

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 #: 74.25B

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Trentham, UK
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Submitting Contractor: Goodwin Steel, UK

Report No: NCR-000977
Date: 08-Feb-2011
NCR #: GSC-0004

Type of problem:

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: Cable band casting GG29429-11. 5540-B7-1-F
Procedural	Procedural	Description:	

Reference Description: Mr. Young, Welding Supervisor notified the QA Inspector of a discrepancy in the Post weld Heat Treatment Process.

Description of Non-Conformance:

The temperature exceeded the upper limit of 630 +/- 20 Degrees C on cable band casting 5540-B7-1-F(11), GG29429-11 during post weld heat treatment. This casting is for the cable band located at EPP-54. The QA Inspector observed an area on the casting at excavation 62 and 63 on Weld Excavation Map GG29429-11 R4 glowing orange. This area also exceeded the maximum temperature Tempilstick of 760 Degrees C measured approximately 2 inches outside the resistance pad. The area has exceeded the specified temperature of 630 +/- 20 Degrees C for post weld heat treatment as specified in approved WPS04-0120F4B Issue 5 in repair submittal 366R172.

METS notes that RFI 2259R0 for casting B8 Type 1 Male ID 2 also exceeded the post weld heat treatment temperature and that this is now a recurring problem in implementing the post weld heat treatment procedure.



Applicable reference:

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Special provisions 10-1.60 CABLE SYSTEM, MATERIALS, STEEL CASTINGS

Submittal 366R172 with casting B7 Type 1 Female ID 11

RFI 2259R0 for castings B8 Type 1 Male ID 2

Submittal 366R167 with casting B10 Type 2 Female ID 2

Who discovered the problem: Mr. S. Young, Welding Supervisor

Name of individual from Contractor notified: Mr. A. Bentley, QC Director

Time and method of notification: 1100 verbal

Name of Caltrans Engineer notified: Mr. K. Guest

Time and method of notification: 1600 verbal

QC Inspector's Name: Mr. Bentley

Was QC Inspector aware of the problem: Yes No

Contractor's proposal to correct the problem:

Mr. A. Bentley, QC Director indicates that an internal NCR has been generated to track this issue, and to initiate a corrective action. Goodwin currently plans on additional testing to determine suitability of casting for project.

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 Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Riegler,Randy

NDT Technician

Reviewed By: Guest,Kittric

SMR



DEPARTMENT OF TRANSPORTATION

333 Burma Road
Oakland CA 94607
Tel: 510-622-5661 Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

To: AMERICAN BRIDGE/FLUOR, A JV
375 BURMA ROAD
OAKLAND CA 95607
Date: 10-Feb-2011
Contract No: 04-0120F4
04-SF-80-13.2 / 13.9
Dear: Mr. Charles Kanapicki
Attention: Mr. Karsten Baltzer
Job Name: SAS Superstructure
Subject: NCR No. GSC-0004
Document No: 05.03.06-000934
Reference Description: Mr. Young, Welding Supervisor notified the QA Inspector of a discrepancy in the Post weld Heat Treatment Process.

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.

Remarks:

Material Location: Cable **Lift:** N/A

During localized Post Weld Heat Treatment (PWHT), Cable Band Casting B7/F-11 (GG29429-11) was subject to temperatures exceeding those qualified and approved for the operation.

See NCR GSC-0004 for further details.

Action Required and/or Action Taken:

As a result of several reported issues with localized PWHT performed to repaired Cable Bands, cease this operation with immediate affect. The fabricator is not permitted to perform any further localized PWHT to Cable Bands until the Department approves a quality system that will ensure that the operation is performed fully in accordance with the qualified and approved procedure.

Cable Band castings for EPP-54 are hereby rejected in accordance with Section 6-1.04 "Defective Materials," of the Standard Specifications. The Cable Band may be accepted for incorporation into the permanent work when demonstrated that the castings meet the required contract dimensions, are free of distortion and when verified through testing, that the mechanical properties are in accordance with the requirements of ASTM A148M.

Transmitted By: Warren Collins Assistant Structural Rep

Attachments: GSC-0004

cc: Brian Boal

File: 05.03.06, 09.074.0004.2, 09.074.0015

NCR PROPOSED RESOLUTION

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

Attention: Siegenthaler, Peter
Resident Engineer

Ref: 05.03.06-000934

Subject: NCR No. GSC-0004

Dated: 23-Feb-2011

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

Job Name: SAS Superstructure

Document No.: ABF-NPR-000926 Rev: 00

Contractor's Proposed Resolution:

Reference Resolution: Please find attached a copy of Goodwin formal response to NCR#-0004 regarding local heat treatment of weld repair

"Please find attached a copy of Goodwin formal response to NCR#-0004 regarding local heat treatment of weld repair. Also attached are copies of the re-issued WP006 and check-sheet that have been implemented at Goodwin International."

Submitted by: Kanapicki, Charles

Attachment(s): ABF-NPR-000926R00; ; ;

Caltrans' comments:

Status: AAP

Date: 21-Mar-2011

The NCR is resolved. The fabricator may resume localized PWHT using the revised work procedure (WP006 Issue 5) and recording visual inspections at 30 minute intervals.

As already stated in the response to ABF-RFI-002367R01, the mechanical properties of the Cable Band at EPP-54 have been accepted as fit for purpose, however the Cable Band remains rejected subject to dimensional inspection to verify that it conforms to the contract dimensions.

Submitted by: Collins, Warren

Date: 21-Mar-2011

Attachment(s):



Goodwin Steel Castings Ltd
Ivy House Road
Hanley
Stoke-on-Trent
Staffordshire
ST1 3NR
Tel: +44 (0)1782 220000
Fax: +44 (0)1782 208060

Quality Control Manager
American Bridge/Fluor Enterprises Inc. A Joint Venture
375 Burma Road
Oakland, CA 94607

February 21st, 2011

REF: NCR-000977 – GSC-0004

For the Attention of Mr. C. Kanapicki,

Dear Sir,

In response to ABF / Caltrans Non-conformance Report – GSC-0004, issued to Goodwin and received 15th February 2011, Goodwin Steel Casting Ltd have now completed our internal review of local heat treatment practice with subcontractor – Goodwin International Ltd.

Upon completion of our review, Goodwin International have conducted a complete review of heat treatment practice and Work Procedure – WP006 Issue 5, dated 31st January 2011 has been issued, a copy is attached for your records.

Sub-section 2 of Works Procedure WP006 gives specific instructions to be followed for Local Post Weld Heat Treatment. Internal training has been completed with Goodwin International welding personnel to ensure conformance.

Additionally, a check-sheet has been implemented to record visual checks during local post weld heat treatment cycles. Welding personnel are required to visual check and record the surface temperature of the casting within the heating pad location(s) every 30 minutes. Temperature checks are conducted using either Tempil Sticks or Calibrated Infra-red hand held pyrometer.

The surface temperature recorded will be verified against the contact thermocouple placed on the casting to ensure that there is no deviation exceeding the specified program set-point and post weld heat treatment range specified within WP006 and/or the relevant WPS applicable to the weld repair conducted. Should any deviation greater than that specified on the relevant WPS be found on casting surface and contact thermocouple temperature the heat treatment will be stopped immediately. A copy of the check-sheet is attached for your records.

Following discussion with Caltrans onsite inspector, implementation of WP006 Issue 5, check-sheet, and internal training, local post weld heat treatment has now re-commenced successfully with no reported deviations with castings surface and thermocouple temperature readings.

Best Regards,

Jason Cross

Q. A. Manager

Goodwin Steel Castings Ltd.

Goodwin International

Newstead, Trentham, Stoke-on-Trent, England.

Heat Treatment (Post weld overlay and repair)

WP006 – Issue 5

Issue/Revision	Date	Comments	Prepared	Reviewed & Approved
Issue 5 Rev 0	31/01/11	Complete Review and amendment following reassessment of HT Practices and requirements including training & competency	A. Parsons	L. Inglis

0.0 SCOPE

- 0.1 This procedure details the methods and requirements for the internal heat treatment of welds including overlay and casting repair welds. The specific heat treatment temperatures and holding times are detailed on the relevant weld procedures.
- 0.2 The procedure encompasses the requirements and processes associated with both fixed Furnace (Sub-Section 1) and localised portable (Sub-section 2) Post Weld Heat Treatment (PWHT) methods.
- 0.3 Localised Heat Treatment is normally only to be used for the in-situ treatment of fabrications and weld repairs where furnace Post weld Heat Treatment is not practical due to component size or configuration.
- 0.4 **Reference Documents:**
 - WP011: Goodwin International Works Procedure – Weld Repair
 - WP012: Goodwin International Works Procedure – Gauge Control
 - [WP006/F1](#): Heat Treatment Form 1 - Furnace Log Load Register sheet
 - [WP006/F2](#): Heat Treatment Form 2 – Furnace HT Record sheet (Fabrications & repairs)
 - [WP006/F3](#): Heat Treatment Form 3 - Furnace HT Record sheet (Weld overlays)
 - [WP006/F4](#): Heat Treatment Form 4 – PWHT Authorisation Matrix
 - [WP006/F5](#): Heat Treatment Form 5 – Local HT Log Register sheet
 - [WP006/F6](#): Heat Treatment Form 6 – Local HT Record sheet (Fabrications & repairs)

SUB-SECTION 1: PWHT USING FIXED FURNACES

1.1 EQUIPMENT

1.1.1 Goodwin International utilises the following equipment types to facilitate Furnace Heat Treatment. For ease of identification some equipment types are coded, if required, and as detailed below:

- Heat Treatment Furnaces (Coded HTF1 – HTF**)

1.1.2 All Furnaces and ancillary control equipment, including chart recorders, policeman and controllers, are subject to calibration on an annual basis. Calibration shall be controlled in accordance with WP012.

1.1.3 Where a furnace survey is require the acceptable tolerance on achieved readings shall be +/- 13.9°C.

1.1.4 The acceptable tolerance for control graph printers, gauges and temperature controls shall be +/- 1%.

1.2 RESPONSIBILITIES/PERSONNEL

1.2.1 It is the responsibility of the Managing Director and/or his delegated representative to ensure that, by reference to the relevant Procedures/specifications/drawings, that the correct treatment is identified and applied to any specific part, component or contract/job. In the event of a Procedure/Specification/Drawing not being in existence, the Quality Assurance Department must be consulted prior to the initiation of PWHT.

1.2.2 It is the responsibility of the Managing Director and/or his delegated representative(s) to monitor and ensure that the Furnace Load information is recorded in the Heat Treatment Master Furnace Log Records, using the WP006/F1 log master form prior to the initiation of heat treatment cycles.

1.2.3 Heat Treatment of Fabrications and Weld Repairs:

1.2.3.1 With regard to fabrications and/or weld repairs a record of the heat treatment shall be made using Quality Control Form WP006/F2. A WP006/F2 shall be completed for each **JOB NUMBER** heat treated. It **is not** acceptable, for HT of fabrications and weld repairs, to complete one WP006/F1 form when multi jobs are heat treated in one furnace load. A WP006/F2 form is needed for each job number included in the multi load.

1.2.4 Heat Treatment of Weld Overlays:

1.2.4.1 With regard to weld overlays a record of the heat treatment shall be made using Quality Control Form WP006/F3. A WP006/F3 shall be completed for each **FURNACE LOAD** heat treated. It **is** acceptable, for HT of weld overlays, to complete one WP006/F3 form when multi jobs are heat treated in one furnace load.

1.2.4.2 The Managing Director and/or his delegated representative(s) may delegate duties/responsibilities as required. However all personnel must be trained and authorised to perform the delegated duties associated with the internal heat treatment process.

1.2.4.3 **Furnace Programmers**

1.2.4.3.1 The programming of the furnace shall only be performed by personnel trained and authorised to do so. Personnel programming furnaces prior to the introduction of issue 5 Revision 0 of WP006, and who have over 3 years experience of such programming, shall be deemed trained and competent based on that experience. All new programmers must undergo formalised training including practical training on a minimum of 5 jobs, under the supervision of an experience/authorised programmer. This training must be documented. Furnace programmers are, by default, also authorised to initiate heat treatment cycles.

1.2.4.3.2 Programming of furnaces is deemed to include the setting of electronic systems, the installation of program discs or the setting of gauges or parameters by any other means.

1.2.4.3.3 It is the responsibility of the programmers to ensure that the correct heat treatment cycle is set as per the relevant Weld Procedure (WPS) or work instruction.

1.2.4.4 **Furnace Operating Personnel**

1.2.4.4.1 The initiation of heat treatment cycles/programmes shall be performed by personnel trained and authorised to do so. This authorisation is restricted to starting furnaces in accordance with set/established programmes. Such personnel are not authorised to change or amend programmes. Personnel operating furnaces prior to the introduction of issue 5 Revision 0 of WP006, and who have over 3 years experience of furnace operation, shall be deemed trained and competent based on that experience. All new furnace operating must undergo formalised training including practical training on a minimum of 5 jobs under the supervision of an experienced/authorised operator and/or programmer. This training must be documented.

1.2.4.5 **Furnace Loading Personnel**

1.2.4.5.1 The loading of furnaces may be performed by authorised programmers, authorised furnace operators or delegated to non authorised personnel providing it is performed under the control of, or checked by, an authorised programmer and/or operator prior to the inception of any heat treatment cycle..

1.2.5 Both Programming and operating personnel are automatically authorised to record all applicable data and make recording entries as required. The recording of data forms part of the aforementioned training cycle (or previous experience routing) as applicable.

1.2.6 A record of personnel listings and applicable authorisations (relevant to modules/tasks listed in 1.2.4 above) shall be maintained on the authorisation/training matrix form (WP006/F4). Authorisations shall be validated/given by the Manager responsible for Heat Treatment and/or a Company Director.

1.3 SYSTEM/PROCESS

- 1.3.1 Each heat treatment load number is to be numbered sequentially. The numbering method shall be based on the furnace number, the year, the month, and a four figure sequential load number (i.e. **01/11/0001** is Furnace No. 1/Year 2011/Load Number 1).
- 1.3.2 A master log for each furnace, detailing the load number and sequential patterns utilising WP006/F1 forms, is located adjacent to each furnace. (Note: This numbering system is only introduced at the introduction of issue 5 Revision 0 of this procedure)
- 1.3.3 A Quality record form WP006/F2 and/or WP006/F3, as detailed in 1.2.3 or 1.2.4 above shall be completed as applicable to the component type(s) being heat treated. The Quality record forms should be filed within the master file retained in the heat treatment area. A single load code may require the completion of several WP006/F2 forms if the load content spans various fabrication or weld repair job numbers.
- 1.3.4 On completion of the PWHT cycle the WP006/F2 and or WP006/F3 form must be signed off by the relevant manager, supervisor, authorised programmer and/or an Furnace operator.
- 1.3.5 The furnace controllers (policemen) are an aid to prevent the furnace 'running away' should the main controllers fail. These policemen should be set in the range of 20-40°C above the main controller temperature.
- 1.3.6 The furnace recording thermocouples are located at the top area of each furnace in fixed location. (Gas furnace – in the top. Electric furnace- in the side at the top). Any visible damage to thermocouples must be reported to the QC department immediately for action.
- 1.3.7 All furnaces shall be operated in accordance with the manufacturer/supplier instructions. Furnaces shall only be operated by personnel who have been trained in their specific operation (see 1.2.4 above).
- 1.3.8 The loading of furnaces may be delegated to non authorised personnel providing it is performed under the control of, or checked by, an authorised operator prior to the inception of any heat treatment cycle.
- 1.3.9 Gas fired furnaces – the flame must not impinge directly onto the item being heat treated.
- 1.3.10 Items being heat treated must sit on refractory bricks or grid specifically designed for the furnace.
- 1.3.11 Items shall be at least 75mm from the furnace wall on loading.
- 1.3.12 Loading of the furnace shall be as even as possible to ensure equal heating.
- 1.3.13 Heat treatment shall be carried out as per the information on the relevant weld procedure, with the following general parameters being followed:
 - a) Correct Furnace program(s) as detailed on the relevant weld procedure (WPS).
Note: Where furnace pre-heat or multiple programmes are required, any interim program changes may only be performed by authorised programmers – see 3.4.1. (This does not apply to the use of multi pre-set programmes).

- b) Heating rates shall be as stated on the relevant WPS. Where the WPS does not state a defined heating rate then the heating rate should not exceed 400°C per hour.
- c) Cooling rates shall be as stated on the relevant WPS. Where the WPS does not state a defined cooling rate then the furnace shall be gradually cooled at a controlled rate prior to opening the door/lid.
- d) During heat treatment cycles the tolerance regarding the oven temperature shall be as stated on the relevant WPS. Where the WPS does not state an acceptable tolerance, then a tolerance of +/- 14.0°C of the temperature required shall be applied.

1.3.14 After heat treatment the log number and date are to be entered onto the HT control graph/chart. When graphs/charts are finished, they are to be handed to the QA department for filing/archiving.

SUB-SECTION 2: PWHT USING LOCAL AND/OR PORTABLE METHODS

2.1 EQUIPMENT

- 2.1.1 The localised/portable heat treatment unit shall consist of a means for setting the treatment parameters, a means for generating the PWHT control graph and a suitable power source.
- 2.1.2 For ease of identification some equipment types are coded, if required, and as detailed below
 - Heat Treatment Chart (Graph) Recorders/printers (Coded **HTCG1 – HTCG****)
 - Heat Treatment Portable Control Panels (Coded **HTCP1 – HTCP****)
 - Heat Treatment Portable Power Units (Coded **HTPU1 – HTPU****)
- 2.1.3 Control units, graph machines and power units shall be calibrated on a minimum of an annual basis.
- 2.1.4 The acceptable tolerance for gauges and temperature controls shall be +/- 1.0%.
- 2.1.5 Calibration on the achieved heat output tolerance on achieved readings shall be +/- 14.0°C.
- 2.1.6 In addition to the base equipment given above, the Company shall stock suitable remote heat treatment pads applicable in size and scope relevant to the Company's requirements for localised PWHT. These shall be maintained in good working condition.

2.2 RESPONSIBILITIES/PERSONNEL

- 2.2.1 It is the responsibility of the Welding Manager and/or supervisor to ensure that, by reference to the relevant procedures/specifications/drawings, that the correct treatment is identified and applied to any specific part, component or contract/job. In the event of a procedure/specification/drawing not being in existence, the Quality Assurance Department must be consulted prior to the initiation of PWHT.

- 2.2.2 It is the responsibility of the Welding Manager and/or supervisor to monitor and ensure that each localised heat treatment applied is registered in the master Localised Heat Treatment Log form WP006/F5 (Local PWHT Specific) prior to the initiation of the heat treatment cycles. The heat treatment log number must be entered back on to the applicable weld repair form for cross reference purposes.
- 2.2.3 A Quality Control Form (WP006/F6) is to be completed for **each WELD REPAIR FORM** detailing a localised heat treatment requirement.
- 2.2.4 The Welding Manager and/or supervisor may delegate duties/responsibilities as required. However all personnel must be trained and authorised to perform the delegated duties associated with the localised heat treatment process.
- 2.2.4.1 **Localised Heat Treatment Personnel**
- 2.2.4.1.1 Localised or portable PWHT shall only be performed by personnel trained and authorised to do so.
- 2.2.4.1.2 The training and authorisation shall encompass the positioning of HT pads and the setting of test parameters on the control equipment and shall include familiarisation with the relevant equipment and operating methodology.
- 2.2.4.1.3 This training and authorisation is restricted to local/portable heat treatment methods
- 2.2.4.1.4 Personnel performing local/portable PWHT prior to the introduction of issue 5 Revision 0 of WP006, and who have over 3 years experience of such heat treatment methods, shall be deemed trained and competent, reference the requirement in 2.2.4.1.1 above, based on that experience. All new local heat treatment personnel must undergo a minimum of one months training under the supervision of an experienced operator. This training must be documented.
- 2.2.5 Local Heat treatment personnel are automatically authorised to record all applicable data and make recording entries as required. The recording of data forms part of the aforementioned training cycle (or previous experience routing) as applicable.
- 2.2.6 A record of personnel listings and applicable authorisations (relevant to 2.2.4 above) shall be maintained on the authorisation/training matrix form (WP006/F4). Authorisations shall be validated/given by the Manager responsible for Heat Treatment and/or a Company Director.

2.3 SYSTEM/PROCESS

- 2.3.1 Each localised heat treatment process is to be numbered sequentially. The numbering method shall be based on the process, the year, the month, and a four figure sequential number. (i.e. **LHT/11/0001** is Localised Heat Treatment/Year 2011/Sequential Number)
- 2.3.2 A master log detailing the sequential local HT number utilising the WP006/F5 forms, is located adjacent to the weld repair area. (Note: This numbering system is only introduced at the introduction of issue 5 Revision 0 of this procedure)

- 2.3.3 A WP006/F6 form, as referenced in 2.2.3 above, shall be completed for each **WELD REPAIR FORM** instructing the requirement for localised heat treatment. The WP006/F4 forms should be filed in numerical order within the master WP006/F6 file retained in the weld repair area.
- 2.3.4 The localised PWHT process shall be accomplished by the use of suitable remote heat treatment pads. The pad(s) shall be of sufficient size to cover the relevant weld area(s) and heat affected zone. Insulation shall be applied to the outer face of the HT pad.
- 2.3.5 The pad(s) shall be connected to the calibrated power source and its associated control equipment.
- 2.3.6 The control panel shall be set in accordance with the PWHT requirements mandated by the applicable Weld Procedure (WPS) determined in accordance with the relevant governing standard and or customer instructions/requirements.
- 2.3.7 The treatment parameters including the temperature ramp up/ramp down rates, the required HT temperature and the soak/hold time required shall be as detailed in the relevant WPS. Where the WPS does not dictate the actual parameters required, the parameters used shall be set by personnel trained and authorised to do so (see 2.2.4).
- 2.3.8 Once the pads are correctly positioned and the test parameters set the HT process may begin.
- 2.3.9 During heat treatment cycles the tolerance regarding the applied temperature shall be as stated on the relevant WPS. Where the WPS does not state an acceptable tolerance, then a tolerance of +/- 14.0°C of the temperature required shall be applied.
- 2.3.10 On completion of the PWHT cycle the WP006/F6 form must be signed off by the relevant manager, supervisor and/or authorised operator.
- 2.3.11 Following completion of the heat treatment the log number and date are to be entered onto the HT control graph/chart. When graphs/charts are finished, they are to be handed to the QA department for filing/archiving.

3.0 QUALITY DEPARTMENT SUPPORT

- 3.1 In the event of a failed, incomplete or ineffective heat treatment cycle, the occurrence should be reported to the QA department for investigation and a decision on remedial, ongoing or further actions.
- 3.2 Where the heat treatment parameters are not clear or are absent from the relevant WPs the QA department should be contacted to provide clarification.

NOTE: Printed procedures are only valid on the day of printing unless checked against the index.

[\[Procedure Index\]](#) [\[Main Index\]](#) [\[Help\]](#)

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:** Trentham, UK**Report No:** NCS-000945**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 17-Mar-2011**Submitting Contractor:** Goodwin Steel, UK**NCR #:** GSC-0004**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: 08-Feb-2011**Description of Non-Conformance:**

The temperature exceeded the upper limit of 630 +/- 20 Degrees C on cable band casting 5540-B7-1-F(11), GG29429-11 during post weld heat treatment. This casting is for the cable band located at EPP-54. The QA Inspector observed an area on the casting at excavation 62 and 63 on Weld Excavation Map GG29429-11 R4 glowing orange. This area also exceeded the maximum temperature Tempilstick of 760 Degrees C measured approximately 2 inches outside the resistance pad. The area has exceeded the specified temperature of 630 +/- 20 Degrees C for post weld heat treatment as specified in approved WPS04-0120F4B Issue 5 in repair submittal 366R172.

METS notes that RFI 2259R0 for casting B8 Type 1 Male ID 2 also exceeded the post weld heat treatment temperature and that this is now a recurring problem in implementing the post weld heat treatment procedure.

Contractor's proposal to correct the problem:

Mr. A. Bentley, QC Director indicates that an internal NCR has been generated to track this issue, and to initiate a corrective action. Goodwin currently plans on additional testing to determine suitability of casting for project.

Corrective action taken:

Goodwin has revised their post weld heat treatment procedure. The new procedure includes continuous inspection with the temperature recorded every 30 minutes. METS is satisfied that this new procedure should mitigate any further problems encountered during PWHT. In addition Goodwin has performed additional testing of the casting and demonstrated that the mechanical properties are still per specification. Final acceptance of casting is still pending dimensional inspection.

Did corrective action require Engineer's approval? Yes No**If so, name of Engineer providing approval:** Warren Collins**Date:** 15-Mar-2011**Is Engineer's approval attached?**

QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION

(*Continued Page 2 of 2*)

Yes No See RFI 2367R1

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 Kit Guest 510-295-5393, who represents the Office of Structural Materials for your project.

Inspected By: Guest,Kittric

Quality Assurance Inspector

Reviewed By: Choy,Nina

QA Reviewer