

**DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES  
MATERIALS ENGINEERING AND TESTING 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

FAX: (707) 649-5493



Contract # : 04-0120E4

Cty SF Rte 80 PM 13.4/13.8

File # 1.25 B

**QUALITY ASSURANCE - NONCONFORMANCE REPORT****Location:** E2E Foundation Footing, pile 6, plate D, weld-1**Date:** 01-17-07**Prime Contractor:** Kiewit/FCI/Manson-KFM-JV**NCR #135****Submitting Contractor:** Kiewit/FCI/Manson-KFM-JV**Type of problem:****Welding**  **Concrete**  **Other** **Welding:**  **Curing:**  **Procedural:**  **Bridge No.** 34-006 L / R**Joint fit-up:**  **Coating:**  **Other:**  **Component:** E2E foundation footing**Procedural:**  **Procedural:**  Loss of preheat temperature**Description of Non-Conformance:** The Contractor failed to maintain the preheat temperature during the welding of E2 pile head connector plate as required by the Caltrans Special Provisions, Section 10-1.31, Field Welding of Pile/Sleeve Connector Plates, Line F. The loss in preheat occurred on pile head connection plate (PHCP) pile 6, plate D, weld-1. The root pass weld had been deposited at the time the temperature dropped below 250-degrees F.**Applicable reference:** Caltrans Special Provisions**Who discovered the problem:** QC Inspector Dave Aultman**Name of individual from Contractor notified:** KFM Weld Superintendent, Dennis Winter**Time and method of notification:** 15:30 via telephone**Name of Caltrans Engineer notified:** Mark Vilcheck, Caltrans Structures Representative**Time and method of notification:** January 17, 2007 via telephone**QC Inspector's Name:** Dave Aultman**Was the QC Inspector aware of problem:** Yes**Contractor's proposal to correct the problem:****Comments:** This report is for the purpose of determining general 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 Ryan Smith, (858) 232-6799,, who represents the Office of Structural Materials for your project.Inspected By: Sherri Brannon *Bill Levell FOR Sherri Brannon*

Quality Assurance Inspector

Reviewed By: Bill Levell

Lead QA Reviewer

**DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES  
MATERIALS ENGINEERING AND TESTING 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

FAX: (707) 649-5493

Contract # : 04-0120E4  
Cty SF Rte 80 PM 13.4/13.8  
File # 1.25A**QUALITY ASSURANCE - NONCONFORMANCE RESOLUTION****Location:** SFOBB Jobsite**Date:** February 26, 2007**Prime Contractor:** Kiewit/FCI/Manson (KFM) – Joint Venture**NCR #** 135**Submitting Contractor:** Kiewit/FCI/Manson (KFM) – Joint Venture**Type of problem:**

<b>Welding</b>	<input checked="" type="checkbox"/>	<b>Concrete</b>	<input type="checkbox"/>	<b>Other</b>	<input checked="" type="checkbox"/>
<b>Welding:</b>	<input type="checkbox"/>	<b>Curing:</b>	<input type="checkbox"/>	<b>Procedural:</b>	<input type="checkbox"/>
<b>Joint fit-up:</b>	<input type="checkbox"/>	<b>Coating:</b>	<input type="checkbox"/>	<b>Other:</b>	<input checked="" type="checkbox"/> Loss of preheat temperature
<b>Procedural:</b>	<input checked="" type="checkbox"/>	<b>Procedural:</b>	<input type="checkbox"/>		

**Bridge No.** 34-0006L/R**Component** E2 Foundation Footing**Date nonconformance report was written:** January 17, 2007**Description of Non-Conformance:** The Contractor failed to maintain the preheat temperature during the welding of E2 pile head connection plates (PHCP) as required by Caltrans Special Provisions, Section 10-1.31, Field Welding of Pile/Sleeve Connector Plates, Line F. The loss of preheat occurred at the location identified as Pile 6, Plate D, Weld Number One.**Contractor's proposal to correct the problem:** The Contractor has implemented additional measures to prevent future occurrences of loss of preheat, such as elevation of the issue to the supplier of the heating equipment, periodic monitoring of the preheat consoles and monitoring by the night shift tug operators, and increased verification by the welders and Quality Control (QC) personnel during welding operations.**Corrective action taken:** The root pass weld was removed by grinding and air carbon arc gouging.**Did corrective action require Engineer's approval?**  Yes  No**If so, name of the Engineer providing approval:** Structural Materials Representative (SMR) **Date:** 2-26-07  
Ryan Smith, in accordance with response to KFM Letter.**Is Engineer's approval attached:**  Yes  No**Comments:** This report is for the purpose of determining general 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 Ryan Smith, (858) 232-6799, who represents the Office of Structural Materials for your project.Inspected By: Bill Levell *Bill Levell*

Quality Assurance Inspector

Reviewed By: Ryan Smith *Ryan Smith*

Structural Materials Representative (SMR)

**DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge Program**

333 Burma Rd.  
Oakland, CA 94607  
(510) 286-0538, (510) 286-0550 fax



Kiewit-FCI-Manson, JV  
220 Burma Rd.  
Oakland, CA 94607

February 26, 2007

Attn: Mr. Kevin Carpenter  
Welding Quality Control Manager

Contract No. 04-0120E4  
04-SF-80-13.4, 13.8  
SAS T1 & E2 Foundations  
SFOBB-ESSSP

Letter No. 05.003.01-002901

Subject: Response to Kiewit-FCI-Manson Letter Nos. 229, 230, 234, 238, 239, 240, 241, and 242

Dear Kevin,

The Department has reviewed Kiewit-FCI-Manson (KFM) Letter Nos. 229, 230, 234, 238, 239, 240, 241, and 242, which respond to the Department's Letter Nos. 2542, 2543, 2544, 2569, 2654, 2655, 2836, 2795, 2804, 2806, and 2807. These Department's letters notified KFM of the Non Conformance Reports (NCRs) at the SAS T1/E2 Foundations project site concerning the loss of preheat during the welding of the Pier E2 pile/sleeve connection plates. Regarding the above-mentioned KFM's letters, the Department takes no exception to the preventive measures and corrective actions taken by the Contractor. However, the Department will continue to monitor the preheat temperatures and future instances of preheat nonconformance will result in NCRs. The Department expects that the Contractor will take necessary action to further maintain the preheat temperatures as required by Section 10-1.31, "Steel Structures," of the Special Provisions.

The Department considers the NCRs generated by the Department's Letter Nos. 2542, 2543, 2544, 2569, 2654, 2655, 2836, 2795, 2804, 2806, and 2807 closed.

If you have any questions or need additional information, please contact Mark Vilcheck at (510) 286-0526.

Sincerely,

Mark Woods  
Senior Bridge Engineer

For: Pedro J. Sanchez  
Resident Engineer

cc: M. Vilcheck  
P. Sanchez  
R. Smith

file: 05.003.01, 09.006.03

# Memorandum

*Flex your power!  
Be energy efficient!*

To: MARK VILCHECK  
Structure Representative  
333 Burma Road  
Oakland, CA 94607

Date: February 26, 2007

File: 04-0120E4  
E2/T1 Foundations

From: RYAN T. SMITH  
Structural Materials Representative  
Quality Assurance and Source Inspection Branch  
Office of Structural Materials

KFM LETTERS 230, 234, 238, 239, 240, 241, and 242 – RESPONSE TO METS NCRs 130, 131, 133, 134, 135, 137, 138, 139, 140, 141, 142, and 143

The Materials Engineering and Testing Service (METS) has reviewed KFM Letters 230 (01/29/07), 234 (01/31/07), 238 (02/15/07), 239 (02/15/07), 240 (02/15/07), 241 (02/15/07), and 242 (02/15/07). These letters have been written in response to the State Letter's notifying the Contractor of the nonconformance regarding their failure to maintain preheat on several E2 Pile/Sleeve Connector Plate (PSCP) welds.

As required by the contract Special Provisions, Section 10-1.31, "Field Welding", Line, F, the preheat and interpass temperature shall be in conformance with AWS D1.5, Section 12.14 and also shall be at least 65°C. Furthermore, the specification requires that the minimum preheat temperature shall be maintained continuously from beginning to completion of the entire weld, even if welding is interrupted. On multiple occasions in January and February 2007, METS inspectors documented that the Contractor failed to comply with this specification. The dates and affected welds are listed below:

NCR #	Date	PSCP Weld #
130	01/08/07	2G1, 2G2, 3G3, 3G4, 3H
131	01/10/07	3E1, 7F1, 7F2
133	01/12/07	6F2
134	01/16/07	6D2
135	01/17/07	6D1
137	01/19/07	6A2
143	01/20/07	6D2, 2E1

138	01/22/07	7B2, 2E2
139	01/31/07	2D1, 2D2, 3C3, 3C4, 3F3, 3F4, 2B3, 1D1, 1D2
140	02/02/07	4D2
141	02/03/07	2E3
142	02/05/07	5H2

As stated in the response letters, the Contractor believes they have identified the cause of the heating elements failures to be combination of the following:

1. Burnt heater connection cables
2. Thermocouple wires being incidentally knocked loose
3. Cooling air flow from ventilation fans

KFM Letter 230 specifically states that the Contractor has implemented additional measures to prevent future occurrences of the afore mentioned issues. These additional measures include:

1. Elevation of the issue to the supplier of the heating equipment in order to re-inspect the equipment and the Contractor's set-up.
2. Periodic monitoring of the preheat consoles and monitors by the night shift tug operators. The tug operators have been instructed to notify the Contractor in order to have someone repair the malfunction, should they witness any drop in temperature on the welds.
3. Increased checks by both the welder and the Quality Control inspector to ensure the heating equipment is working properly during welding operations. As stated in subsequent letters, the welders will be checking for burnt connectors and loose wires so that they can be replaced and/or corrected.

METS understands the power failure that occurred on January 31, 2007 to be an isolated case and does not expect similar issues in the future. Additionally, METS inspectors have noted no further instances of lost preheat since February 5, 2007 and considers NCRs 130, 131, 133, 134, 135, 137, 138, 139, 140, 141, 142, and 143 resolved at this time. However, should this issue reoccur, METS recommends the Department advise the Contractor that the issue shall be readdressed.

Mark Vilcheck  
February 26, 2007  
Page 3

If you have any questions, or would like to discuss the issues, please call me at (858) 232-6799.

cc: Rafael Bolon  
Tom Shimada  
Albert Carreon