

From:  
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To:  
Mr. John Gilmour  
Fort Erie Underwater Recovery Unit  
35 Jarvis St.  
Fort Erie, ON L2A2S3  
Canada

# TRACE ANALYTICS, LLC ANALYSIS CERTIFICATE



Report 12-32983, Sampled on  
**12/18/2012**

Next Sample Due Annually, Approximately  
**12/18/2013**

**FORT ERIE UNDERWATER RECOVERY UNIT**  
IS IN COMPLIANCE WITH THE AIR/GAS QUALITY PORTION OF THE SPECIFICATION:  
**CSA STANDARD Z180.1-2000**  
AS ANALYZED AND REPORTED ON THIS CERTIFICATE  
FOR THE SAMPLE DESCRIBED UNDER SECTION "SAMPLE & REPORT INFORMATION"



American Assn for Laboratory Accreditation  
1991: Certificate No. 322.01 Chemical Field of Testing

*R.A. Smith*  
Richard A. Smith, C.I.H., Laboratory Director

Analytical Test Methods	Media Sampled	Estimate of Uncertainty
Gases & Vapors CAT-A-01 Gas Chromatography/Mass Spectrometry	Source Bottle: 745264	The average analytical uncertainty (k=2) is 98.8±2.4% (relative) at the specification limit for the ten compounds normally reported. For uncertainty information for a specific compound, contact Trace.
Oil & Particulate CAT-A-03 Analytical Gravimetry	Ambient Bottle: N/A	
Particle Size CAT-A-04 Optical Microscopy	Source Filter: 129544	

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**Sample & Report Information**

**Results of Test: PASS**

Sampled For	Fort Erie Underwater Recovery Unit	Analytes	Source Results	Ambient Results	Specification <sup>1</sup> Allowable Limits
Sampled By	John Gilmour	Oxygen, Volume %	20.8	N/A	20-22
Sampled On	12/18/2012	Nitrogen, Volume %	78.3	N/A	N/A
Received On	12/28/2012	Argon, Volume %	0.9	N/A	N/A
Analyzed On	12/28/2012	Nitrogen Plus Argon, Volume %	79.2	N/A	78-80
Sampled From	Compressor & Stored Air	Carbon Monoxide (CO), ppmv	<0.3	N/A	5
Make	Bauer	Carbon Dioxide (CO <sub>2</sub> ), ppmv	492	N/A	500
Model	K14	Water Content (H <sub>2</sub> O), ppmv/Dewpoint, °F	<3.4 / <-91	N/A	27 / -63 (W)
		Atmospheric Dew Point, °F (DT)	<-91	N/A	N/A
Cylinder(s)	4	TVHC (including CH <sub>4</sub> ), ppmv	2.6	N/A	N/A
		Methane (CH <sub>4</sub> ) ppmv	2.6	N/A	10
		TVHC (excluding CH <sub>4</sub> ), ppmv	<0.7	N/A	5
		Oil (condensed) & Particulate, mg/m <sup>3</sup>	<0.04	N/A	1
Hours	3133	Odor (provided by customer)	None/Slight	N/A	None/Slight
Sample Phase	Before Filter Change	Halogenated Hydrocarbons, ppmv	<0.1	N/A	5
Customer Comments		Atmospheric Dewpoint, °C	<-68	N/A	-53
		Other	N/A	N/A	N/A

**PASS**

(W) Dew point is expressed in °F at one atmosphere pressure absolute.  
(N) This value includes nitrogen and rare gases (mostly argon).  
(DT) Trace Analytics is not accredited for this analysis. Dew point is calculated from the detector tube reading.

Report Number 12-32983  
Customer ID 4704  
Date Reported 1/2/2013  
Frequency Annual

Next Sample Due Approx. **12/18/2013**



# Trace Analytics, LLC

15768 Hamilton Pool Road  
 Austin, Texas 78738  
 800-AIR-1024 or 512-263-0000 • Fax: 512-263-0002  
 E-mail: ServiceTeam@AirCheckLab.com

## Routine AirCheck DataSheet

Last Report No.: 12-32983

Last Sample Date: 12/18/2012

SOME INFORMATION BELOW IS PREPRINTED FROM YOUR PREVIOUS AIR TEST.

IF ANY OF THE INFORMATION HAS CHANGED OR IS INCORRECT, PLEASE MARK ONE LINE THROUGH IT AND CAREFULLY PRINT THE CORRECT INFORMATION.

### 1 Contact Information

Customer ID: 4704 Customer Name: Fort Erie Underwater Recovery Unit Country: Canada

Contact: Mr. John Gilmour E-mail: John@JcGilmour.ca Phone: (905) 346-3488 Fax: \_\_\_\_\_

Alternate: \_\_\_\_\_ E-mail: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Please check box to the left if you'd like the AirCheck Report sent to the person below (fill in information).

Contact: \_\_\_\_\_ E-mail: \_\_\_\_\_

### 2 Rush Analysis Request

**IMPORTANT: PLEASE CALL 1-800-247-1024 (ext. 2) or 1-512-263-0000 (ext. 2) TO SCHEDULE**

RUSH  By marking this box, I understand that I am authorizing Same Day Analysis & Reporting for an additional \$100 per sample. Initial here: \_\_\_\_\_

### 3 Purchase Order Information (if applicable)

### 5 Customer Comments (use back if needed)

PO Number: \_\_\_\_\_ PO Valid Thru: \_\_\_\_\_

### 4 System Information

### 6 Sampled By and Sample Date

System ID: 107450

Sampled For: Fort Erie Underwater Recovery Unit

Testing Schedule:

45 Days  Monthly  Semi-Annual  
 120 Days  Other  Startup  
 Annual  Quarterly  Verification  
 Bimonthly  Random Sample  Weekly

Air Spec: CSA Standard Z180.1-2000

If above is incorrect, indicate air spec below:

OSHA 1910.134-Cylinders  OSHA 1910.134-Compressor  
 OSHA 1910.430-Com. Diving  O Fire - NFPA 1989  
 CGA Grade D-SCBA  CGA Grade D2-not SCBA  
 O Sport Diving - CGA Grade E  Other \_\_\_\_\_  
 O CSA(>2216 psig)  O CSA(15-2216 psig)  O CSA<15 psig

Make: Bauer

Model: K14

Serial No: \_\_\_\_\_

Cylinder: 4

Other ID: \_\_\_\_\_

Pressure:  High Pressure (1,000-6,000 psi)  
 Low Pressure (less than 1,000 psi)

Air used for:  SCBA  Airline Respirator  
 SCUBA  Other

Purification:  Molecular Sieve/Desiccant  No Purification  
 Refrigerated Dryer  Unknown  
 No Dryer

Sampled From:  Compressor  Source  Other  
 Stored Air  Outlet  Not Provided  
 Comp. & Storage  Breather Box

Comp. Hours: \_\_\_\_\_

SIGNATURE \_\_\_\_\_ PRINT Name (Person taking the test sample) \_\_\_\_\_

Date Sample Taken: \_\_\_\_\_

MONTH DAY YEAR

Submission of this air sample authorizes Trace Analytics, LLC to provide services. If a purchase order number is required by your company, please attach it to this data sheet or write it in the spaces provided in section "3". I attest that all information provided on this datasheet is truthful and accurate to the best of my knowledge.

### 7 Sample Information

Is this sample a Retest taken within 30 days of a failed test?  Yes  No

**A Source Bottle, Filter, and Data Sheet MUST BE RETURNED for a complete analysis.**

Filter Number (red or green label) \_\_\_\_\_

Flowrate (liters per minute) \_\_\_\_\_

Sample Time (minimum of 10 min.) \_\_\_\_\_

Detector Tube (OMIT data if sampling media does not include Detector Tube)

Tube Reading (0 - 200)	_____	Total Minutes Sampled	_____
Source Bottle Number (blue label)	_____	_____	_____
Ambient Bottle Number (white label)	_____	_____	_____

Odor is REQUIRED. It's determined by sniffing the air from the side part of the Bottle Holder. MARK ONLY ONE.  None/Slight  Pronounced

#### PLEASE NOTE:

#### Sample Shelf Life

Once a sample is taken, it must be received by our laboratory within 60 days. **NO EXCEPTIONS.**

#### Shelf Life

Sampling media must be used or returned for free replacement within 2 years of shipment date. See expiration date on return box.

— For TRACE Use Only - CPPDS

DT Reading: Red / Gray

Receiving I.D.

Receiver's Initials

We Do One Thing - Test Compressed Air

www.AirCheckLab.com

Next Sample Due Approx: 12/18/2013

## Sampling Notes for Water Vapor Detector Tube

1: Break BOTH tips of detector tube before inserting. Arrow on tube points away from Fitting. 50 LPM for 10 minutes.

2: The DT is filled with yellow filler material that reacts to the presence of water by changing color from yellow to a grayish/reddish brown. At any time during the 10 minute test if color change reaches 200 mark, remove tube and note elapsed time on data sheet.

## Reading the Detector Tube for High Pressure Air Used for SCBA

The purpose of providing a detector tube for onsite testing is to allow you the opportunity to correct a problem without having to wait for the complete report. To determine if your sample passes; identify the farthest color change on the tube between 0 and 200; locate that number on chart below; identify the flowrate you took your sample on the left hand side of chart between 40 and 60; where the two readings intersect is the approximate result in °F. For example: If tube showed color change to 50, and flowrate was 50 LPM, the result would be -49°F. The number between 0 and 200 should be written on the data sheet not the dew point from the chart below.



		Det. Tube Reading, mg/m <sup>3</sup>															
		2.5	5	10	20	30	40	50	60	70	80	90	100	125	175	200	
Flowrate Reading	60	-93	-84	-75	-66	-60	-56	-52	-49	-47	-45	-43	-42	-38	-33	-31	
	55	-92	-83	-74	-65	-58	-54	-51	-48	-45	-44	-42	-40	-36	-31	-29	
	50	-90	-81	-72	-62	-56	-52	-49	-46	-44	-42	-40	-38	-34	-29	-27	
	45	-88	-79	-70	-60	-54	-50	-47	-44	-41	-39	-38	-36	-32	-26	-24	
	40	-86	-77	-68	-58	-52	-47	-44	-41	-39	-36	-35	-33	-29	-23	-21	
		PASS								FAIL							

Above area marked "Pass" is for high pressure air used for SCBA; with a -65°F limit per CGA Grade D/NFPA 1989. See AirCheck Notebook Instructions for complete range of flowrates and further details.

If your detector tube reading indicates that you have a problem (anything outside of the PASS area in chart above); go through the following checklist; take corrective action; then retake your sample to see if the problem has been corrected. The 2<sup>nd</sup> test is free. Submit both samples for analysis to Trace's laboratory.

## Troubleshooting Checklist

Purification filters/ Depressurized filters	High ambient air temperatures (above 70°F) affect the operating life of the cartridge. Chemicals used in purification filters begin to degrade as soon as they are installed. Is it time to change the filters?
Manual/auto drain or priority valve	If not working properly can be source for excess water and reduce filter life.
Remote fill or hose reel	Long lengths (>25 ft) of hose are notorious for accumulating and retaining water. A short 1-2 minute purge WILL NOT be sufficient. It is best to take sample from a short fill hose (5-10 ft) or directly from containment fill station. - View our resource videos at <a href="http://www.AirCheckLab.com">www.AirCheckLab.com</a>
Recent hydrostat	Bottles must be properly dried after hydrostat and should be immediately pressurized with dry air.
Valves left open	Ambient air can easily have 10,000 - 50,000 ppm of water. Purge sufficiently to remove water accumulated from ambient air.
Sample taken from storage	Take sample from compressor to identify if compressor is producing dry air. If yes, storage banks may contain excess water. Drain and refill with dry air. This may require 2-3 fills to drive off water from inside cylinders. You can request extra detector tubes (\$10 ea) to do several checks for water without doing a complete air sample.
Detector tube cracked	Only the tips of the tube should be broken. If a crack runs down the main body of the tube, results will not be dependable.
Tube fitting wet	If multiple samples are taken consecutively, excess water may pool inside the fitting. Dry fitting between uses.
Other	Keep in mind that 1 milliliter (which is about 20 drops from an eyedropper) in a 1.7 cubic ft cylinder at 4500 psig would be 90 ppm of water vapor. It doesn't take much to fail.