



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Continental Resources, Inc.

175 Ledge Street, Suite 1
Nashua, NH 03060-3014

Fulfills the requirements of

ISO/IEC 17025:2017

and national standards

**ANSI/NCSL Z540-1-1994 (R2002) AND
ANSI/NCSL Z540.3-2006 (R2013)**

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

A handwritten signature in black ink, appearing to read 'R. Douglas Leonard Jr.', is positioned above a horizontal line.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 28 May 2023

Certificate Number: AC-2679



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017,
ANSI/NCSL Z540-1-1994 (R2002) AND ANSI/NCSL Z540.3-2006 (R2013)**

Continental Resources, Inc.

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Nashua, NH 03060-3014

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CALIBRATION

Valid to: **May 28, 2023**

Certificate Number: **AC-2679**

Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Voltage – Source	(0 to 330) mV (330 to 3.3) V (3.3 to 33) V (33 to 330) V (330 to 1 020) V	20 μ V/V + 1 μ V 11 μ V/V + 2 μ V 12 μ V/V + 15 μ V 18 μ V/V + 150 μ V 18 μ V/V + 1.5 mV	OEM Manual, Fluke 5520A Multiproduct Calibrator
DC Voltage – Measure	3 μ V to 100 mV (0.1 to 1) V (1 to 10) V (10 to 100) V (100 to 1 000) V	7 μ V/V + 3 μ V 6 μ V/V + 0.3 μ V 6 μ V/V + 0.1 μ V 8 μ V/V + 2.3 μ V 8 μ V/V + 0.1 μ V	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter
DC Current – Source	(0 to 330) μ A (0.33 to 3.3) mA (3.3 to 33) mA (33 to 330) mA (0.33 to 1.1) A (1.1 to 3.3) A (3.3 to 11) A (11 to 20) A	0.15 mA/A + 20 nA 0.1 mA/A + 30 nA 0.1 mA/A + 0.2 μ A 0.1 mA/A + 2 μ A 0.2 mA/A + 40 μ A 0.38 mA/A + 40 μ A 0.5 mA/A + 0.38 mA 1 mA/A + 0.75 mA	OEM Manual Fluke 5520A Multiproduct Calibrator
DC Current – Source Clamp-on Ammeters	(20 to 1 000) A	0.1 % of reading + 0.75 mA	OEM Manual, Fluke 5520A Multiproduct Calibrator w/50-turn Coil



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Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Current – Measure	(0 to 100) nA (0.1 to 1) μ A (1 to 10) μ A (10 to 100) μ A (0.1 to 1) mA (1 to 10) mA (10 to 100) mA (0.1 to 1) A	3.5 pA/A + 40 pA 25 pA/A + 40 pA 0.25 nA/A + 0.1 nA 2.5 nA/A + 0.8 nA 25 nA/A + 5 nA 0.25 μ A/A + 50 nA 4 μ A/A + 0.5 μ A 115 μ A/A + 10 μ A	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter
DC Current – Measure	(1 to 20) A	0.016 % of reading	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter w/ Current Shunt
AC Current – Source	(29 to 330) μ A (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 300) kHz (0.33 to 3.3) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz (3.3 to 33) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz (33 to 330) mA (10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz (10 to 30) kHz	2 mA/A + 0.1 μ A 1.5 mA/A + 0.1 μ A 1.3 mA/A + 0.1 μ A 2 mA/A + 0.1 μ A 8 mA/A + 0.2 μ A 16 mA/A + 0.4 μ A 2 mA/A + 0.15 μ A 1.3 mA/A + 0.15 μ A 1 mA/A + 0.15 μ A 2 mA/A + 0.2 μ A 5 mA/A + 0.3 μ A 10 mA/A + 0.6 μ A 1.8 mA/A + 2 μ A 0.9 mA/A + 2 μ A 0.4 mA/A + 2 μ A 0.8 mA/A + 2 μ A 2 mA/A + 3 μ A 4 mA/A + 4 μ A 1.8 mA/A + 20 μ A 0.9 mA/A + 20 μ A 0.4 mA/A + 20 μ A 1 mA/A + 50 μ A 2 mA/A + 0.1 mA 4 mA/A + 0.2 mA	OEM Manual, Fluke 5520A Multiproduct Calibrator

Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Source	(0.33 to 1.1) A		OEM Manual, Fluke 5520A Multiproduct Calibrator
	(10 to 45) Hz	1.8 mA/A + 0.1 mA	
	45 Hz to 1 kHz	0.5 mA/A + 0.1 mA	
	(1 to 5) kHz	6 mA/A + 1 mA	
	(5 to 10) kHz	25 mA/A + 5 mA	
	(1.1 to 3) A		
	(10 to 45) Hz	1.8 mA/A + 0.1 mA	
	45 Hz to 1 kHz	0.6 mA/A + 0.1 mA	
	(1 to 5) kHz	6 mA/A + 1 mA	
	(5 to 10) kHz	25 mA/A + 5 mA	
	(3 to 11) A		
	(45 to 100) Hz	0.6 mA/A + 2 mA	
	100 Hz to 1 kHz	1 mA/A + 2 mA	
	(1 to 5) kHz	30 mA/A + 2 mA	
(11 to 20.5) A			
(45 to 100) Hz	1.2 mA/A + 5 mA		
100 Hz to 1 kHz	1.5 mA/A + 5 mA		
(1 to 5) kHz	30 mA/A + 5 mA		
AC Current – Source	45 Hz (20.5 to 1 000) A	1.2 mA/A + 5 mA	OEM Manual, Fluke 5520A Multiproduct Calibrator w/ 50-turn Coil
AC Current – Measure	Up to 100 μ A		OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter
	(10 to 20) Hz	0.4 % of reading + 30 nA	
	(20 to 45) Hz	0.15 % of reading + 30 nA	
	(45 to 100) Hz	0.06 % of reading + 30 nA	
	100 Hz to 5 kHz	0.06 % of reading + 30 nA	
	(0.1 to 1) mA		
	(10 to 20) Hz	0.4 % of reading + 0.2 μ A	
	(20 to 45) Hz	0.15 % of reading + 0.2 μ A	
	(45 to 100) Hz	0.06 % of reading + 0.2 μ A	
	100 Hz to 5 kHz	0.03 % of reading + 0.2 μ A	
	(5 to 20) kHz	0.06 % of reading + 0.2 μ A	
	(50 to 100) kHz	0.55 % of reading + 0.2 μ A	
	(1 to 100) mA		
	(10 to 20) Hz	0.4 % of reading + 20 μ A	
	(20 to 45) Hz	0.15 % of reading + 20 μ A	
	(45 to 100) Hz	0.06 % of reading + 20 μ A	
	100 Hz to 5 kHz	0.03 % of reading + 20 μ A	
	(5 to 20) kHz	0.06 % of reading + 20 μ A	
(50 to 100) kHz	0.55 % of reading + 0.15 mA		



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Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Current – Measure	(0.1 to 1) A (10 to 20) Hz (20 to 45) Hz (45 to 100) Hz 100 Hz to 5 kHz (5 to 20) kHz (20 to 50) kHz	0.4 % of reading + 0.2 mA 0.16 % of reading + 0.2 mA 0.08 % of reading + 0.2 mA 0.1 % of reading + 0.2 mA 0.03 % of reading + 0.2 mA 1 % of reading + 0.4 mA	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter
AC Current – Measure	(1 to 20) A 45 Hz to 5 kHz	0.15 % of reading + 16 mA	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter w/ Current Shunt
Resistance – Source	1 mΩ to 11 Ω (11 to 33) Ω (33 to 110) Ω (110 to 330) Ω (0.3 to 1.1) kΩ (1.1 to 3.3) kΩ (3.3 to 11) kΩ (11 to 33) kΩ (33 to 110) kΩ (110 to 330) kΩ (0.33 to 1.1) MΩ (1.1 to 3.3) MΩ (3.3 to 11) MΩ (11 to 33) MΩ (33 to 110) MΩ (110 to 330) MΩ (0.33 to 1.1) GΩ	0.004 % of reading + 1 mΩ 0.003 % of reading + 1.5 mΩ 0.002 8 % of reading + 1.4 mΩ 0.002 8 % of reading + 2 mΩ 0.002 8 % of reading + 2 mΩ 0.002 8 % of reading + 20 mΩ 0.002 8 % of reading + 20 mΩ 0.002 8 % of reading + 0.2 Ω 0.002 8 % of reading + 0.2 Ω 0.003 2 % of reading + 2 Ω 0.003 2 % of reading + 2 Ω 0.006 % of reading + 30 Ω 0.013 % of reading + 50 Ω 0.025 % of reading + 2.5 kΩ 0.05 % of reading + 3 kΩ 0.3 % of reading + 0.1 MΩ 1.5 % of reading + 0.5 MΩ	OEM Manual, Fluke 5520A Multiproduct Calibrator
Resistance – Measure	Up to 10 Ω (10 to 100) Ω (0.1 to 1) kΩ (1 to 10) kΩ (10 to 100) kΩ (0.1 to 1) MΩ (1 to 10) MΩ (10 to 100) MΩ (0.1 to 1) GΩ	18 μΩ/Ω + 50 μΩ 15 μΩ/Ω + 50 μΩ 13 μΩ/Ω + 0.5 mΩ 13 μΩ/Ω + 5 mΩ 13 μΩ/Ω + 50 mΩ 18 μΩ/Ω + 2 Ω 53 μΩ/Ω + 0.1 kΩ 0.5 mΩ/Ω + 1 kΩ 0.5 % of reading + 10 kΩ	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter



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Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Source	(1 to 33) mV		OEM Manual, Fluke 5520A Multiproduct Calibrator
	(10 to 45) Hz	0.08 % of reading + 6 μ V	
	45 Hz to 10 kHz	0.015 % of reading + 6 μ V	
	(10 to 20) kHz	0.02 % of reading + 6 μ V	
	(20 to 50) kHz	0.1 % of reading + 6 μ V	
	(50 to 100) kHz	0.35 % of reading + 12 μ V	
	(100 to 500) kHz	0.8 % of reading + 50 μ V	
	(33 to 330) mV		
	(10 to 45) Hz	0.03 % of reading + 8 μ V	
	45 Hz to 10 kHz	0.013 % of reading + 8 μ V	
	(10 to 20) kHz	0.015 % of reading + 8 μ V	
	(20 to 50) kHz	0.035 % of reading + 8 μ V	
	(50 to 100) kHz	0.08 % of reading + 32 μ V	
	(100 to 500) kHz	0.2 % of reading + 70 μ V	
	(0.33 to 3.3) V		
	(10 to 45) Hz	0.03 % of reading + 50 μ V	
	45 Hz to 10 kHz	0.012 % of reading + 25 μ V	
	(10 to 20) kHz	0.019 % of reading + 50 μ V	
	(20 to 50) kHz	0.03 % of reading + 50 μ V	
	(50 to 100) kHz	0.07 % of reading + 125 μ V	
	(100 to 500) kHz	0.24 % of reading + 0.6 mV	
	(3.3 to 33) V		
	(10 to 45) Hz	0.3 mV/V + 0.65 mV	
	45 Hz to 10 kHz	0.15 mV/V + 0.2 mV	
(10 to 20) kHz	0.24 mV/V + 0.6 mV		
(20 to 50) kHz	0.35 mV/V + 0.6 mV		
(50 to 100) kHz	0.9 mV/V + 1.6 mV		
(33 to 330) V			
45 Hz to 1 kHz	0.19 mV/V + 2 mV		
(1 to 10) kHz	0.2 mV/V + 6 mV		
(10 to 20) kHz	0.25 mV/V + 6 mV		
(20 to 50) kHz	0.3 mV/V + 6 mV		
(50 to 100) kHz	0.2 mV/V + 50 mV		
(330 to 1 020) V			
45 Hz to 1 kHz	0.3 mV/V + 10 mV		
(1 to 5) kHz	0.25 mV/V + 10 mV		
(5 to 10) kHz	0.3 mV/V + 10 mV		



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Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Measure (Bandwidth < 2 MHz)	Up to 10 mV		OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter
	(1 to 40) Hz	0.03 % of reading + 3 μ V	
	40 Hz to 1 kHz	0.02 % of reading + 1.1 μ V	
	(1 to 20) kHz	0.03 % of reading + 1.1 μ V	
	(20 to 50) kHz	0.1 % of reading + 1.1 μ V	
	(50 to 100) kHz	0.5 % of reading + 1.1 μ V	
	(100 to 300) kHz	4 % of reading + 2 μ V	
	(0.1 to 10 V		
	(1 to 40) Hz	0.007 % of reading + 0.4 mV	
	40 Hz to 1 kHz	0.007 % of reading + 0.2 mV	
	(1 to 20) kHz	0.014 % of reading + 0.2 mV	
	(20 to 50) kHz	0.03 % of reading + 0.2 mV	
	(50 to 100) kHz	0.08 % of reading + 0.2 mV	
	(100 to 300) kHz	0.3 % of reading + 1 mV	
	300 kHz to 1 MHz	1 % of reading + 1 mV	
	(1 to 2) MHz	1.5 % of reading + 1 mV	
	(10 to 100) V		
	(1 to 40) Hz	0.02 % of reading + 4 mV	
40 Hz to 1 kHz	0.02 % of reading + 2 mV		
(1 to 20) kHz	0.02 % of reading + 2 mV		
(20 to 50) kHz	0.035 % of reading + 2 mV		
(50 to 100) kHz	0.12 % of reading + 2 mV		
(100 to 300) kHz	0.4 % of reading + 10 mV		
300 kHz to 1 MHz	1.5 % of reading + 10 mV		
(100 to 1 000) V			
(1 to 40) Hz	0.04 % of reading + 40 mV		
40 Hz to 1 kHz	0.04 % of reading + 20 mV		
(1 to 20) kHz	0.06 % of reading + 20 mV		
(20 to 50) kHz	0.12 % of reading + 20 mV		
(50 to 100) kHz	0.3 % of reading + 20 mV		
AC Voltage – Measure (Bandwidth > 2 MHz)	Up to 10 mV		OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter
	45 Hz to 100 kHz	0.09 % of reading + 6 μ V	
	100 kHz to 1 MHz	1.2 % of reading + 5 μ V	
	(1 to 4) MHz	7 % of reading + 7 μ V	
	(4 to 8) MHz	20 % of reading + 8 μ V	



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Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
AC Voltage – Measure (Bandwidth > 2 MHz)	10 mV to 1 V		OEM Manual Agilent 3458A/002 Multimeter
	(1 to 40) Hz	0.007 % of reading + 0.4 mV	
	40 Hz to 1 kHz	0.007 % of reading + 0.2 mV	
	(1 to 20) kHz	0.014 % of reading + 0.2 mV	
	(20 to 50) kHz	0.03 % of reading + 0.2 mV	
	(50 to 100) kHz	0.08 % of reading + 0.2 mV	
	(100 to 300) kHz	0.3 % of reading + 1 mV	
	300 kHz to 1 MHz	1 % of reading + 1 mV	
	(1 to 2) MHz	1.5 % of reading + 1 mV	
	(0.1 to 10) V		
	45 Hz to 100 kHz	0.09 % of reading + 6 mV	
	100 kHz to 1 MHz	2 % of reading + 5 mV	
	(1 to 4) MHz	4 % of reading + 7 mV	
(4 to 8) MHz	4 % of reading + 8 mV		
(8 to 10) MHz	15 % of reading + 10 mV		
(10 to 100) V			
45 Hz to 100 kHz	0.12 % of reading + 2 mV		
(100 to 1 000) V			
45 Hz to 100 kHz	0.3 % of reading + 0.1 V		
Capacitance – Source	(0.19 to 0.4) nF	0.5 % of reading + 10 pF	OEM Manual, Fluke 5520A Multiproduct Calibrator
	(0.4 to 1.1) nF	0.5 % of reading + 10 pF	
	(1.1 to 3.3) nF	0.5 % of reading + 10 pF	
	(3.3 to 11) nF	0.25 % of reading + 10 pF	
	(11 to 33) nF	0.25 % of reading + 0.1 nF	
	(33 to 110) nF	0.25 % of reading + 0.1 nF	
	(110 to 330) nF	0.25 % of reading + 0.3 nF	
	(0.33 to 1.1) μF	0.25 % of reading + 1 nF	
	(1.1 to 3.3) μF	0.25 % of reading + 1 nF	
	(3.3 to 11) μF	0.25 % of reading + 10 nF	
	(11 to 33) μF	0.4 % of reading + 30 nF	
	(33 to 110) μF	0.45 % of reading + 0.1 μF	
	(110 to 330) μF	0.45 % of reading + 0.3 μF	
	(0.33 to 1.1) mF	0.45 % of reading + 1 μF	
	(1.1 to 3.3) mF	0.45 % of reading + 3 μF	
	(3.3 to 11) mF	0.45 % of reading + 10 μF	
(11 to 33) mF	0.75 % of reading + 30 μF		
(33 to 110) mF	1.1 % of reading + 0.1 mF		



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Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
DC Power – Source 33 mV to 1 020 V (33 to 1 020) V (33 to 1 020) V	(0.33 to 330) mA 10.89 mW to 336 W (0.33 to 3) A 10.89 W to 3.06 kW (3 to 20.5) A 100 W to 20.91 kW	0.023 % of reading 0.022 % of reading 0.07 % of reading	OEM Manual, Fluke 5520A Multiproduct Calibrator
AC Power – Source (45 to 65) Hz (33 to 330) mV (0.33 to 1 020) V	3.3 mA to 20.5 A 109 mW to 6.75 W 3.3 mA to 20.5 A 1.1 W to 20.91 kW	0.14 % of reading 0.12 % of reading	OEM Manual, Fluke 5520A Multiproduct Calibrator
Electrical Simulation of Thermocouple Indicating Devices – Source/Measure	Type B (600 to 1 820) °C Type C (0 to 2 316) °C Type E (-250 to 1 000) °C Type J (-210 to 1 200) °C Type K (-200 to 1 372) °C Type N (-200 to 1 300) °C Type R (0 to 1 767) °C Type S (0 to 1 767) °C Type T (-250 to 400) °C	0.44 °C 0.84 °C 0.5 °C 0.27 °C 0.4 °C 0.4 °C 0.57 °C 0.47 °C 0.63 °C	OEM Manual, Fluke 5520A Multiproduct Calibrator

Electrical-DC/Low Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Electrical Simulation of RTD Indicating Devices – Source	Pt 385, 100 Ω (-200 to 800) °C	0.05 °C	OEM Manual, Fluke 5520A Multiproduct Calibrator
	Pt 3926, 100 Ω (-200 to 630) °C	0.05 °C	
	Pt 3916, 100 Ω (-200 to 630) °C	0.25 °C	
	Pt 385, 200 Ω (-200 to 630) °C	0.16 °C	
	Pt 385, 500 Ω (-200 to 630) °C	0.11 °C	
	Pt 385, 1 000 Ω (-200 to 630) °C	0.23 °C	
	Pt Ni 385, 120 Ω (-80 to 260) °C	0.14 °C	
	Cu 427, 10 Ω (-100 to 260) °C	0.3 °C	

Time and Frequency

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Frequency – Source	(0.1 to 5) V 10 mHz to 2 MHz	0.25 mHz/Hz + 5 μHz	OEM Manual, Fluke 5520A Multiproduct Calibrator
Frequency – Measure	(1 to 40) Hz 40 Hz to 10 MHz	0.05 % of reading 0.01 % of reading	OEM Manual, Agilent 3458A/002 8.5 Digit Multimeter

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 ($k=2$), corresponding to a confidence level of approximately 95%.

Notes:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-2679.



R. Douglas Leonard Jr., VP, PILR SBU