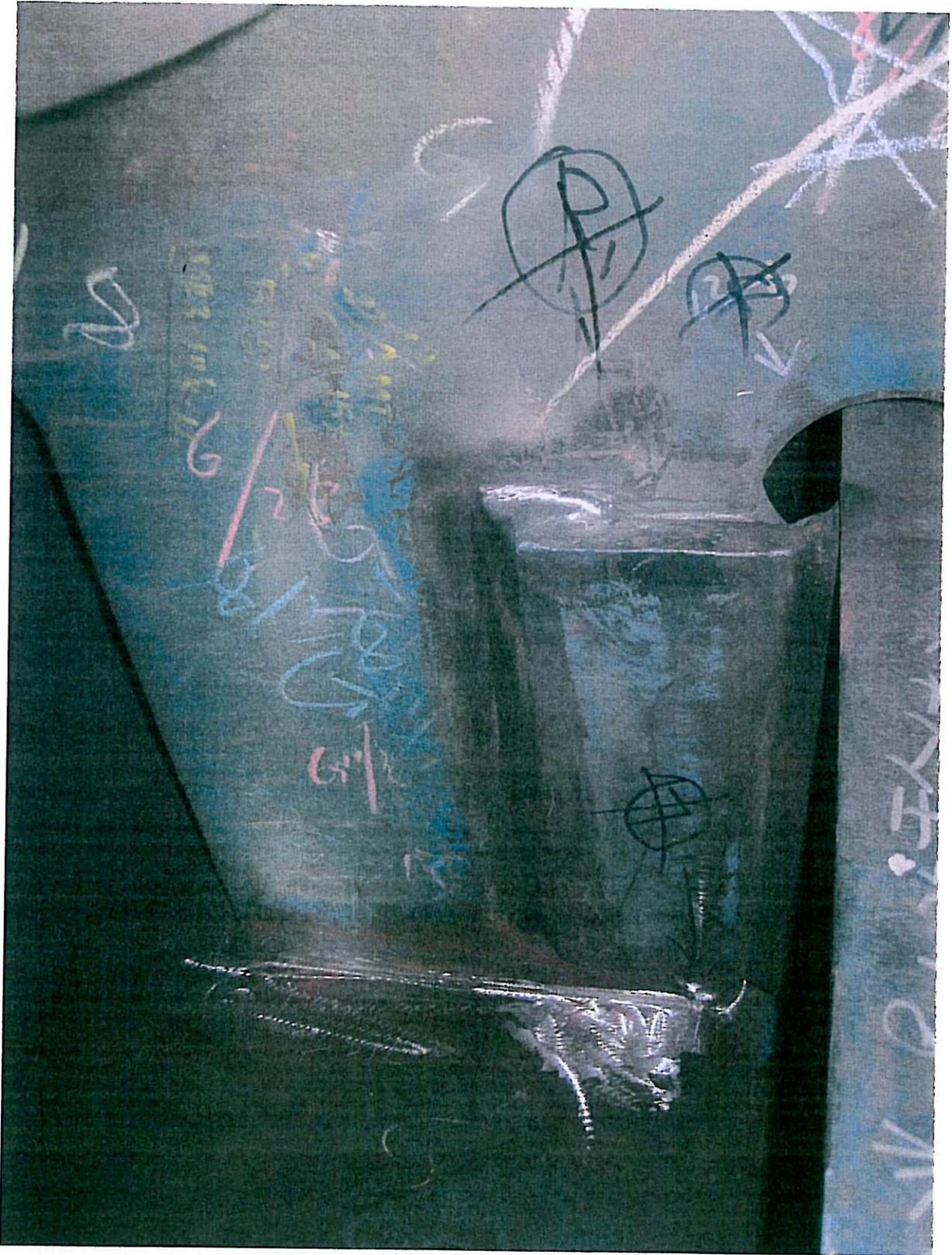
WELDING PROCESS 焊接方法	FCAW	TYPE OF JOINT 焊缝类型	T-JOINT
----------------------	------	--------------------	---------

WELD I.D. 焊缝编号	DISCONTINUITY不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度			
SSTL3-1H/K-12				ACC.		100%MT
SSTL3-1H/K-13				ACC.		100%MT
SSTL3-1H/K-88				ACC.		100%MT
SSTL3-1H/K-89				ACC.		100%MT

BLANK

EXAMINED BY 主探 Xu Hai Xu Hai 09.29.19. LEVEL-II SIGN 签名 / DATE日期	REVIEWED BY 审核 Cai Xin Xin 09.29.19. LEVEL-II SIGN / DATE日期
--	---

质量经理 / QCM Lu Hanhua 09.29.19 签字 SIGN / 日期 DATE	用户CUSTOMER _____ 签字 SIGN / 日期 DATE
---	--



NCR PROPOSED RESOLUTION

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

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000374

Subject: NCR No. ZPMC-0386

Dated: 09-Dec-2009

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000382 **Rev:** 02

Contractor's Proposed Resolution:

Reference Resolution: In order to improve identification of these indications ABFJV's QCM has conducted training with ZPMC's MT inspectors and submitted the training agenda and sign in sheet to the Department.

The ZPMC QC and QA Departments are aware of the high number of missed indications in the Tower. In order to improve identification of these indications ABFJV's QCM has conducted training with ZPMC's MT inspectors and submitted the training agenda and sign in sheet to the Department. ZPMC Production has been reminded that base metal repairs require the Engineer's approval prior to beginning, ZPMC QC has acknowledged their responsibility in ensuring that repairs which require Engineer approval have the proper documentation. Refresher training will be conducted to continue the emphasis on performing quality inspections. In addition, ABFJV has implemented NDT verification of welds in the Tower to ensure that welds are acceptable prior to being inspected by the Engineer. Based on these actions, ZPMC requests closure of this NCR.

Submitted by: Ishibashi, Joshua

Attachment(s): ABF-NPR-000382R02

Caltrans' comments:

Status: CLO
Date: 09-Dec-2009

The proposed resolution is acceptable. The Department concurs that Non-conformance ZPMC-0386 is closed.

Submitted by: Lee, Ken

Attachment(s):

Date: 09-Dec-2009

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000325**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 10-Nov-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0386**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: 21-Sep-2009**Description of Non-Conformance:**

During Magnetic Particle Testing (MT) of South Tower, Lift 3, 102.5 m Diaphragm to Skin C weld SSTL3-1H/K-12, QA discovered a 20mm long transverse linear indication in the base metal which was previously tested and accepted by ZPMC Quality Control personnel. ZPMC proceeded to excavated 3mm to 4mm deep to remove the base metal indication and repaired it without prior Engineer approval.

Contractor's proposal to correct the problem:

Repair affected area and submit NDT reports documenting the repair.

Corrective action taken:

The base metal has been repaired and NDT reports indicating base metal soundness have been submitted. 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. In addition, ABFJV is performing weld over-checks.

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.

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

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

Inspected By: Sinevod, Serge

Quality Assurance Inspector

Reviewed By: Wahbeh, Mazen

QA Reviewer