NC Department of Health and Human Services

Standardized Field Sobriety Testing
Practical Skills for New Prosecutors

November 2022

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DWI Detection

The entire process of identifying and gathering evidence to determine if a subject should be arrested for a DWI violation.

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DWI Detection Phases

- **Phase One: Vehicle in Motion**
  - Should I stop the vehicle?

- **Phase Two: Personal Contact**
  - Should the driver exit?

- **Phase Three: Pre-arrest Screening**
  - Is there probable cause to arrest the suspect for DWI?

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The Arrest Decision

- DWI detection process concludes with arrest decision

- Based on <u>all</u> evidence obtained during all three detection phases

NC-DHHS, Division of Public Health |Practical Skills for New Prosecutors| UNC-SOG November 2022   4

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Horizontal Gaze Nystagmus- HGN

Involuntary jerking of the eyes as they gaze from side-to-side

- Reliable
- Involuntary
- Noticeable
- As BAC increases, eyes begin to jerk sooner as they move to the side
- CNS Depressants, Inhalants, and Dissociative Anesthetics cause HGN

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Nystagmus Indications

- **Six maximum clues**

- **Maximum three clues per eye**

- **88% accurate detecting subjects ≥ 0.08 BAC**

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Divided Attention

Concentrating on more than one thing at a time (mental tasks and physical tasks)

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Typical Simultaneous Capabilities Required for Driving

- Information processing
- Short-term memory
- Judgment/decision making
- Balance

- Steady, sure reactions
- Clear vision
- Small muscle control
- Coordination of limbs

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Two Divided Attention Field Sobriety Tests

Walk and Turn

One Leg Stand

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Walk and Turn

- **Validated by NHTSA**

- **79% accurate detecting 0.08 BAC**

- **Do NOT deviate from SFST instructions**

- **Two stages:**
  - **Instruction Stage**
  - **Walking Stage**

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WAT – Instruction Stage

- **Divides subject's attention**
  - **Balancing**
  - **Information processing**

- **Subject stands with feet in heel-to-toe position**

- **Arms at side**

- **Listen to instructions**

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WAT – Walking Stage

- Divides subject's attention
- Balancing
- Small muscle control
- Short term memory

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WAT Test Clues

1. **Cannot keep balance while listening to the instructions**
2. **Starts too soon**
3. **Stops while walking**
4. **Does not touch heel-to-toe**
5. **Steps off the line**
6. **Uses arms to balance**
7. **Improper turn**
8. **Incorrect number of steps**

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One Leg Stand

- **Validated by NHTSA**

- **83% accurate detecting 0.08 BAC**

- **Two stages:**
  - **Instruction Stage**
  - **Balance and Counting Stage**

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OLS – Instruction Stage

- Divides subject's attention
- Balancing
- Information processing

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Balance and Counting Stage

- Divides subject's attention
  - ○ Balancing task
  - ○ Information processing

- 30 second timing is important!

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OLS Test Clues

1. Sways while balancing
2. Uses arms to balance
3. Hopping
4. Puts foot down

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NC Department of Health and Human Services

Administering Chemical Tests for Alcohol

Practical Skills for New Prosecutors

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**Preliminary Breath Test (PBT) or
Alcohol Screening Test Device (ASTD)**

- **Stage in pre-arrest screening**

- **Recommended to administer _after_ SFSTs**

- **Demonstrate association of alcohol with observable evidence**

- **Does <u>NOT</u> indicate level of impairment**

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PBT Advantages

- **Corroborate other evidence**

- **Confirm alcohol as cause of impairment**

- **Rules out a medical condition**

- **Can help establish probable cause for DWI arrest for alcohol or other drugs**
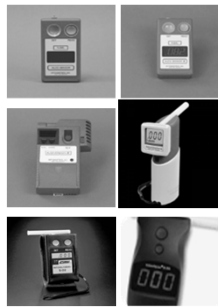
Practical Skills for New Prosecutors

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NCAC 10A: 41B   .0503(A)

APPROVED DEVICES

(1) Alco-Sensor (2 Digit) –
    Intoximeters

(2) Alco-Sensor III (3 Digit) –
    Intoximeters

(3) Alco-Sensor IV (3 Digit) -
    Intoximeters

(4) Alco-Sensor FST (2 Digit)-
    Intoximeters

(5) S-D2 (3 Digit) -   CMI, Inc.

(6) S-D5 (3 Digit)-   CMI, Inc.

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NCAC 10A: 41B .0503(A)

APPROVED DEVICES

(7) Alco-Sensor III (Enhanced w/ SNs 1,200,000 or higher) – Intoximeters

(8) Alco-Sensor FST (Enhanced w/ SNs 1,200,000 or higher) – Intoximeters

(9) LifeLoc FC10 - LifeLoc Technologies, Inc.

(10) Intoxilyzer 500 - CMI, Inc.

(11) AlcoVisor Mercury- PAS International

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INTOX EC/IR II

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The following **operational procedures** shall be followed when administering a test using the Intoximeters, Model Intox EC/IR II and Model Intox EC/IR II (Enhanced with serial number 10,000 or higher):

(1) Ensure instrument displays time and date;
(2) Ensure observation period requirements have been met;
(3) Initiate breath test sequence;
(4) Enter information as prompted by the instrument;
(5) Verify instrument accuracy;
(6) When "PLEASE BLOW" appears, collect breath sample;
(7) When "PLEASE BLOW" appears, collect breath sample; and
(8)   Print test record.

If the alcohol concentrations differ by more than 0.02, a third or fourth breath sample shall be collected when "PLEASE BLOW" appears. **Sequential tests shall be administered as soon as feasible by repeating steps (1) through (8), as applicable.**

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INTOX EC/IR II

- Name Derived from 2 Major Analytical Components

- EC= Electrochemical Cell (Fuel Cell)

- IR = Infrared Energy Absorption

- II = 2nd Generation

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Intoximeters' Desktop Evidential Breath Test Instrument

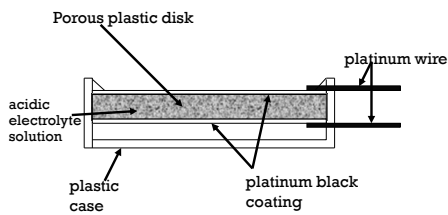Fuel Cell Based – Offers Strengths of Fuel Cell Based Systems

INTOX EC/IR II

High Degree of Innate Specificity for Alcohol
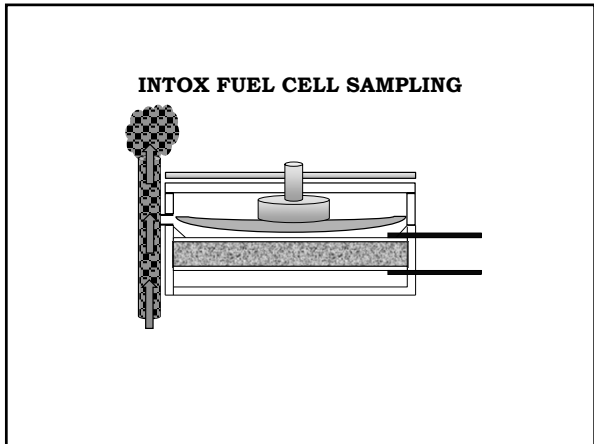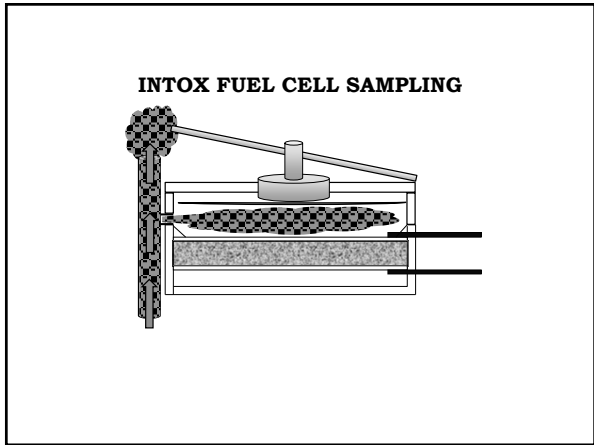
Linearity of Response Throughout the Measuring Range

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INTOX FUEL CELL DIAGRAM

Porous plastic disk

platinum wire

acidic electrolyte solution

plastic case

platinum black coating

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INTOX FUEL CELL SAMPLING

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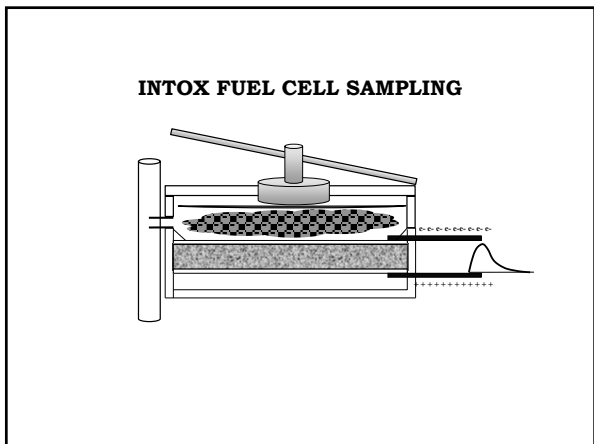**INTOX FUEL CELL SAMPLING**
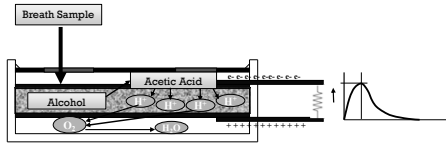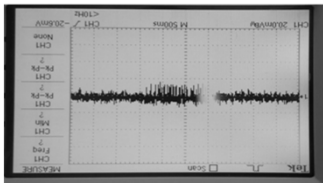
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INTOX FUEL CELL SAMPLING

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FC METHOD OF OPERATION

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## FC METHOD OF OPERATION

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ELECTROCHEMICAL FUEL CELL RECAP

• Deep Lung Breath Sample is Captured

• **Electrochemical Reaction** in the Fuel Cell is **Directly Related to the Alcohol Concentration** in the Sample

• Nonalcohol Compounds, (INTERFERENTS), **DO NOT REACT WITH** Fuel Cell

• Fuel Cell is **SPECIFIC FOR ALCOHOL**

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INTOXIMETER EC/IR II INFRARED ANALYSIS

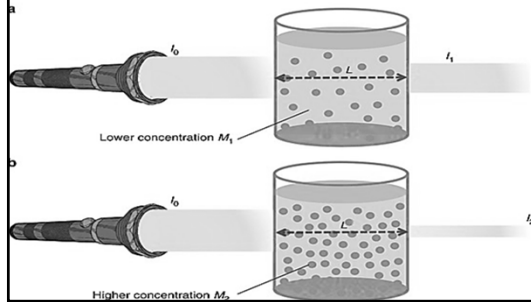The EC/IR II monitors both EtOH and CO_2 to determine Breath Sample Quality

34
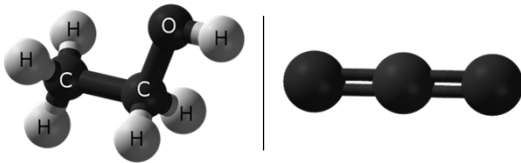
INTOX EC/IR II INFRARED FILTER WAVELENGTHS

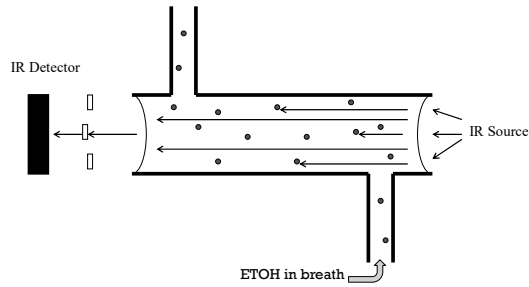All substances have a unique and consistent molecular structure.

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BEER-LAMBERT LAW

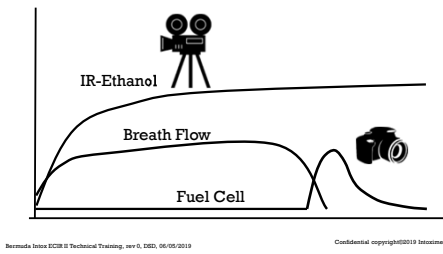THE AMOUNT OF INFRARED ENERGY ABSORBED IS PROPORTIONAL TO THE AMOUNT OF ETHANOL MOLECULES PRESENT IN A BREATH SAMPLE

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Ethanol absorbs the light energy as it passes through the sample, reducing the amount of infrared energy that strikes the detector.

IR Detector

IR Source

ETOH in breath

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SENSOR TIMING

IR-Ethanol

Breath Flow

Fuel Cell

Bermuda Intox ECIR II Technical Training, rev 0, DSD, 06/05/2019

Confidential copyright©2019 Intoximeters

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NORTH CAROLINA CUSTOM PROGRAM MODE SEQUENCE

• North Carolina Custom Programmed Mode Sequence **"DAAABABA"**
  • **D** – Diagnostic–checks all system functions

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NORTH CAROLINA CUSTOM PROGRAM MODE SEQUENCE

• North Carolina Custom Programmed Mode Sequence
"DAAABABA"
  • **D** – Diagnostic–   Pass
   • **A** – Air Blank– Purges chamber/breath tube

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IR Heaters

IR Chamber

IR Detector Assembly

IR Source

Purged Air

Breath Sample Flow

Breath tube connector

Pressure sensor port

Manifold Block

Fuel Cell heater
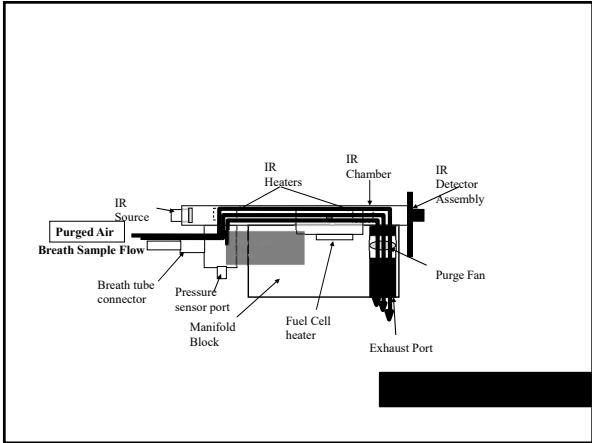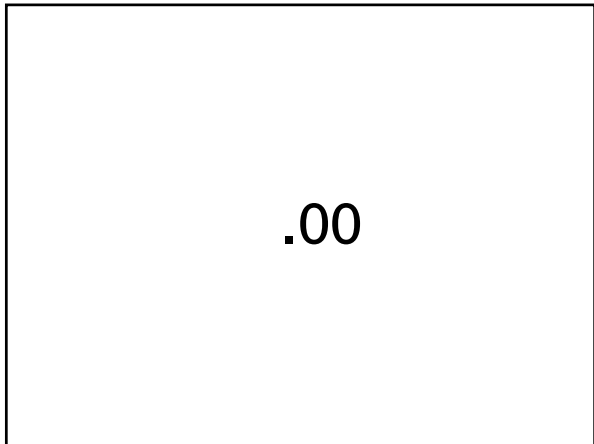
Exhaust Port

Purge Fan

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NORTH CAROLINA CUSTOM PROGRAM MODE SEQUENCE

North Carolina Custom Programmed Mode Sequence
"DAAABABA"
  • **D** – Diagnostic–   Pass
   • **A** – Air Blank–

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.00

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NORTH CAROLINA CUSTOM PROGRAM MODE SEQUENCE

• North Carolina Custom Programmed Mode Sequence **"DAAABABA"**
   • **D** – Diagnostic–   PASS
   • **A** – Air Blank–   .00
   • **A** – Accuracy check –   .08

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VERIFY INSTRUMENT ACCURACY

10A NCAC 41B .0101(9)..When procedures are followed and result specified is obtained, the instrument shall be deemed accurate.

If expected result (0.08) or 0.01 less (0.07)

If NOT, then OUT OF TOLERANCE!

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NORTH CAROLINA CUSTOM PROGRAM MODE SEQUENCE

• North Carolina Custom Programmed Mode Sequence
"DAAABABA"
 • **D** – Diagnostic–   Pass
 • **A** – Air Blank–   .00
 • **A** – Accuracy check –   .08
 • **A** – Air Blank–

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**NORTH CAROLINA
CUSTOM PROGRAM MODE SEQUENCE**

• North Carolina Custom Programmed Mode Sequence
"DAAABABA"

• **D** – Diagnostic–	Pass	
• **A** – Air Blank–	.00	-1
• **A** – Accuracy check –	.08	-2
• **A** – Air Blank–	.00	-3
• **B** – Breath –	.08	-4
• **A**– Air Blank –	.00	-5
• **B** – Breath –	.08	-6
• **A** – Air blank –	.00	-7

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**WHICH ONE IS CURRENTLY USED FOR
ACCURACY VERIFICATIONS WITH INTOX EC/IR II?**

Ethanol Dry Gas canister
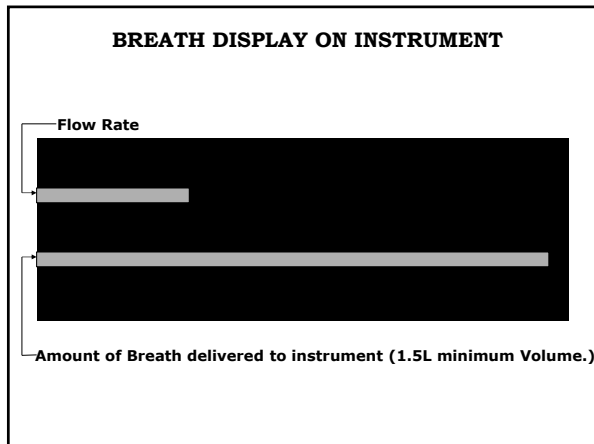expires by date or low gas
≤50 PSI

Alcoholic Breath Simulator
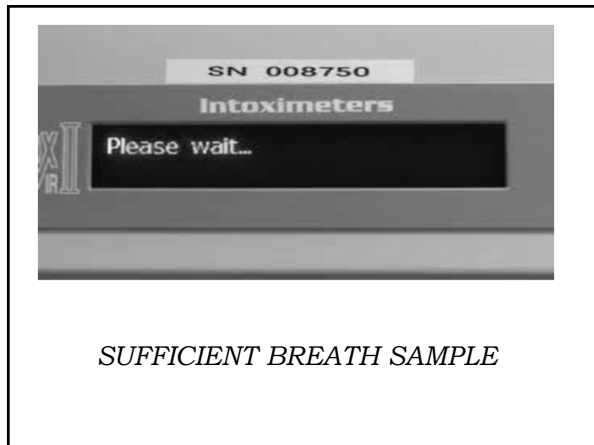125 tests and or 4 months
Not used/ never has been

50

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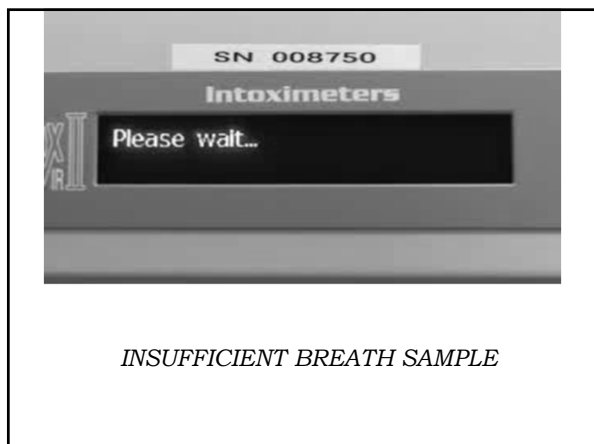**BREATH DISPLAY ON INSTRUMENT**

Flow Rate

Amount of Breath delivered to instrument (1.5L minimum Volume.)

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SN 008750

Intoximeters

Please wait...

SUFFICIENT BREATH SAMPLE

53

SN 008750

Intoximeters

Please wait...

INSUFFICIENT BREATH SAMPLE

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INTOX EC/IR II
MOUTH ALCOHOL DETECTION

- Provides "Real Time" Data on Alcohol Value in the Chamber
- Monitors BOTH Alcohol & Carbon Dioxide Sensors
- Mouth Alcohol Calculation Occurs in 2 Stages
  - A gross mouth alcohol check is made during the breath sample
  - A more refined algorithm performed after the fuel cell sample using both the CO_2 and Ethanol I/R channel outputs

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Mouth Alcohol

SN 008750

Intoximeters

Please blow

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ADDITIONAL SAFEGUARDS

Preventive Maintenance expired	Out of Tolerance • Low • High	Ethanol dry gas canister expired or $\leq$ 50 psi
Immune from Radio Frequency Interference	Ambient Conditions • CO2 • Alcohol	No 0.02 agreement
Test time out	Breath at improper time	Alcohol concentration greater than 0.40

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I thank each of you for your valuable time

QUESTIONS ?

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CONTACT INFORMATION

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