GEOSCIENCES AND ENGINEERING DIVISION
NONCONFORMANCE REPORT

Project No. OHD20.131 **NCR No.** 2007-26

PART 1: DESCRIPTION OF NONCONFORMANCE

Ertco ASTM 16C Thermometer, s/n 3116, AN011745 is out of tolerance per SwRI Cal. Lab. Unit failed at 200 °C test point.

Initiated by: Don Bannon **Date:** 03Aug07

Action Required by: Xihua He **Response Due Date:** 17Aug07

PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION

Disposition: Accept data obtained in tests using this thermometer as is.

Basis of Disposition: As noted in the out of tolerance report, the out of tolerance condition was limited to the temperature of 195.36 °C. All other temperatures of the thermometer were in tolerance. At 195.36 °C the thermometer had measurement error of -2.0 °C versus a limit of +/- 0.5 °C. The error at 195.36 °C has no effect on previous measurements because no data were taken at temperatures above 150 °C using this thermometer. All the measurements at temperatures above 150 °C were taken by thermocouples.

Action to Correct Nonconformance: Because the thermometer will not be used for tests at temperatures above 150 °C, the calibration upper limit was lowered to 150 °C and the thermometer was returned to service. This thermometer will continue to be included on the calibration recall list.

Target date for completion: 8/8/07

Proposed by: Xihua He **Date:** 8/13/07

PART 3: APPROVAL

Manager: K Allen **Date:** Aug 13, 07

Director of QA: Al Bond **Date:** 8/13/07

Comments/Instructions:

PART 4: CLOSE OUT

Comments: No additional verification needed

Verified by: Al Bond **Date:** 8/13/07

Distribution:
Original–CENTER QA Records
ORIGINATOR Bannon
PRINCIPAL INVESTIGATOR He
MANAGER Allen
ASSISTANT DIRECTOR Moharty
Simpson

FORM QAP- 9 (04/2005)

SOUTHWEST RESEARCH INSTITUTE

6220 CULEBRA ROAD • POST OFFICE DRAWER 28510 • SAN ANTONIO, TEXAS, 78228-0510 • TEL (210) 522-5215 • FAX (210) 522-3692

OUT OF TOLERANCE

To: Don Bannon, Div 20, Ext 5118

From: Walt Hill, Metrology Group Leader
Institute Calibration Laboratory

Date: Jul. 16, 2007

Subject: Out-of-tolerance Notice

The purpose of this notice is to alert you of a condition, which may have caused erroneous measurements affecting safety or the quality of products or services your organization provides. The attached as-found readings are provided for your evaluation to determine if the instrument listed below had an impact and if further action is required.

When the as-found results are near the specification limit, +/- a margin less than the measurement uncertainty, it is not possible to state in-tolerance or out-of-tolerance with a 95% level of confidence. It is the Institute Calibration Laboratory policy that the client is made aware of this situation because the end-user is taking some of the risk that the instrument listed below may not meet the end-user measurement requirements.

Your review/evaluation should be conducted in accordance with your organizational quality policy and procedural requirements. If we can be of further assistance, please contact the Calibration Laboratory at 522-5215.

Manufacturer: Ertco **Model:** ASTM 16C

Description: Thermometer **Serial Number:** 3116

Asset Number: 11745 **User ID Number:**

Last Calibration: Jul 10, 2006

Date Received for Service: Jul. 05, 2007 Work Order Number: 303075283

Service Requested: Scheduled calibration

Remarks: Out of tol at high end. See Measurement Report.

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303075283	Mfr:	Ertco	Technician:	blt
Asset No:	011745	Model:	ASTM16C		
Serial No:	3116	Type:	THERMOMETER	Cal Date:	16-Jul-07
Remarks:	Accuracy Referecnce ASTM E1 - 03a				

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Found
Temperature	°C	°C	°C	°C	°C	Result
30.0	30.05	30.0	-0.1	0.5	0.30	Pass
50.0	50.01	50.0	0.0	0.5	0.30	Pass
100.0	99.91	99.5	-0.4	0.5	0.30	Pass
150.0	150.00	149.5	-0.5	0.5	0.30	Pass
200.0	195.36	193.4	-2.0	0.5	0.30	Fail

END OF REPORT

Institute Calibration Laboratory
Memorandum

July 16, 2007

To: Don Bannon
Div 20 Ext 5118

From: Bob Trollinger
Institute Calibration Laboratory

Subject: Review of Work Request Number 303075282

The work you requested is pending your response. Please review the information provided and respond with your approval or further instructions for work to proceed. Return a signed copy via mail to Cal Lab Bldg 64, FAX (522-4834) or reply to this email. If you have questions please call extension 5215.

Unit Received: July 5, 2007
Work Requested: Cal
Manufacturer: Ertco
Model: ASTM 16 C

Description: Thermometer
Serial Number: 3110
Asset Number: 11744
User ID:

Cause of Review: Out of Tolerance at the high end. Over 2 °C out at 195 °C

If no reply is received within 15-working days this unit will be returned as-is without further action.

Approved ( ) Disapproved return unit as-is ( ) Date: 26JULY2007_____

Instructions ( ) _____

__Bob—Please change the range over which calibration data is collected on assets 011744 through 011748. The current range is 30 – 200 degrees C. Please lower the upper limit to 150 degrees C.

_____

_____

Authorizedby___DonBannon_____

_____
Print or Type Name Signature

Thank you for your timely response,

George Torres
Institute Calibration Laboratory
Ext.: 5215
Fax: 522-4834
Email: gtorres@swri.org

SOUTHWEST RESEARCH INSTITUTE®

6220 Culebra Road, P.O. Drawer 28510
Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-4834

Certificate of Calibration

ACCREDITED
Calibration Laboratory
Certificate #0972-01

Submitted By: DIV20
Address: B57
Contact: DON BANNON
Manufacturer / Model: ERTCO / ASTM 16C
Description: THERMOMETER, GLASS
Serial No: 3116
Asset No: 011745
Procedure: THERMOMETERS, GLASS - 11 SEP 2006

Work Order: 303075283
Date Issued: Jul 26, 2007
Calibration Date: Jul 26, 2007
***Calibration Due:** Jul 26, 2008
Calibration Location: Bldg. 64
Environment: Temp. 73.0°F Hum. 40 %RH
****Data Type:** AS-LEFT
DivID/Location: N/A

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 2005, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

Remarks: Limited Calibration - 30°C to 150°C

Standards Used

Asset No.	Serial No.	Manufacturer	Model	Description	Cal Due
009137	A21208	HART SCIENTIFIC	1575	SUPER THERMOMETER	Dec 22, 07
010281	0421	HART SCIENTIFIC	5628	SPRT	Nov 30, 08

Reviewed by: ( ) wgh ( ) srl ( ) jrg ( ) blt ( ) pwc
Metrology Technician

Measurements by: Bob Trollinger
Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

Work Order:	303075283	Mfr:	Ertco	Technician:	blt
Asset No:	011745	Model:	ASTM16C		
Serial No:	3116	Type:	THERMOMETER	Cal Date:	26-Jul-07
Remarks:	Accuracy Referecnce ASTM E1 - 03a Limited Calibration 30°C to 150°C				

Function/Range	Test Point	TI Reading	Difference	+/-Limit	+/-Uncertainty	Left
Temperature	°C	°C	°C	°C	°C	Result
30.0	30.05	30.0	-0.1	0.5	0.30	Pass
50.0	50.01	50.0	0.0	0.5	0.30	Pass
100.0	99.91	99.5	-0.4	0.5	0.30	Pass
150.0	150.00	149.5	-0.5	0.5	0.30	Pass

END OF REPORT