Draeger Alcotest 9510 for Legal Professionals

(Enter Instructor's Name)
Washington State Patrol
Impaired Driving Section

Why new instruments?

- DUI cost recovery funds were being used each year to procure 25 new DataMaster CDM instruments.
- In 2007 National Patent Analytical Systems/Intoximeter, manufacturer of the DataMaster and DataMaster CDM, announced they would no longer have these instruments in production.
- The WSP made the decision to look at all available manufacturer options for replacement.
- State Procurement Office in consultation with the WSP put out requests for bids.
- The Draeger Alcotest 9510 instrument was chosen for validation testing in 2009.

Validation Testing

- Two phases: Spring of 2013 and Fall of 2013
- Consisted of accuracy, precision, robustness and ruggedness testing along with various other purpose specific evaluations.
- Validation testing was reviewed and the Draeger Alcotest 9510 was approved for evidentiary use by the WA State Toxicologist in March 2014.
- WA State specific software approved in October 2014.
- Breath Test Program policy manuals updated and approved prior to deployment. Manuals are updated on a constant basis.

Laboratory Accreditation

- American Society of Crime Laboratory Directors/Laboratory Accreditation Board-ASCLD/LAB (now ANSI-ASQ National Accreditation Board) evaluated the WSP Breath Test Program for months over the Summer and Fall of 2014 with a week long on-site visit in October 2014.
- Granted re-accreditation status on November 14, 2014 (Originally accredited on November 16, 2009).
- Included scope extension for Draeger Alcotest 9510 policies, procedures, and calibration work.
- Interim reviews successfully passed in 2015 and 2016.
- WSP Breath Test Program accredited under the following international standards:
  - ISO/ICE 17025:2005
  - ASCLD/LAB-International Supplemental Requirements for Breath Alcohol Calibration Laboratories:2007
  - Infrared Spectrometry and Infrared Spectrometry/Fuel Cell

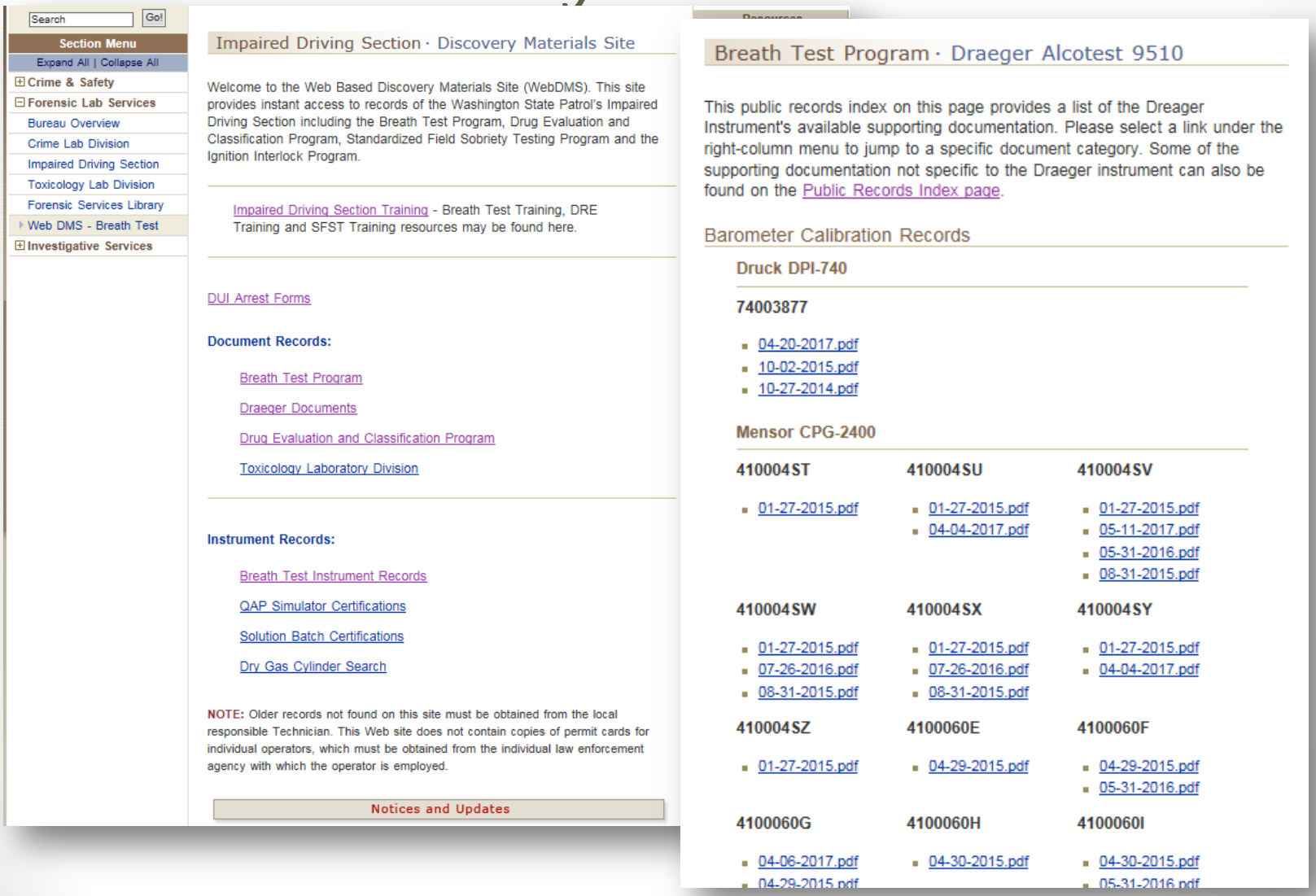
Technician Training

- Breath test technicians attended an extensive Draeger Technician Course in September 2014 taught by Draeger engineers.
  - Refresher training in June 2015 and June 2017 taught by Draeger engineers.
  - Some technicians have been trained and qualified by Draeger as instrument maintenance technicians as of November 2016.
- All technicians must show competency on the calibration process by performing a QAP which is then reviewed by the Breath Test Program Technical Lead and Impaired Driving Section Commander.

Operator Training

- Technicians are providing certified and valid operators with a 2-3 hour 'Draeger Transition Training' course prior to use in the field.
  - Includes classroom and practical testing.
- New operators are trained on both the Draeger and DataMaster instruments until full deployment statewide is completed.
- Local agency (PD's and SO's) 'operator instructors' will be provided instrument transition training soon. Prior to this, all training statewide is provided only by WSP BAC Technicians.

Discovery Materials Site



Search Go!

Section Menu

Expand All | Collapse All

- Crime & Safety
- Forensic Lab Services
  - Bureau Overview
  - Crime Lab Division
  - Impaired Driving Section
  - Toxicology Lab Division
  - Forensic Services Library
  - Web DMS - Breath Test
- Investigative Services

Impaired Driving Section · Discovery Materials Site

Welcome to the Web Based Discovery Materials Site (WebDMS). This site provides instant access to records of the Washington State Patrol's Impaired Driving Section including the Breath Test Program, Drug Evaluation and Classification Program, Standardized Field Sobriety Testing Program and the Ignition Interlock Program.

Impaired Driving Section Training - Breath Test Training, DRE Training and SFST Training resources may be found here.

DUI Arrest Forms

Document Records:

Breath Test Program

Draeger Documents

Drug Evaluation and Classification Program

Toxicology Laboratory Division

Instrument Records:

Breath Test Instrument Records

QAP Simulator Certifications

Solution Batch Certifications

Dry Gas Cylinder Search

NOTE: Older records not found on this site must be obtained from the local responsible Technician. This Web site does not contain copies of permit cards for individual operators, which must be obtained from the individual law enforcement agency with which the operator is employed.

Notices and Updates

Breath Test Program · Draeger Alcotest 9510

This public records index on this page provides a list of the Dreager Instrument's available supporting documentation. Please select a link under the right-column menu to jump to a specific document category. Some of the supporting documentation not specific to the Draeger instrument can also be found on the Public Records Index page.

Barometer Calibration Records

Druck DPI-740

74003877

- 04-20-2017.pdf
- 10-02-2015.pdf
- 10-27-2014.pdf

Mensor CPG-2400

410004ST

- 01-27-2015.pdf

410004SU

- 01-27-2015.pdf
- 04-04-2017.pdf

410004SV

- 01-27-2015.pdf
- 05-11-2017.pdf
- 05-31-2016.pdf
- 08-31-2015.pdf

410004SW

- 01-27-2015.pdf
- 07-26-2016.pdf
- 08-31-2015.pdf

410004SX

- 01-27-2015.pdf
- 07-26-2016.pdf
- 08-31-2015.pdf

410004SY

- 01-27-2015.pdf
- 04-04-2017.pdf

410004SZ

- 01-27-2015.pdf

4100060E

- 04-29-2015.pdf

4100060F

- 04-29-2015.pdf
- 05-31-2016.pdf

4100060G

- 04-06-2017.pdf
- 04-29-2015.pdf

4100060H

- 04-30-2015.pdf

4100060I

- 04-30-2015.pdf
- 05-31-2016.pdf

WASHINGTON STATE

DUI ARREST REPORT

REPORT OF BREATH / BLOOD TEST FOR ALCOHOL AND/OR T

REFUSAL TO SUBMIT TO BREATH TEST FOR ALCOHOL

SUBJECT'S NAME (LAST, FIRST, MI)	SEX ☐ M ☐ F	DATE OF BIR
STREET ADDRESS	CITY / STATE / ZIP CODE	

DRIVER'S LICENSE NUMBER	CDL ENDORSED? (CHECK IF YES) ☐	STATE	COUNTY OF ARREST	C

BAC Readings - DataMaster	1st Sample		2nd Sample	**Refus**
BAC Readings - Draeger	1st Sample (IR)		2nd Sample (IR)	**Blood A**
	1st Sample (EC)		2nd Sample (EC)	**Blo**

☐ At the time of this test(s), I was certified to operate the BAC DATAMASTER and the BAC DATAMASTER CDM and possessed a valid permit issued by the State Toxicologist.

☐ At the time of this test(s), I was certified to operate the DRAEGER ALCOTEST 9510 and possessed a valid permit issued by the State Toxicologist.

DO YOU HAVE ANY FOREIGN SUBSTANCE IN YOUR MOUTH?	MOUTH CHECKED? TIME?	2ND MOUTH CHECK? (If Necessary) TIME?	ANY FOREIGN SUBSTANCES FOUND? / REMOVED	EXPLAIN:
☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO / ☐ YES ☐ NO	

☐ I observed the subject from the time of the mouth check through the completion of the breath test.

☐ The subject did not vomit, eat, drink, smoke, or place any foreign substance in his/her mouth during the observation time.

☐ At the time of this test, I possessed a valid permit issued by the State Toxicologist and was certified to operate the PBT. The test was performed in accordance with the State Toxicologist's protocols. (Chapter 448-15 WAC)	PBT READING	PBT TIME

☐ BOOKED ☐ PR'D RELEASED TO:

Comparing Instruments

DataMaster/DataMaster CDM

Draeger Alcotest 9510

Comparing Instruments

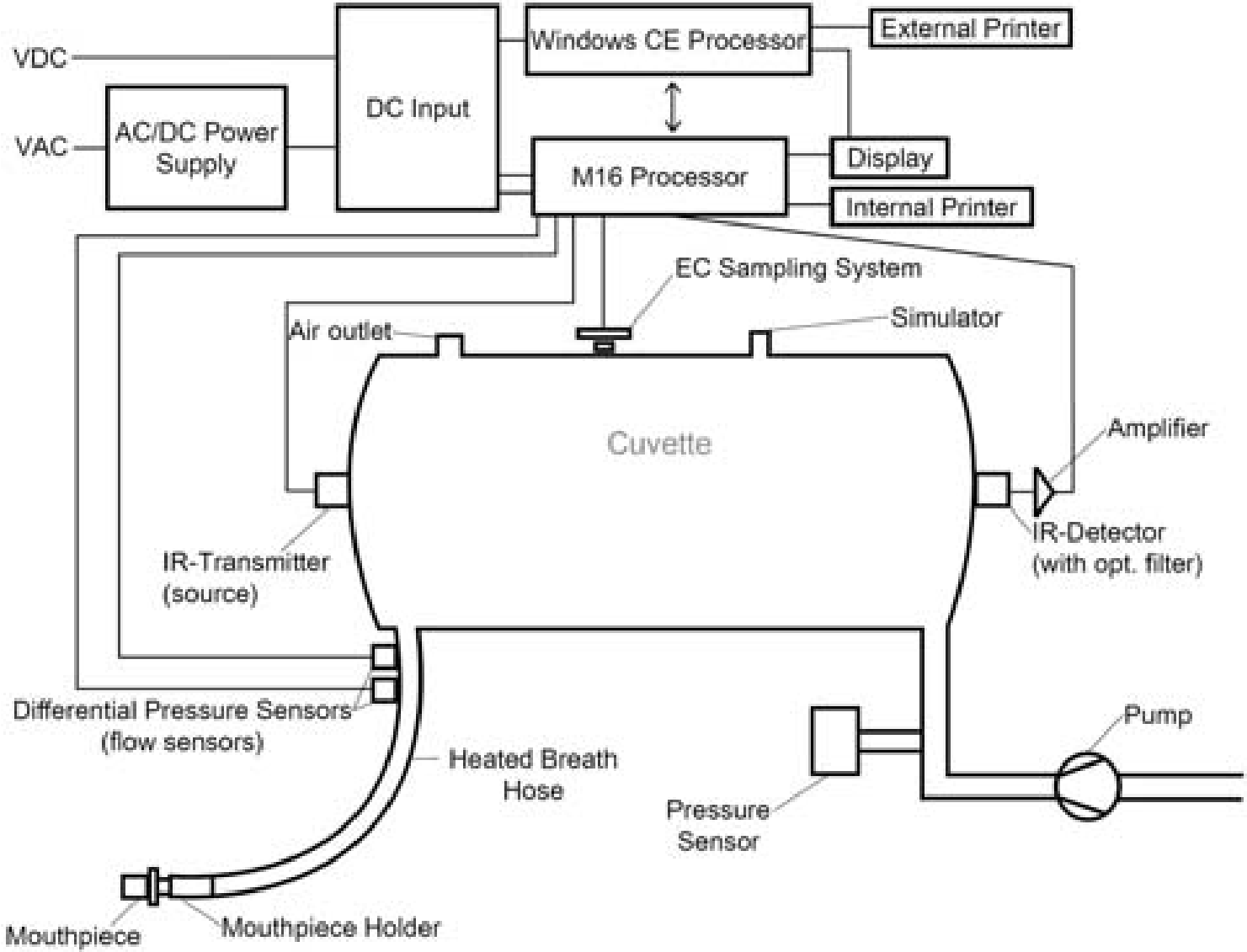
	DataMaster/DataMaster CDM	Draeger Alcotest 9510
Ethanol Detection Technology	Infrared (IR)	Infrared (IR) and Electrochemical Cell (EC)
Software Updates	Manually replace EPROM chip	Remotely or via USB Drive
External Standard	Ethanol Wet Bath	Ethanol Dry Gas
Internal Standard	Quartz Plate	IR Energy Attenuated
Interfering Substances Detection	Chopper Wheel, Filter System	Dual Detection Technology and Change in IR spectrum
Radio Frequency Interference (RFI)	RFI Detection Feature (antenna)	Sample Chamber Shielded from RFI

Effective June 19, 2017
Version: 2

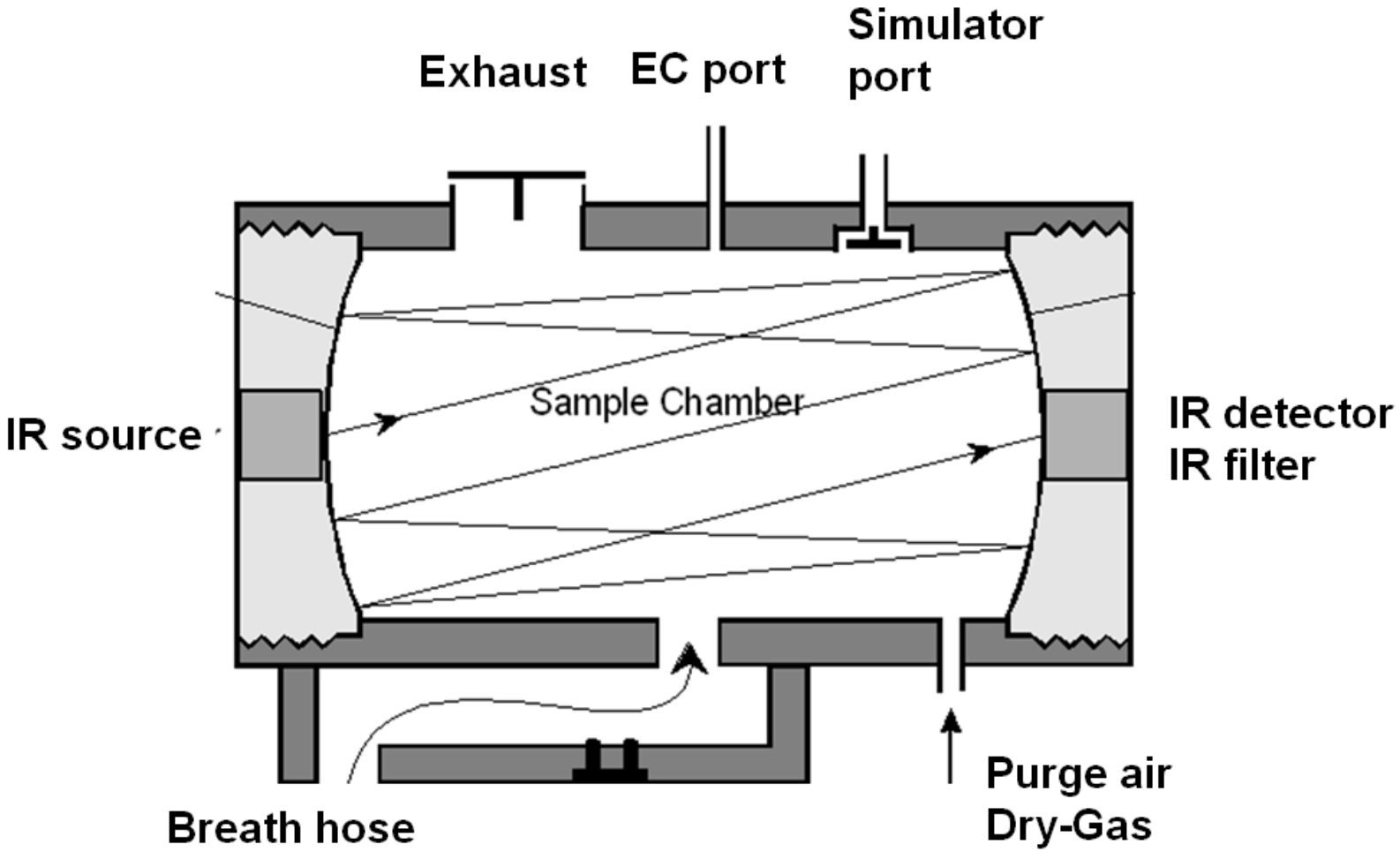
Approved by the IDS Commander

Software

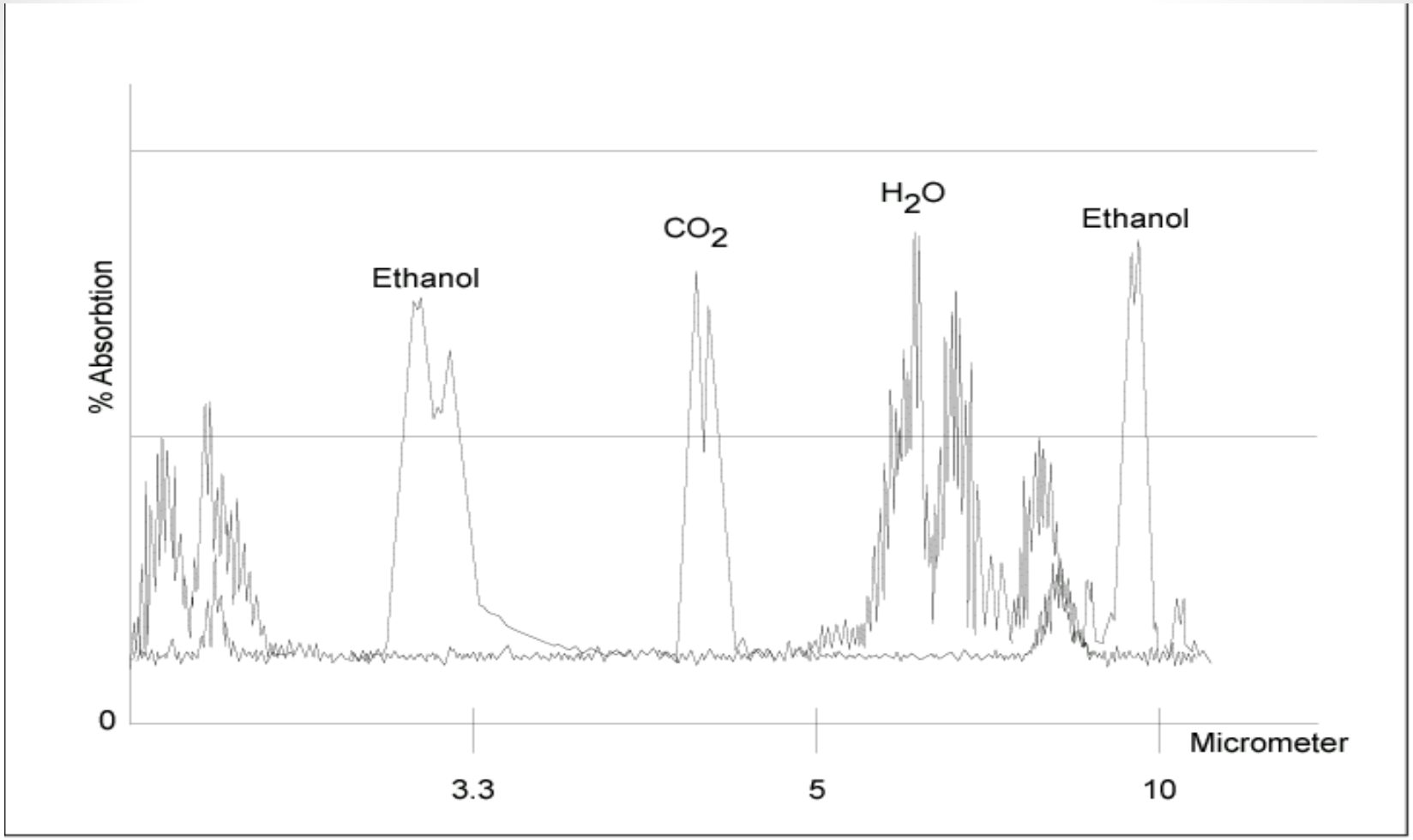
Name	Purpose
Bootloader	Instrument start-up commands
Operating System -Microsoft Windows CE (WinCE)	Typical computer functions, touchscreen, peripherals, internet communications, etc.
Configuration File -Requested specifications specific to WA	Naming conventions, testing sequence to conform to RCW/WAC requirements, QAP and calibration procedures, operator and technician interface, status codes, etc.
Measurement System Software -Independent processor based	Analytical microprocessor, sensor inputs, algorithms and computations which produce the results and measurement sequence.



Draeger Components



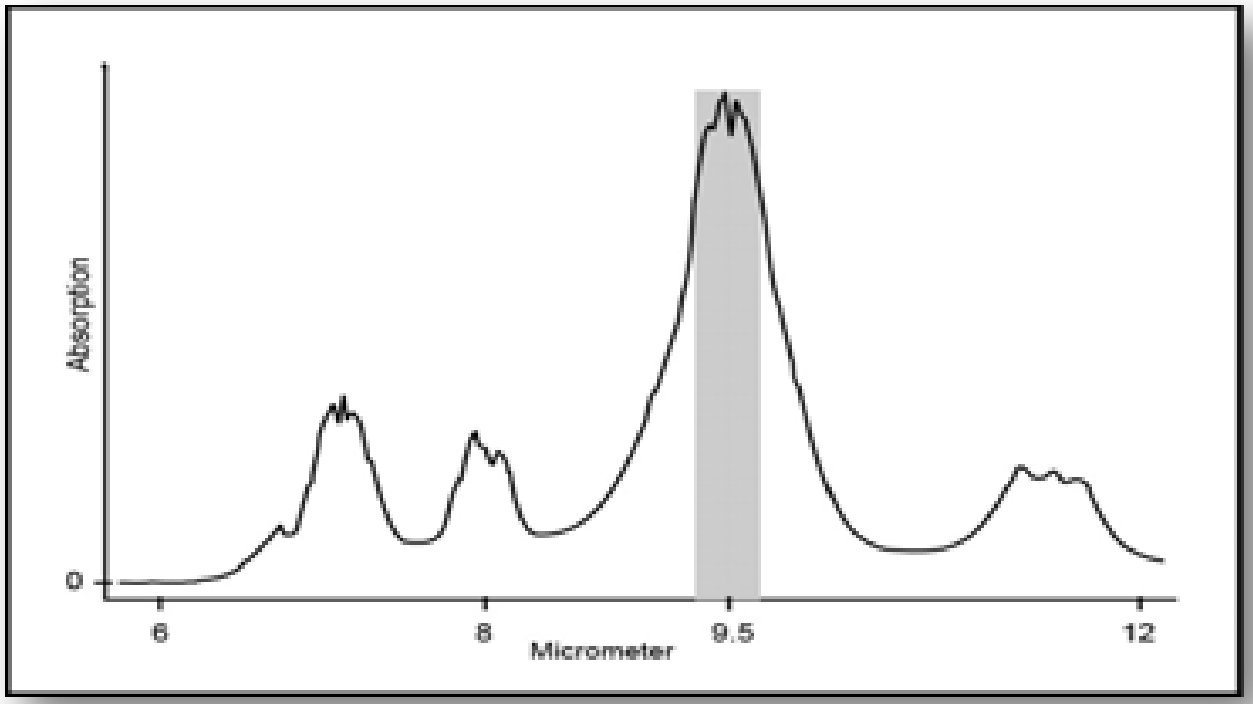
Draeger Sample Chamber



IR - spectrum of a human breath sample containing 200 ppm ethanol (approximately 0.08% BrAC)

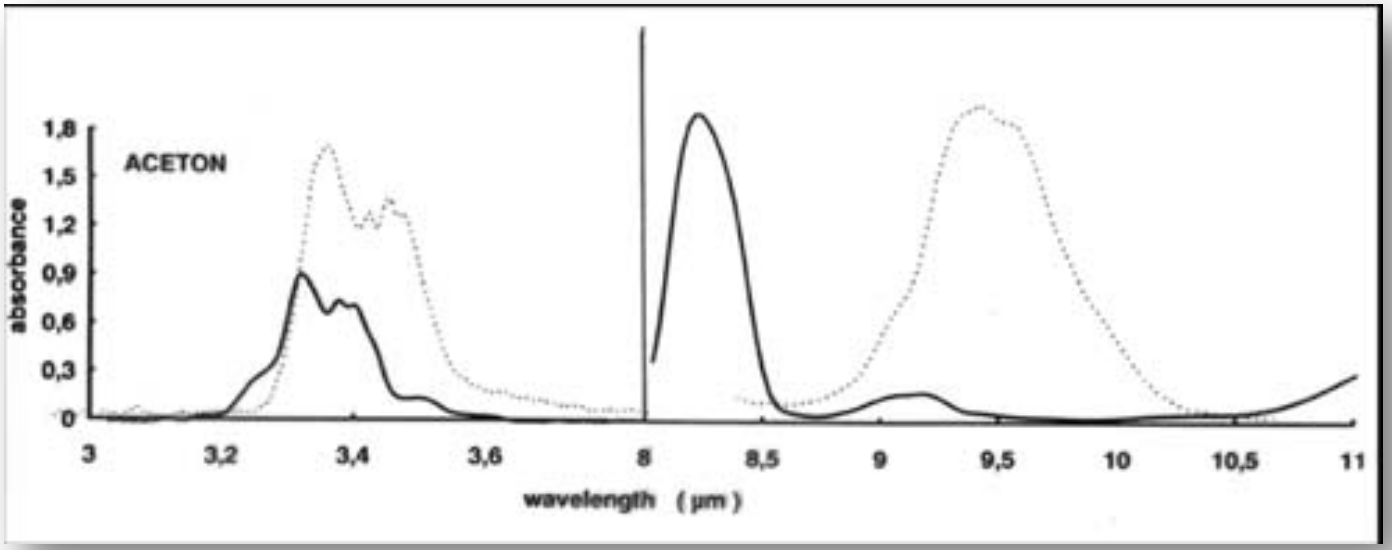
Ethanol peak at 3.4 µm (micrometers) corresponds to the stretching of the C-H bond.

Ethanol peak at 9.5 µm corresponds to the vibration of the C-O bond.



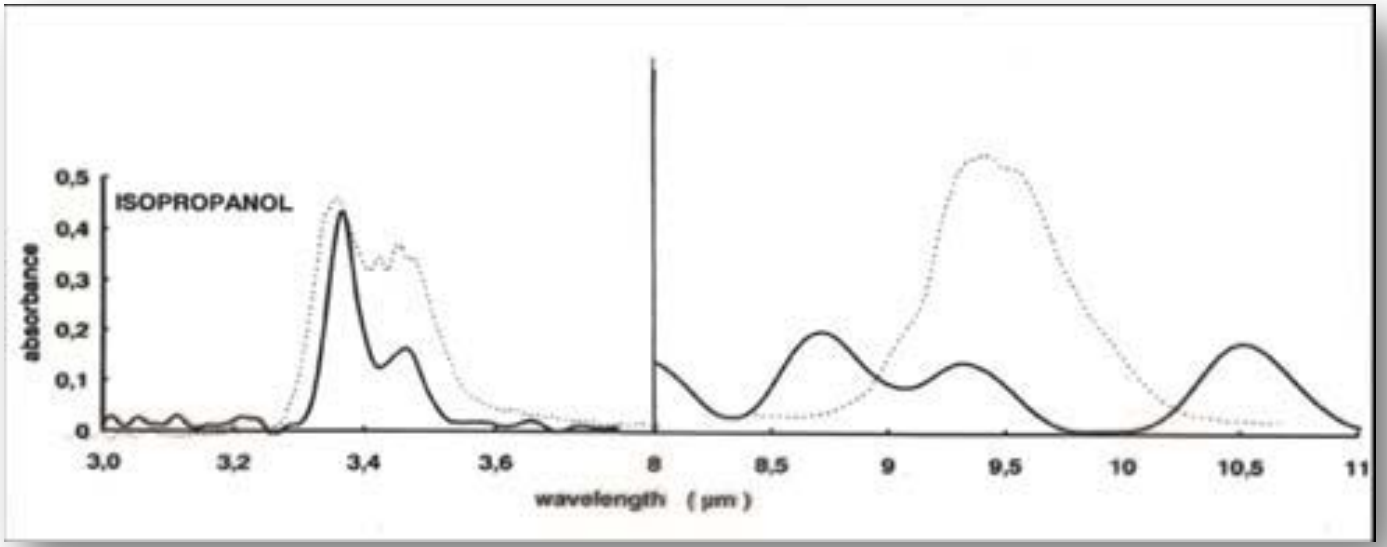
Draeger Alcotest 9510 Infrared Operating Range

By shifting the operating range from 3.4 µm to the 9.5 µm range, tests results are virtually free from the influence of interfering substances.



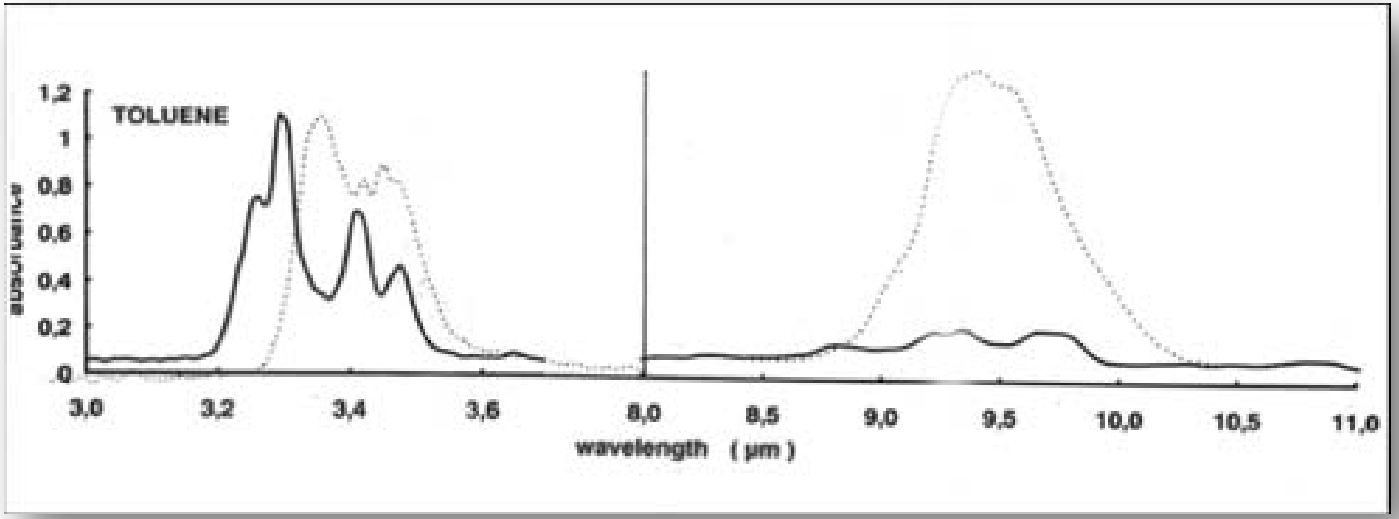
IR Spectrum for Exhaled Breath with Acetone/Ethanol

Solid line indicates acetone while the dotted line indicates ethanol.



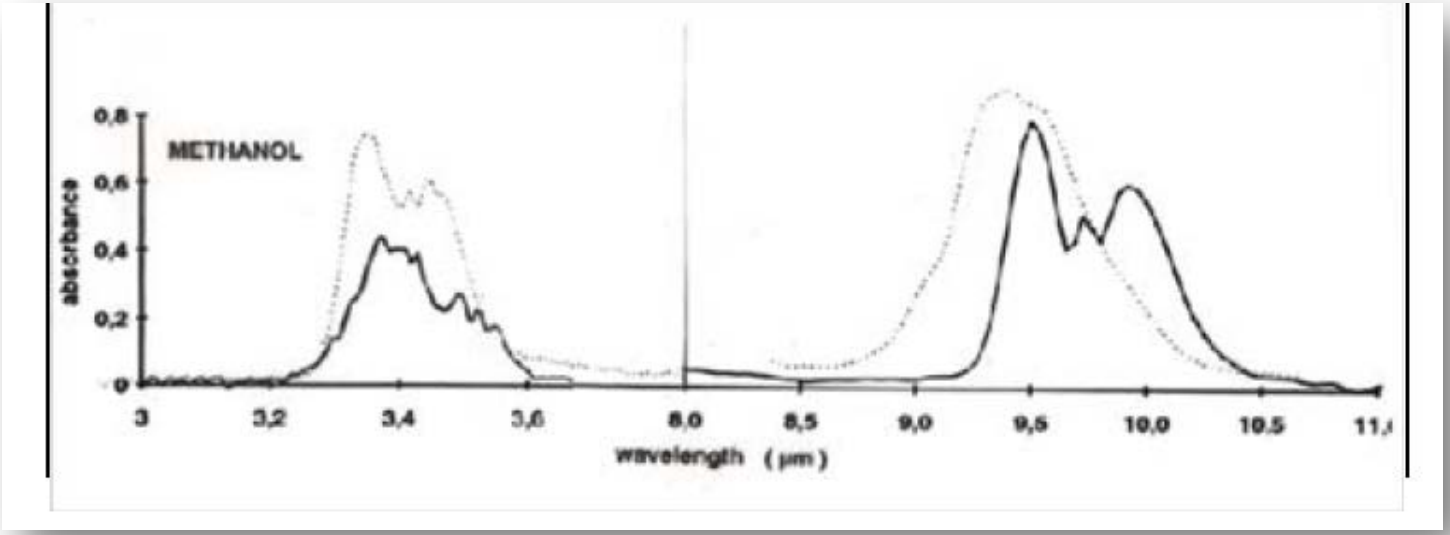
IR Spectrum for Exhaled Breath with Isopropanol/Ethanol

Solid line indicates isopropanol while the dotted line indicates ethanol.



IR Spectrum for Exhaled Breath with Toluene/Ethanol

Solid line indicates toluene while the dotted line indicates ethanol.

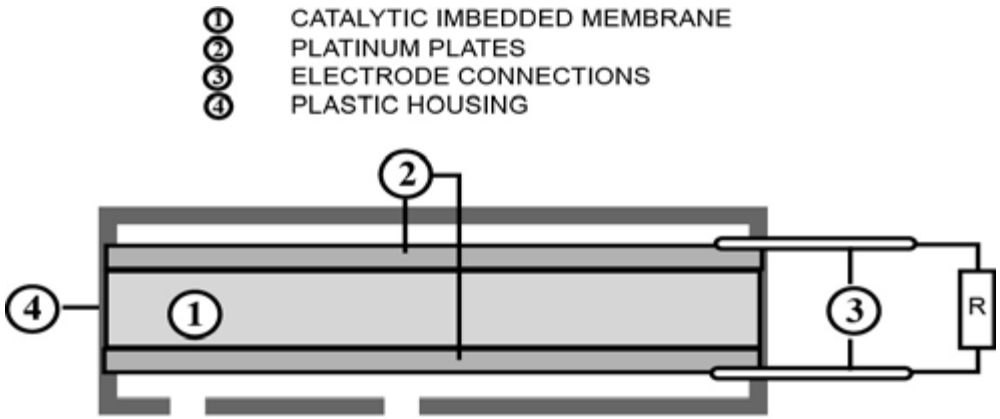


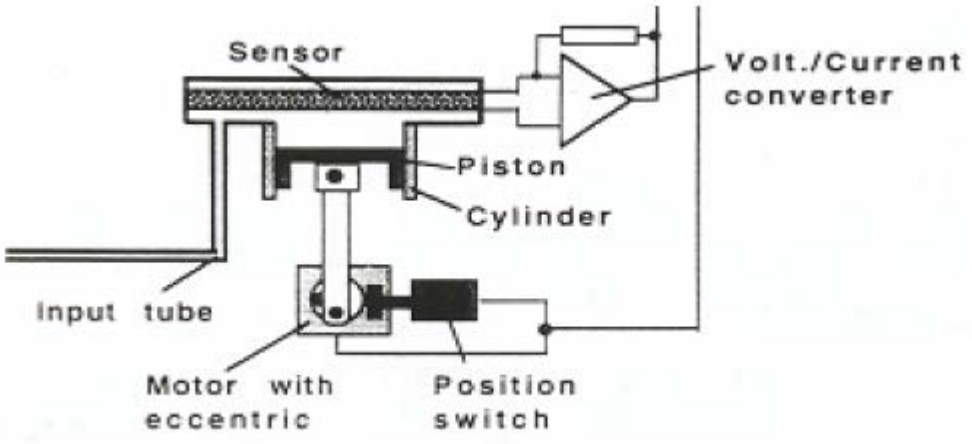
IR Spectrum for Exhaled Breath with Methanol/Ethanol

Solid line indicates methanol while the dotted line indicates ethanol.

Electrochemical Sensor

- Abbreviated on Breath Test Documents as EC.
- More commonly known as Fuel Cell.
- Similar in design to PBT detection technology.
- Located on top of the sample chamber, the fuel cell measures a small amount (1cc) of the same exhaled breath sample immediately following the IR measurement.
- If alcohol is present, a chemical reaction is triggered and the resulting current is used to determine the amount of alcohol in the sample.
- The Fuel Cell is alcohol specific.

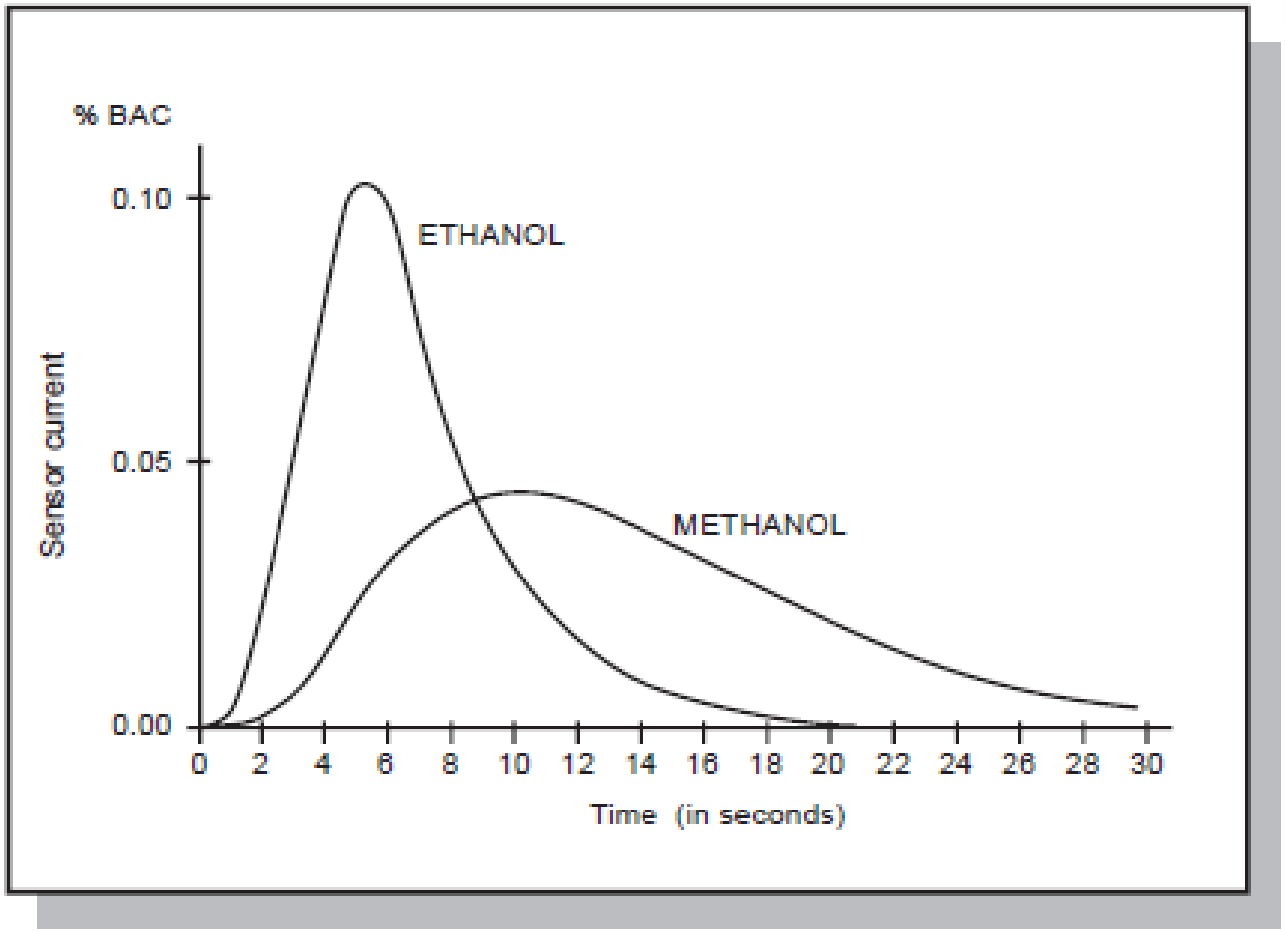




Electrochemical Sensor (Fuel Cell)

Interfering Substances

	IR Detector	EC Detector	"Interference" Triggered By
Hydro Carbons	Yes	No	IR vs. EC Delta
Isopropanol	Yes	Yes	IR vs. EC Delta
Acetaldehyde	Yes	Yes	IR vs. EC Delta
Acetone	Yes	No	IR vs. EC Delta
Methanol	Yes	Yes	EC Curve Pattern



Ethanol/Methanol EC Curve Pattern

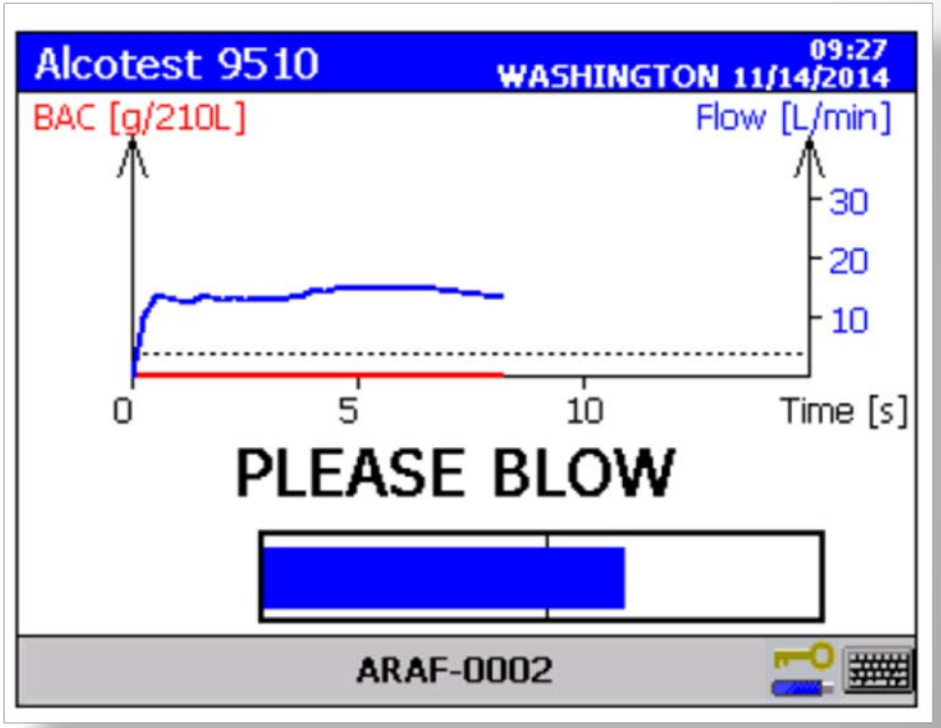
The 9510 compares the kinetic reaction profile of the EC to the recorded profile observed when then instrument performs an external standard check (ethanol only).

Breath Sample Criteria

- Starting flow rate is 8.0L/min.
- Minimum flow rate of 4.0L/min.
- Minimum blow duration of 5.0 sec.
- Minimum breath volume of 1.5L.
- Slope (plateau) detection
  - The alcohol concentration must always be increasing or plateauing. A plateau is recognized as increasing ≤4% in 1 second.
- All four test results (IR and EC from each of the two breath samples) must be within ± 10% of the mean of all four test results.

On Screen Features

- Touch screen with external keyboard
- Streamlined data entry process
- Real-time breath flow and ethanol curve along with sampling parameters.



Breath Test Document

Operator and subject data

Two results per sample

Certification and Officer Signature

Instrument specific information

Breath volume and blow time displayed

WASHINGTON STATE PATROL
EVIDENTIARY SUBJECT TEST
ALCOTEST 9510 SERIAL NUMBER ARAH-0094
SOFTWARE VERSION 8322798 0.7
CONFIGURATION VERSION 8322796 2.3
DATE OF LAST QAP: 09/09/2014

Analysis Date: **10/02/2014**
Observation Period Began: **08:10**
Citation/Case Number: **1930**
Operator Name: **STERKEL/ MEL/ D**
Subject Name: **GEYHDYD/ KDF/ R**
Subject Date of Birth: **09/08/1976**
External Standard Lot: **LOT1_6789012345678901234**

Breath Analysis	Result g/210L	Time hh:mm	Volume liters	Blowtime seconds
Blank Test	0.000	08:40		
Internal Standard	VERIFIED	08:41		
Subject Sample 1			2.3	6.6
IR Result	**0.000**	08:42		
EC Result	**0.000**	08:42		
Blank Test	0.000	08:43		
External Standard IR	0.080	08:43		
External Standard EC	0.077	08:43		
Blank Test	0.000	08:44		
Subject Sample 2			1.8	5.8
IR Result	**0.000**	08:45		
EC Result	**0.000**	08:45		
Blank Test	0.000	08:46		

During this test, I followed all protocols set in place by the Washington State Toxicologist for the purposes of this test. At the time of this test I was certified to operate the Alcotest 9510 and possessed a valid permit issued by the State Toxicologist. I observed the subject during the entire observation period and during that time they did not eat, drink, smoke, vomit, or place any foreign substances in their mouth.

I certify (or declare) under penalty of perjury under the laws of the state of Washington that the statements on this document and information contained therein are true, correct, and accurate. (RCW 9A.72.085.)

Officer Signature _____ Date 10/2/14

Location Signed Yakima WA

Internal Standard

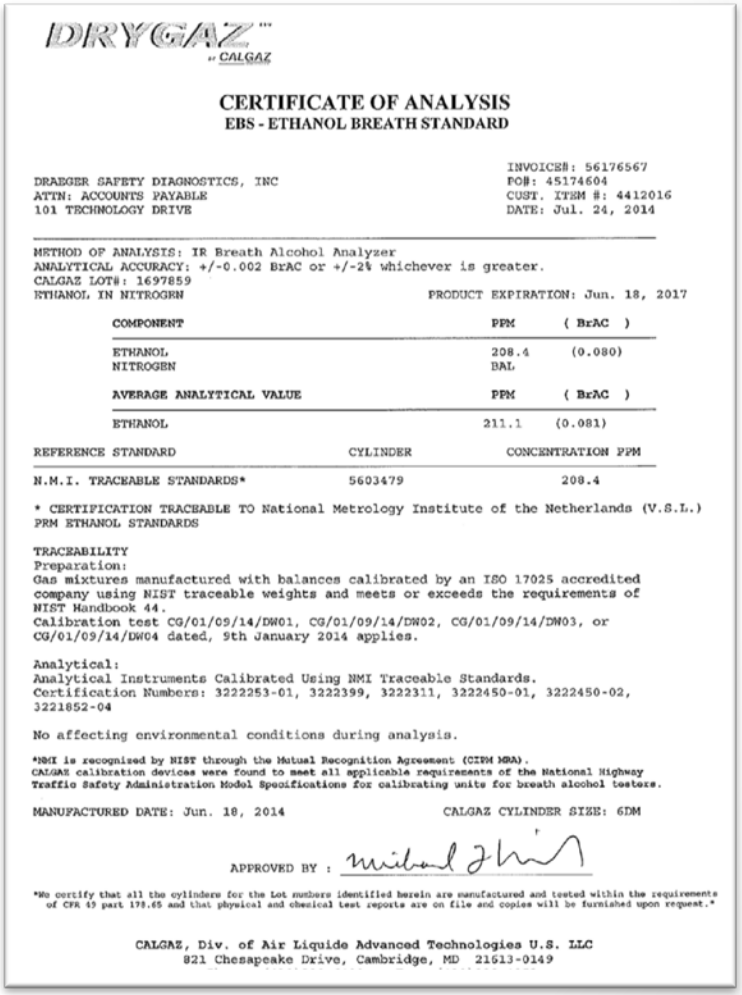
- The analytical process in the internal standard check is virtually identical to that of an actual breath alcohol analysis.
- A very precise and consistent amount of radiated IR energy from the IR Source passing through the absorption chamber is attenuated.
- This resembles the effect that alcohol vapor has in the absorption chamber thus, the instrument computes the drop in IR energy to a corresponding alcohol concentration reading.
- If successful, it will still display 'Internal Standard-Verified'.
- The quartz plate, which is used by the DataMaster as the internal standard, has been eliminated.

External Standard

- Two ethanol dry gas cylinders mounted on the rear of the instrument.
- Secured with a technician key.
- Used to verify the accuracy of the instrument.
- Replaces the ‘Wet Bath’ simulator which was present on the DataMaster.

External Standard Certification

- Dry gas prepared and certified by DryGaz, supplied via Draeger.
- Manufactured in lots
- Each lot will contain a Certificate of Analysis (COA)
- Each COA will be reviewed and posted on WebDMS.



DRYGAZ™
by CALGAZ

CERTIFICATE OF ANALYSIS
EBS - ETHANOL BREATH STANDARD

DRAEGER SAFETY DIAGNOSTICS, INC
ATTN: ACCOUNTS PAYABLE
101 TECHNOLOGY DRIVE

INVOICE#: 56176567
PO#: 45174604
CUST. ITEM #: 4412016
DATE: Jul. 24, 2014

METHOD OF ANALYSIS: IR Breath Alcohol Analyzer
ANALYTICAL ACCURACY: +/-0.002 BrAC or +/-2% whichever is greater.
CALGAZ LOT#: 1697859
ETHANOL IN NITROGEN
PRODUCT EXPIRATION: Jun. 18, 2017

COMPONENT	PPM	(BrAC)
ETHANOL	208.4	(0.080)
NITROGEN	BAL	

AVERAGE ANALYTICAL VALUE	PPM	(BrAC)
ETHANOL	211.1	(0.081)

REFERENCE STANDARD	CYLINDER	CONCENTRATION PPM
N.M.I. TRACEABLE STANDARDS*	5603479	208.4

* CERTIFICATION TRACEABLE TO National Metrology Institute of the Netherlands (V.S.L.)
PRM ETHANOL STANDARDS

TRACEABILITY
Preparation:
Gas mixtures manufactured with balances calibrated by an ISO 17025 accredited company using NIST traceable weights and meets or exceeds the requirements of NIST Handbook 44.
Calibration test CG/01/09/14/DW01, CG/01/09/14/DW02, CG/01/09/14/DW03, or CG/01/09/14/DW04 dated, 9th January 2014 applies.

Analytical:
Analytical Instruments Calibrated Using NMI Traceable Standards.
Certification Numbers: 3222253-01, 3222399, 3222311, 3222450-01, 3222450-02, 3221852-04

No affecting environmental conditions during analysis.

*NMI is recognized by NIST through the Mutual Recognition Agreement (CIPM MRA).
CALGAZ calibration devices were found to meet all applicable requirements of the National Highway Traffic Safety Administration Model Specifications for calibrating units for breath alcohol testers.

MANUFACTURED DATE: Jun. 18, 2014
CALGAZ CYLINDER SIZE: 6DM

APPROVED BY :

We certify that all the cylinders for the Lot numbers identified herein are manufactured and tested within the requirements of CFR 49 part 178.65 and that physical and chemical test reports are on file and copies will be furnished upon request.

CALGAZ, Div. of Air Liquide Advanced Technologies U.S. LLC
821 Chesapeake Drive, Cambridge, MD 21613-0149

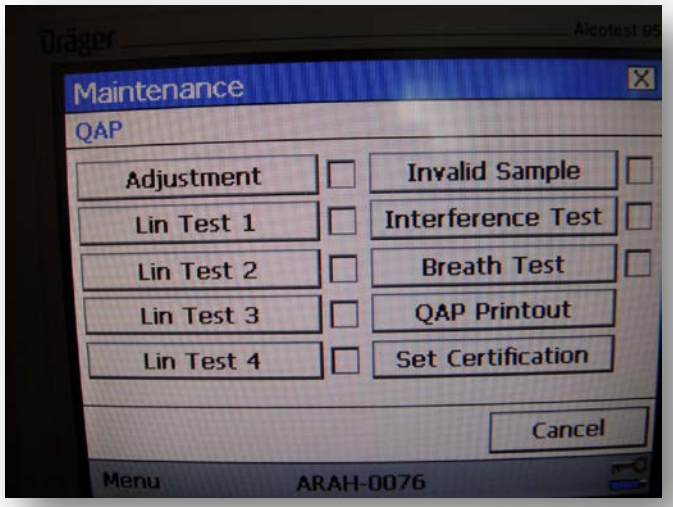
Reference Barometer

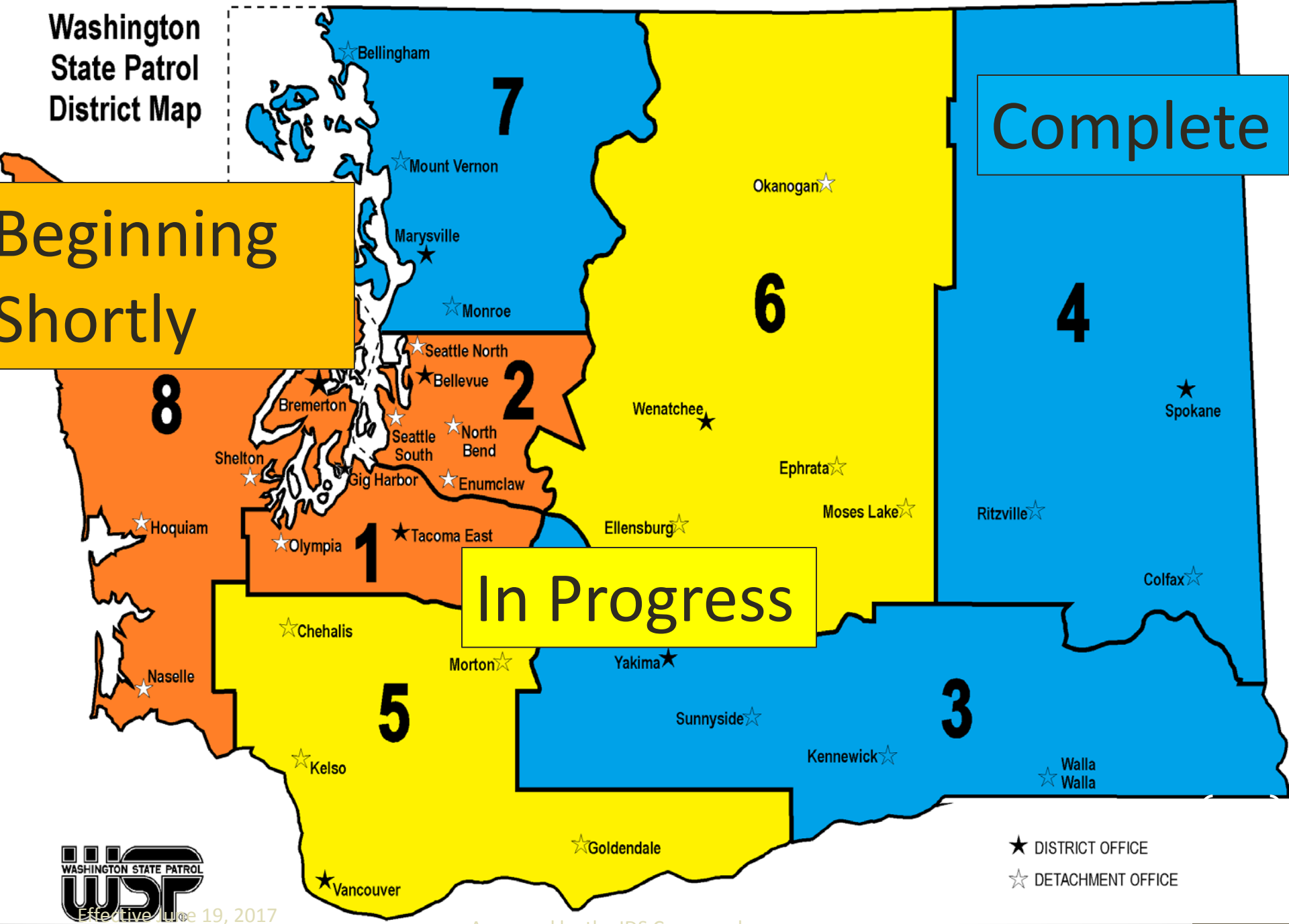
- Dry gas cylinders are potentially affected by ambient pressure.
- Internal pressure sensor automatically adjusts the external standard reading.
- Technician calibrates the internal pressure sensor during the QAP process.

New Instrument Features

- Optical Card Scanner
  - Verifies operator's certification
  - Scans WA driver's licenses
  - Manual entry also available

- Quality Assurance Procedure (QAP)
  - Process built into instrument software
  - Easier to track and review
  - Less opportunity for human error




Washington State Patrol District Map
Complete
Beginning Shortly
In Progress
7
6
4
8
2
1
5
3
Bellingham
Mount Vernon
Marysville
Monroe
Okanogan
Seattle North
Bellevue
Bremerton
Seattle South
North Bend
Wenatchee
Spokane
Shelton
Gig Harbor
Enumclaw
Ephrata
Moses Lake
Ritzville
Hoquiam
Olympia
Tacoma East
Ellensburg
Colfax
Chehalis
Morton
Yakima
Naselle
Sunnyside
Kennewick
Walla Walla
Kelso
Goldendale
Vancouver
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DETACHMENT OFFICE

Questions?

(Enter Instructor's Name)

Washington State Patrol-Impaired Driving Section

Breath Test Program

811 East Roanoke Street

Seattle, WA 98102-3915

(Email)@wsp.wa.gov

(206) 720-3018

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