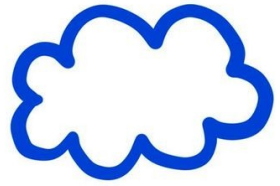


h•nu



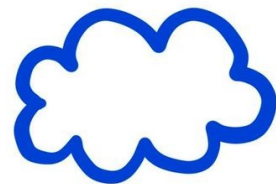
ADVANCES IN

REAL-TIME

DETECTION SYSTEMS

DURING the PANDEMIC

CRV-AIHA  
October 7, 2020  
All-Day  
Conference  
3:40pm-4:25pm



by Jennifer L. MacLachlan  
PID ANALYZERS, LLC

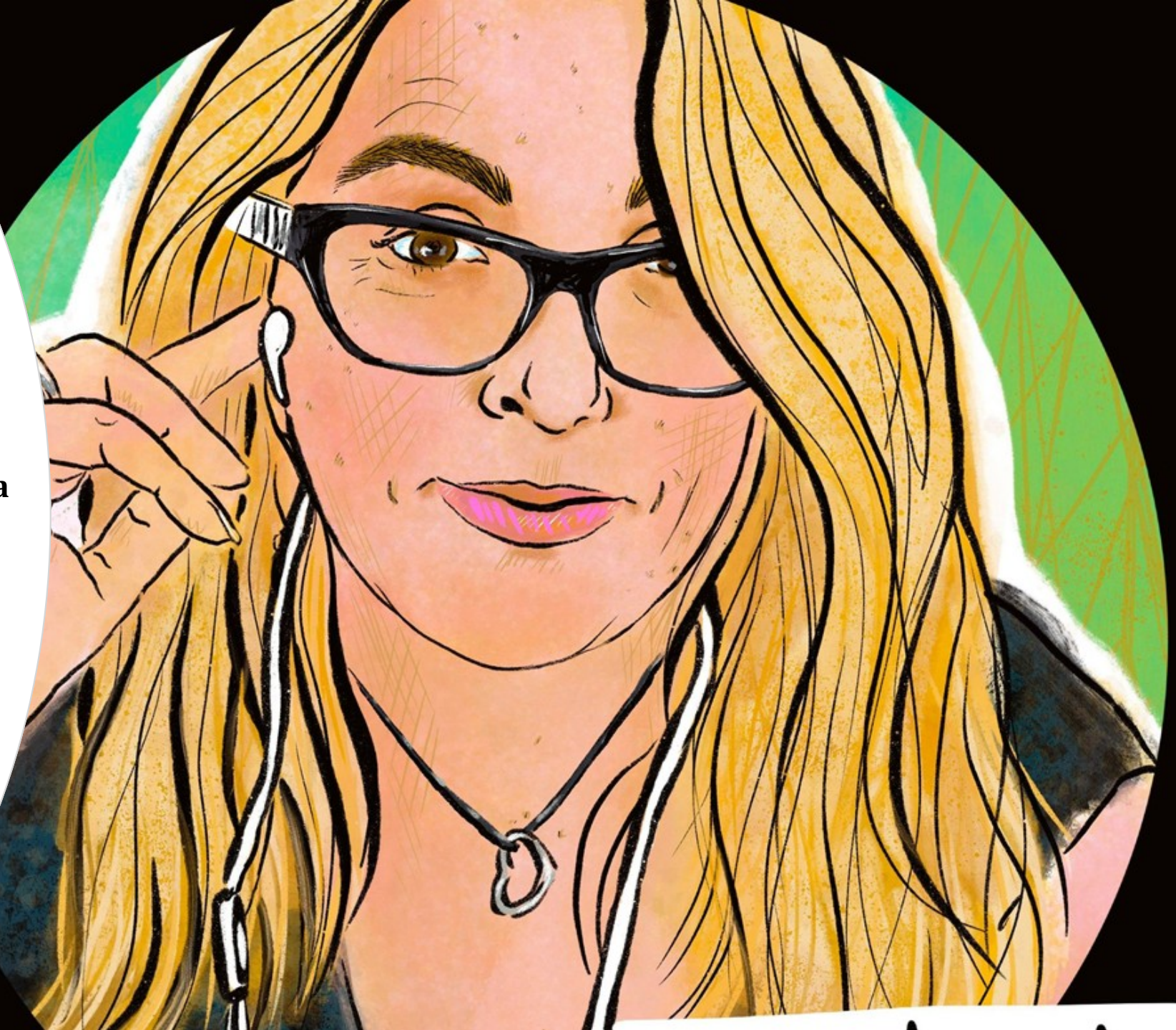


—

What am I  
discussing  
today?

---

- ✓ **How we addressed SARS-COV-2 from a manufacturing point-of-view**
- ✓ **Communication, support and installation of real-time detection systems during the pandemic: Case Studies**
- ✓ **Tales from managing a teenage workforce during COVID-19**







## About Us:

- We are located in Sandwich, MA (on Cape Cod)
- Family-owned & operated since 1973 (HNU/PID Analyzers, LLC)
- My father, Dr. Jack Driscoll, is 'the Father of Photoionization'
- He is the 2017 recipient of the Edward J. Baier Technical Achievement Award, an AIHA National Award for his significant contributions to the field of IH
- Manufacture and design hand-held portable, laboratory, and continuous real-time detection systems
- 2011-present: Founded and organize community STEM education events for adults using the Cape Cod Science Café banner and also for K-12 students at STEM Journey

Operated as 'an essential business' under the 'chemical manufacturing' provision 3/24/20

**DISNEY WORLD: CLOSED**

**NBA: CLOSED**

**NHL: CLOSED**


**MLB: CLOSED**

**MY JOB:  
SEE YA TOMORROW**

By Kaitlin McKinley Becker and Young-Jin Kim • Published March 23, 2020 • Updated on March 23, 2020 at 11:35 pm

f t e

NBC Universal, Inc.



The number of COVID-19 cases continues to go up across the country and in Massachusetts.

Massachusetts Gov. Charlie Baker on Monday ordered all non-essential businesses to close to the public for two weeks starting Tuesday and issued a stay-at-home advisory amid the ongoing coronavirus crisis.

All non-essential businesses will be required to close their physical workplaces and facilities to all workers and the public beginning 12 p.m Tuesday until April 7.

## PID COVID-19 2020 TIMELINE

- March 1: My father calls me home from Pittcon in Chicago
- March 4: Meet with Sandwich COVID-19 Task Force about STEM Journey
- March 13: Sandwich Superintendent announces school cancellation-This prompts an emergency meeting with our employees about preparedness to WFH
- March 24: Massachusetts Stay at Home order-Begin WFH for employees as well as working in shifts at the company for specific employees-Shipments routed to my home
- April 16: Installed 'Ring' Doorbells
- May 29: Back to multi-person work-some remain WFH
- June 19: Isolated lab/office space created for my father for return to work



# Building Security

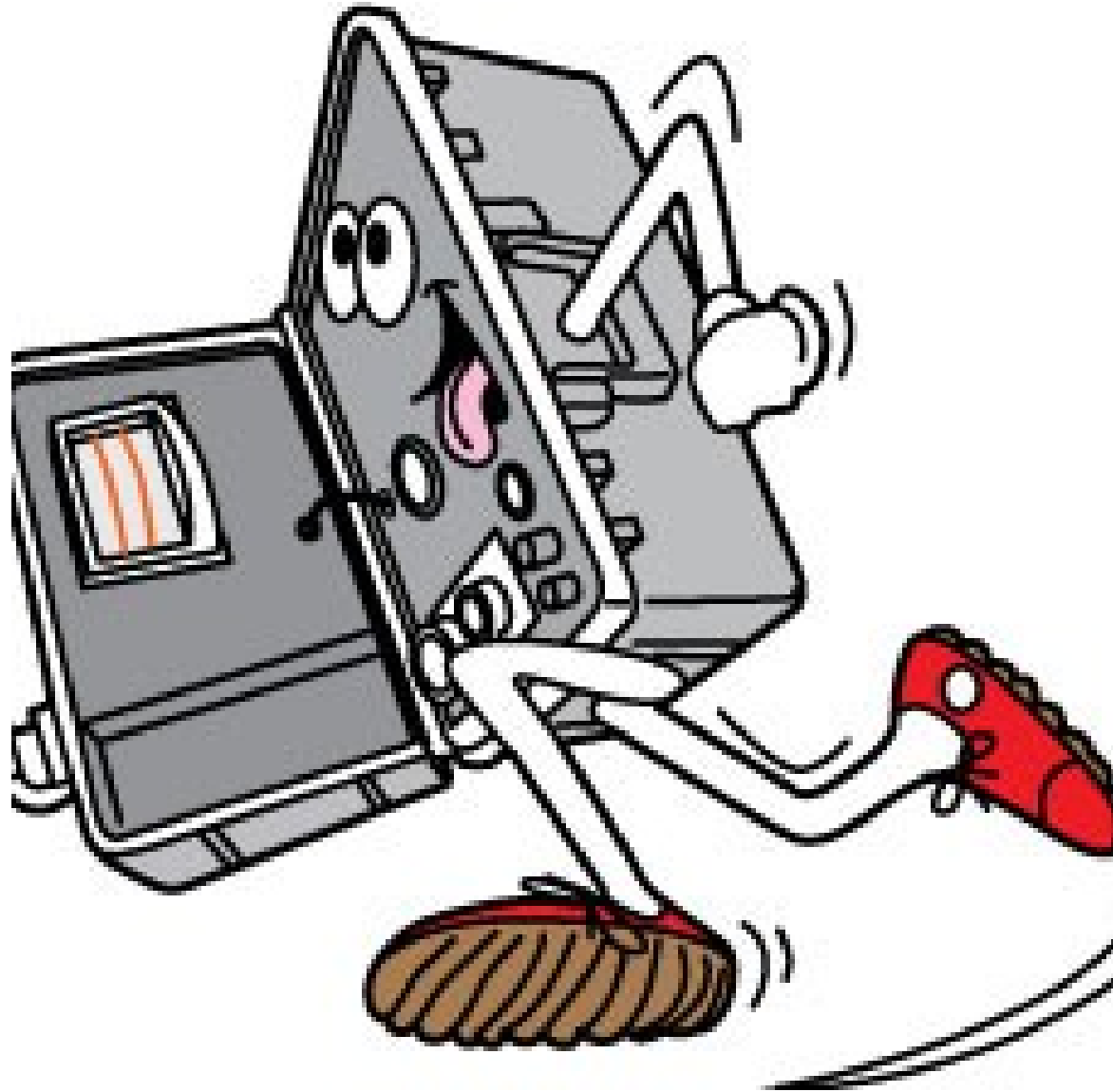
- Located on a main road (50 mph speed limit)
- Behind a gas station
- Across the street from Otis Air Force Base
- Two miles from the ocean
- A mile from the Mid-Cape Highway (Rte 6)
- All front office staff was initially designated WFH
- Having staggered employees means people are working alone, working odd hours, and having to [really] plan out their work
- Overnight shifts were NOT allowed
- Cameras were installed for employee safety (Internal/external front & back entrances/exits and ones that have an overall view of the manufacturing and production area)
- Camera locations are not secret and were cited in the 'PID COVID-19 Protocols employee training'



Communications:  
Adjusting to "the  
new normal"

Not that one, over to your left  
FFS. Jan, you're on mute.  
UNMUTE YOURSELF!"

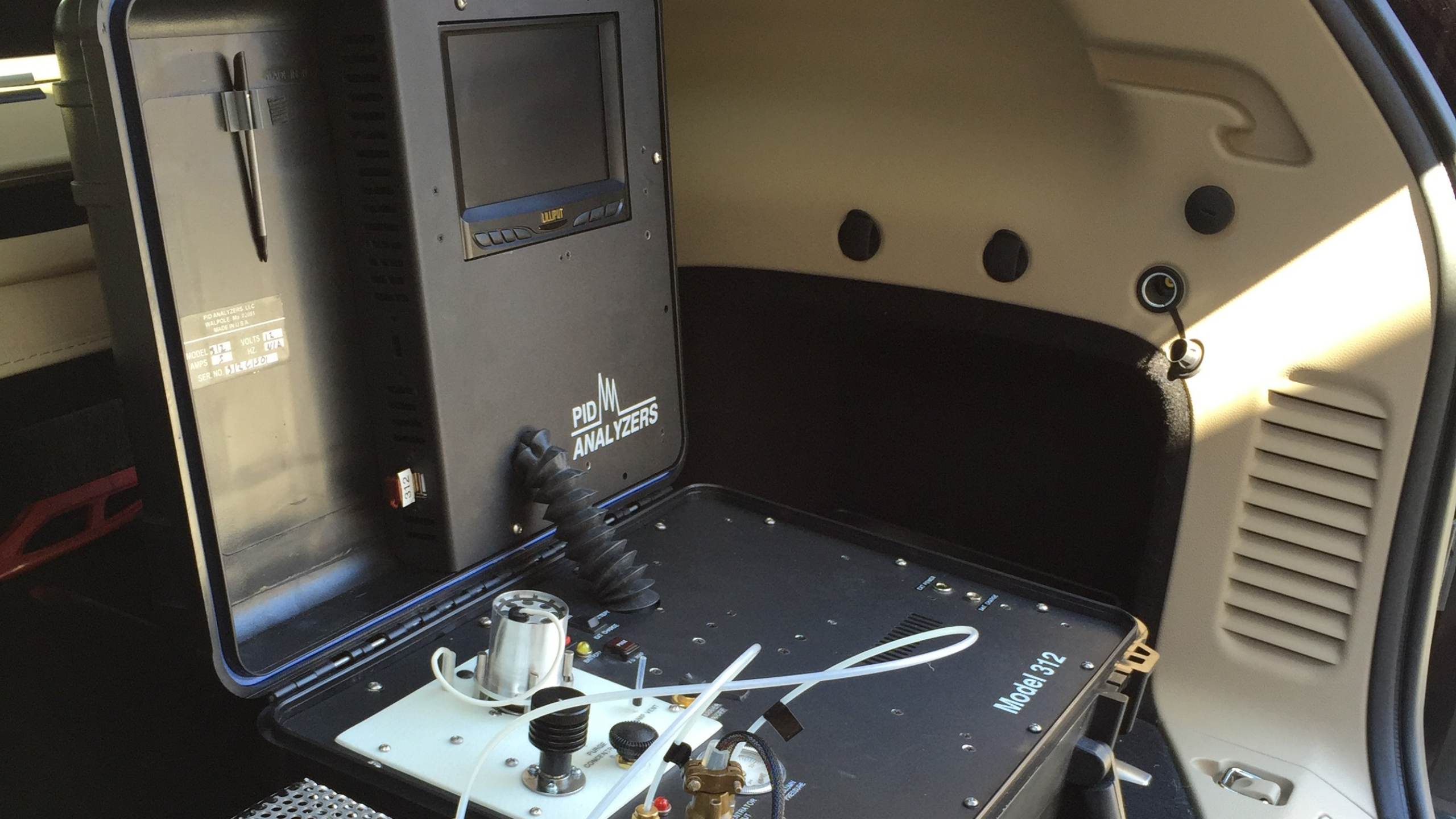




# Great Expectations

Landfill Gas Monitoring & Analysis





PID ANALYZERS LLC  
WALPOLE NH 03081  
MADE IN U.S.A.  
MODEL 312 VOLTS 12  
AMPS 5 HZ 4773  
SER NO. 144500

PID ANALYZERS

312

Model 312

Sample Inlet Manifold with various valves, tubes, and a stainless steel filter canister. Labels include "SAMPLE INLET", "PRESSURE", "FLOW RATE", "TEMPERATURE", "HUMIDITY", "GAS FLOW", and "LEAK TEST".

LEAK TEST





Graph A

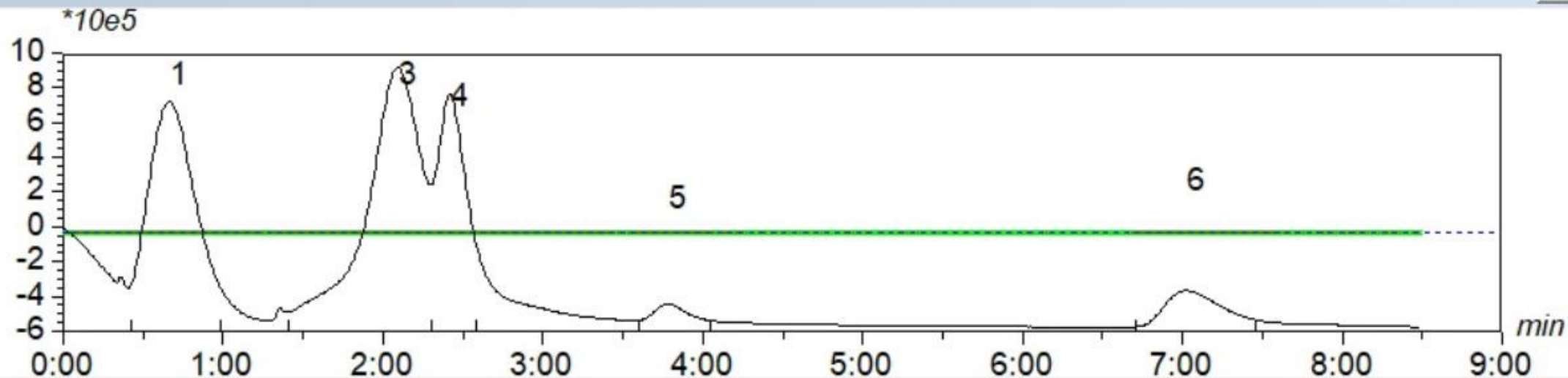
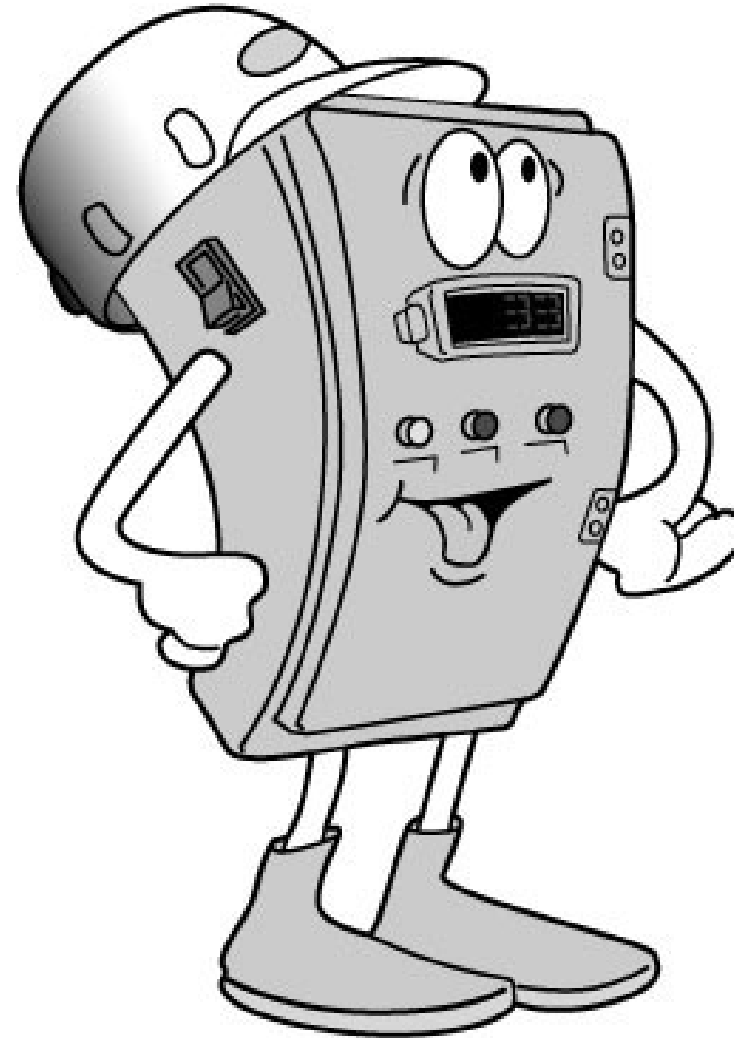
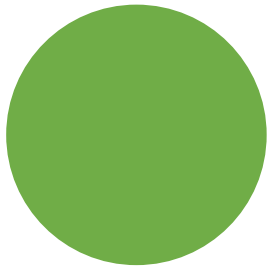


Table A

Name	Conc	Height	%	Area	%	Time
1 CH4	47.40 %	1065911	37.28	378076544	46.56	0:40
3 CO2	37.55 %	835940	29.23	215644608	26.56	2:06
4 H2	5.00 %	673422	23.55	119279048	14.69	2:26
5 O2	5000 ppm	93249	3.26	18740450	2.31	3:48
6 N2	10.00 %	190982	6.68	80200496	9.88	7:02

[You] can't get there from here



**2 systems: Multipoint Continuous VOC Monitor with MODBUS COMM**



PID Analyzers, LLC



## Continuous Analyzers for Monitoring Total Hydrocarbons (THC) using

Photoionization (PID) or Flame ionization (FID)  
With New MODBUS RTU (Slave) with RS 485

PID Analyzers, LLC has a wide range of continuous analyzers for measuring total hydrocarbons including methane (FID) or total hydrocarbons less methane by PID

201C NEMA 4 PID



112 NEMA FID

### TECHNOLOGIES

Photoionization (PID)-A 10.6 eV lamp is used to ionize HC but not the major components of air. The ions are pushed to the collector and the current produced is proportional to the concentration

Flame Ionization (FID)- The sample is burned in an air/hydrogen flame and the ions produced are pushed to the collector where the current produced is proportional to the concentration.

### APPLICATIONS

Total HC's from stacks or processes  
Carbon Bed Monitoring  
Soil Gas Monitoring  
THC from thermal converters

THC from wet scrubbers  
Total HC in water from process streams (using sparging) or rivers

### Introduction

These new range of state-of-the-art analyzers are employed for carbon bed monitoring, fence line monitoring, leak detection, quality control, ambient air monitoring

### Models (series)

**112 Low cost PID total HC (lessCH4) or FID total HC (including methane) in a NEMA 4 enclosure – for THC monitoring– no multipoint available**

**201 PID total HC (lessCH4) or FID total HC (including methane) in 19" rack or NEMA 4 enclosure –**

**201-Multipoint– 2 to 20 points available NEW MODBUS RTU (Slave) output is ideal to send multipoint data to a PLC. For the 201 MP, this is a new and important feature. MODBUS RTU Master is also available from PID Analyzers**



### General Specifications

Type	PID, FID,
Power	90-240 AC 50 or 60 cycles
Accuracy of Measurements	varies
Operating temperature range	0-50 C
Certifications	CE
Analog channel:	16 bit ADC for better precision & accuracy
Electrical classification	General purpose
Outputs	RS232, RS485 Modbus RTU (optional) for 201
Datalogging (optional)	> Data points can include Alarm-Audible, visual (blinking display)

**PID Analyzers, LLC**  
2 Washington Circle  
Sandwich, MA 02563,USA  
T 1 774 413 5281  
Email: sales@hnu.com: url www.hnu.com

**Subject:** Full set up running, pid docs engineering producing easy install directions



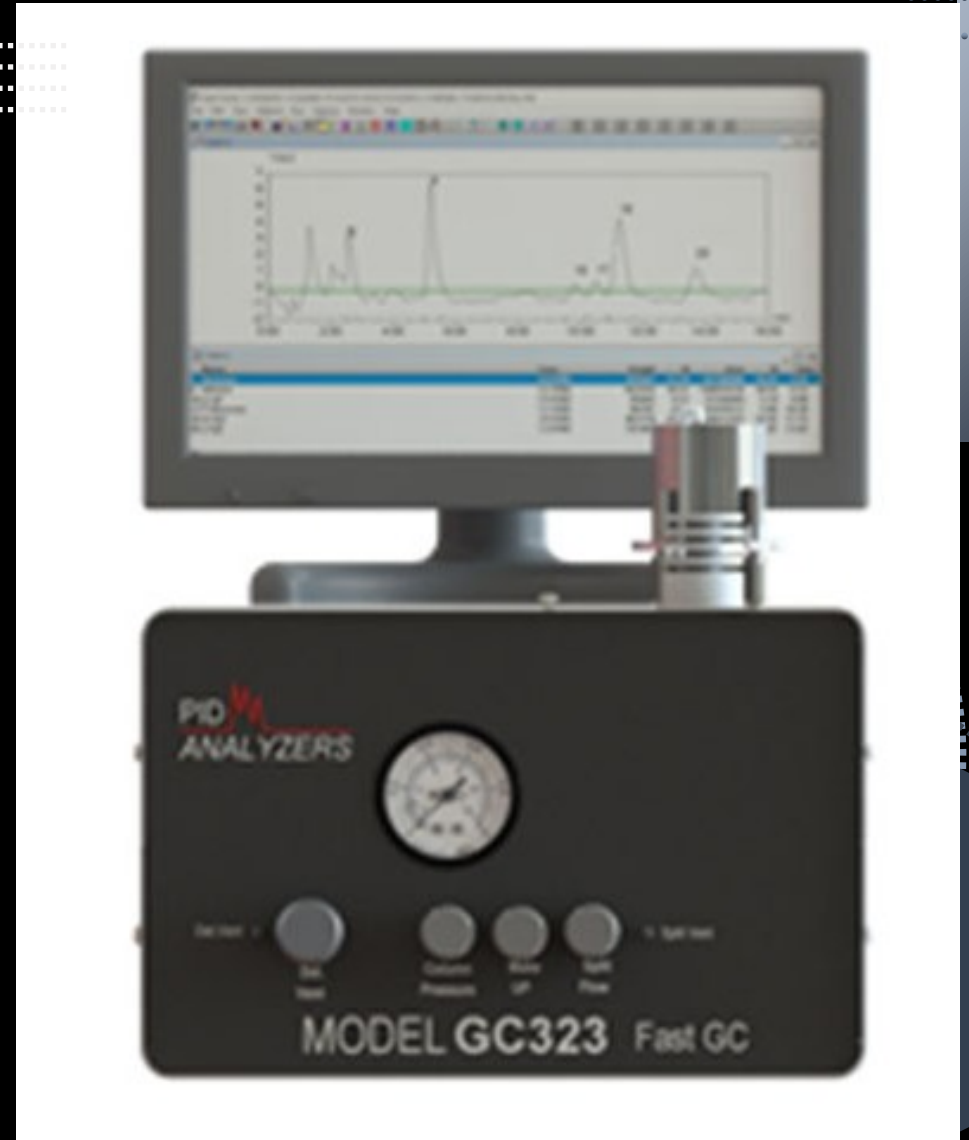


## Client Case Study 3

Good things come to those who wait



Terp profile by GC-PID



# *Analysis of Medical Cannabis Terpenes by GC-PID*

Dr. Jack Driscoll & Jennifer Maclachlan

PID Analyzers, LLC

Sandwich, MA, 02563

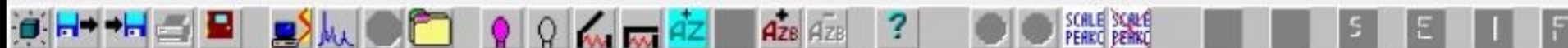
Room: Room W176A

Session Number: 5-3-3

Sunday, March 01, 2020: 2:10 PM - 2:30 PM

Chicago, IL





Graph A

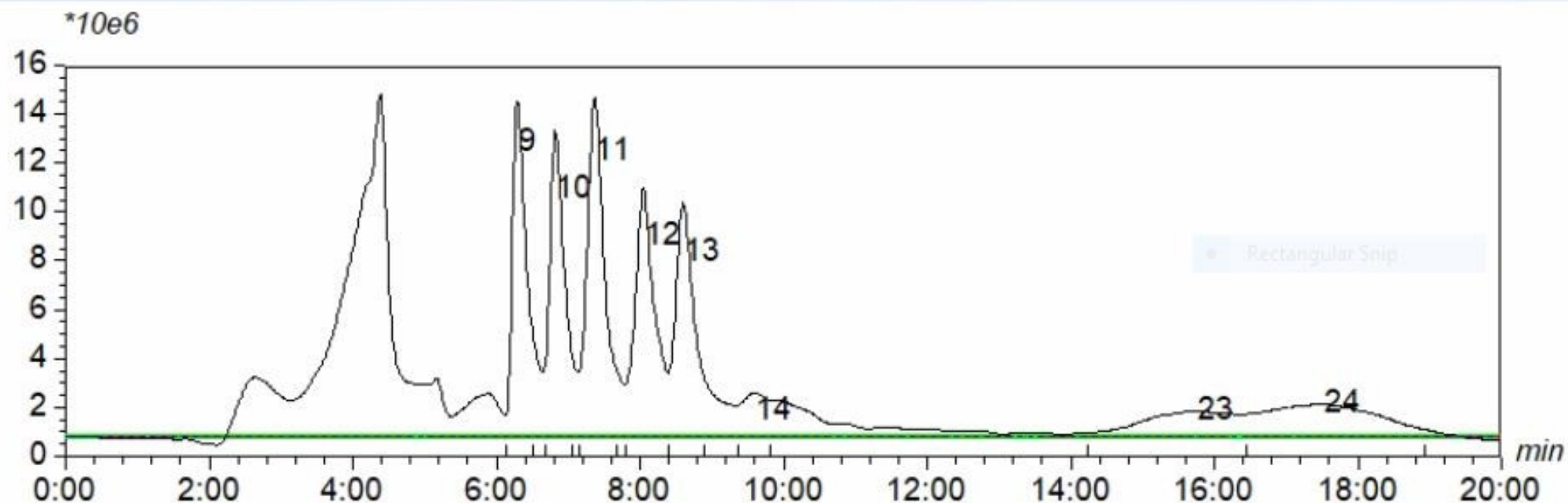


Table A

Name	Conc	Height	%	Area	%	Time
9 a pinene	248 PPM	11395753	23.89	1286066176	18.81	6:19
10 b pinene	248 PPM	9470874	19.85	1089840640	15.94	6:51
11 Limonene	248 PPM	10993213	23.05	1529208704	22.37	7:24
12 a Terpinolene	248 PPM	7554006	15.84	1076833536	15.75	8:05
13 Linalool	248 PPM	6863850	14.39	980662208	14.34	8:38
14 Trans Caryophiyene	248 PPM	371258	0.78	53058500	0.78	9:38
23 Caryophylene oxide	248 PPM	377038	0.79	244905504	3.58	15:47
24 a Bisabol	248 PPM	676076	1.42	576173696	8.43	17:33

# Communication Breakdown



**Fully stacked multigas PIDs purchased when all they want to monitor is BTEX**



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## Jen Maclachlan, 2020 Rear Commodore

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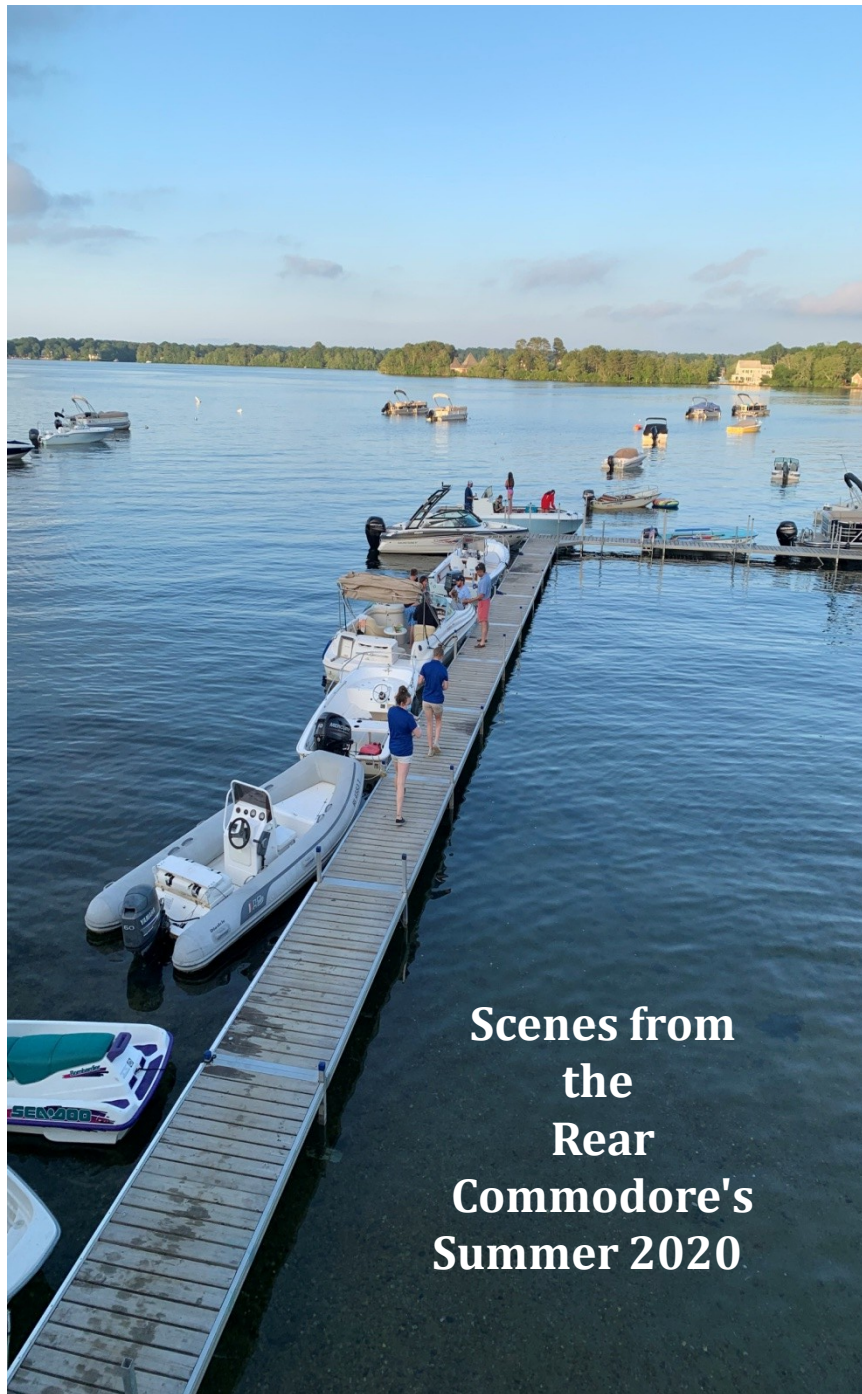
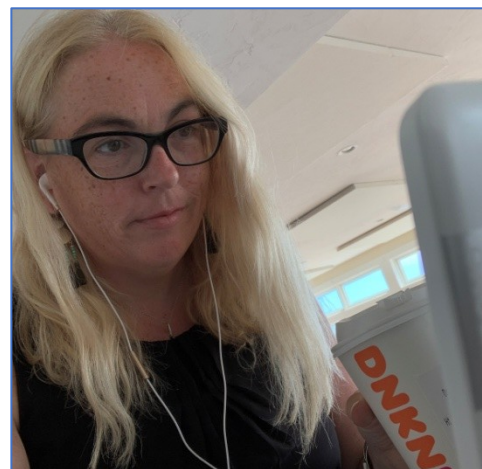
### Rear Commodore Duties:

- Responsible for House Committee
- 10 weeks of daily operations at the grill includes hiring, managing and supervising a teenage workforce.

VOLUNTEER POSITION







Scenes from  
the  
Rear  
Commodore's  
Summer 2020







## **AIHA Teen Workplace Health & Safety Committee, Jennifer Maclachlan, 2020 Chair**

### Committee Goals/Priority Projects 2020-2021

- PDC proposal for AIHceEXP 2021 submitted: **Catalyze Teen Workplace Safety in Your Community**
- Teen Workplace Safety Poster-In teen lingo-Get cooperations with internal and external groups
- Re-Tooling Safety Matters curriculum-Develop ideas/content/run contest for high school student artists to be contracted to work on sections of the re-do graphics
- Zoom presentations & Outreach (Get teachers to book guest slots for our members to give Safety Matters to their classes on Zoom)
- Teen Mental Health Management

# @pidguy & @pidgirl



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[www.hnu.com](http://www.hnu.com)