

# *Washington State Patrol*

---

---

## BREATH TEST PROGRAM

---

---

### Calibration – Training Manual

Revision March 2013

---

---

Impaired Driving Section  
Forensic Laboratory Services Bureau  
811 East Roanoke Street  
Seattle, WA 98102  
(206) 720-3018

## Table of Contents

1.0	Training Manual .....	3
2.0	DataMaster and PBT Operator Basic Course .....	4
3.0	DataMaster and PBT Operator Refresher Course.....	45
4.0	Breath Test Technician Basic Course .....	72
5.0	Simulator Solution Changer Basic Course .....	78
6.0	Preliminary Breath Test (PBT) Technician Basic Course.....	82
7.0	Breath Test Instrument Basic Instructor .....	93
8.0	Breath Test Instrument Instructor Refresher .....	102

Archived 1/18/2014

## 1.0 TRAINING MANUAL

### 1.0.1 POLICY

The Washington State Patrol (WSP) Breath Test Program (BTP) will establish, implement and maintain a breath alcohol calibration training program appropriate to the scope of its responsibilities. The BTP will use only approved training curriculum and examination materials during all of their training courses, and training records will be maintained for all courses provided. Approved training will include initial or basic training curriculum, as well as refresher or in-service training programs. All training records will be maintained at BTP headquarters. The goal will be to provide training of the highest and most relevant quality in order to ensure that all personnel are capable of performing their responsibilities in the most competent, qualified manner possible. This manual includes the training curriculum approved for personnel employed within the BTP, performing breath alcohol calibration functions.

The Washington Administrative Code (WAC 448-14, 448-15, 448-16) identifies those classifications of personnel qualified for different areas of breath alcohol responsibility. Those classifications within the BTP are: Operators, Instructors, Solution Changers, and Technicians. This manual contains the curriculum that is currently approved for training and certifying individuals within these specific categories.

### 1.0.2 SCOPE

The BTP and the WSP Toxicology Laboratory Division (TLD) are responsible for functions related to breath alcohol calibration. The TLD prepares and certifies two types of simulator solutions: the Quality Assurance Procedure (QAP) solutions and the External Standard solution (ESS). These solutions are then used by the BTP, where the QAP solutions are used to set and confirm the calibration of the evidentiary breath test instruments, and the External Standard solution is used to verify the accuracy and proper working order of the instrument as part of a field evidential breath test. Both BTP and TLD personnel provide expert testimony regarding these breath alcohol calibration functions.

## 2.0 DATAMASTER AND PBT OPERATOR BASIC COURSE

### 2.0.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals as Qualified Operators of the DataMaster Breath Test Instrument. Those individuals successfully completing this training course are qualified to perform evidential breath alcohol tests.

### 2.0.2 TRAINING OUTLINE AND LESSON PLAN

#### BASIC COURSE FOR DATAMASTER AND PBT OPERATOR

To be presented in up to 16 hours.

##### 2.0.2.1 INSTRUCTIONAL OBJECTIVES:

1. Understand the role of breath testing in DUI enforcement.
2. Understand basic pharmacology and physiology of ethanol relevant to DUI enforcement.
3. Understand the legal aspects of evidentiary breath testing.
4. Understand the principles of operation of the DataMaster, and DataMaster CDM
5. Understand the purpose, principles, and operation of the simulator.
6. To develop the student's skill in operating the DataMaster.
7. To acquaint the student with techniques that help to achieve an admissible test result.
8. To familiarize the student with the DUI arrest report and its importance.
9. Basic preparation in court testimony regarding the DataMaster.
10. To develop the student's skill in effective DUI report writing.
11. To provide an opportunity for hands on practice with the DataMaster.
12. To test the students knowledge of DataMaster procedures and ability to conduct an admissible breath alcohol test.
13. The student will receive a brief review of the Standard Field Sobriety Tests.
14. The student will become familiar with the history, nomenclature, theory, legal aspects and become a certified operator of the AlcoSensor III and AlcoSensor FST PBT.
15. Successfully complete a written and practical examination.

TRAINING AIDS:

- White/Black board
- DataMaster instruments with simulators
- Data Entry Code books
- Operator Manuals
- Breath test forms/documents
- Blood vial kit and gloves
- Practical exercise training forms
- Alco-Sensor (PBT) with mouthpieces
- DUI Arrest report forms

EXAMINATION:

- Written exam - 80%
- Practical exercise - Pass/Fail

PRE - INSTRUCTION:

- Have a class roster filled out.
- The Operator's Manual is a reference guide. Neither the course nor the exam is based on the book.
- This outline covers the DataMaster instruments and the Alco-Sensor III/ Alco-Sensor FST PBT.
- This is up to a 16 hour course that includes physiology of alcohol, legal aspects, principles of DataMaster operation, practical operation, as well as the operation and legal aspects of the PBT.
- Successful completion of the course will qualify the student to administer evidentiary DataMaster tests and to use the PBT for 3 years.
- All references in this outline made to the DataMaster include the DataMaster CDM as well.

**2.0.2.2 INTRODUCTION**

- A. Driving by alcohol impaired persons has been a traffic safety concern since the invention of the automobile.
- B. It quickly became apparent that various effects of alcohol on humans can also be caused by other physical and mental conditions.
  - Corroborative evidence of alcohol use is needed for court.
    - 1. Chemical tests
      - a. Urine tests were used in Scandinavia early in the century
        - 1) Later research has cast doubt upon the reliability of urine tests as a measure of alcohol concentration in the body

- 2) Urine is **not** an acceptable sample for evidentiary alcohol concentration analysis in Washington.
  - b. Blood tests are accepted as a way of obtaining evidence of alcohol concentration in Washington.
    - 1) Blood samples can be taken under specific conditions
    - 2) The results of blood test are not available immediately
    - 3) Sample collection is intrusive
    - 4) Sample collection requires advanced training and skill
  - c. Breath testing is the preferred and accepted method of testing for alcohol since it is readily adaptable to field use.
    - 1) The results are immediately available
    - 2) Sample taking is not intrusive
    - 3) Test instruments are suitable for field use
    - 4) Breath is at least as good an indicator of impairment as venous blood
2. Research has shown a direct relationship between breath alcohol concentration and impairment
- a. Testing at intervals over a long period of time can be done more easily with breath, therefore, most impairment studies use breath testing to measure the alcohol concentration
  - b. Field studies with large numbers of subjects use breath testing, therefore the impairments we recognize actually relate to breath alcohol even though in the past test results may have been reported as blood alcohol.
    - 1) Borkenstein's Grand Rapids study (1963)
      - a) There is an increased chance that persons with a 0.04g/210L or higher breath alcohol will be involved in a collision.
      - b) The probability doubles at a 0.06g/210L and is six times higher at 0.10g/210L.
      - c) Collisions by people at 0.08g/210L and higher, tend to be more one-car, expensive, serious injury collisions.

- 2) The National Safety Council's Committee on Alcohol and Other Drugs published a finding that all persons, regardless of drinking experience, are effected to a measurable degree at 0.08g/210L or more
3. The value of breath test evidence depends upon the weight assigned to it by the law, the courts, and the circumstances of the case
  - a. Evidentiary breath test instruments have features that reduce uncertainties and provide reliable confident results
    - 1) Using computerized instrumentation to measure breath alcohol samples allows the test process to be automated
      - a) Minimizes the need for operator involvement in the analysis procedure
      - b) Minimizes operator bias
      - c) Ensures adherence to the protocol, the computer always performs the test the same way
      - d) It makes automatic safeguards possible for conditions that could be missed by humans
      - e) Allows for data collection to evaluate program performance and DUI Enforcement effort.
4. The DataMaster and DataMaster CDM, (Compact DataMaster) are the only breath test instruments approved for evidentiary use in the state of Washington. The Compact DataMaster is the equivalent of the larger DataMaster only smaller.
  - a. The DataMaster and DataMaster CDM are state of the art forensic breath test instruments that use infrared spectroscopy to analyze a sample of human breath for ethanol concentration
  - b. It uses infrared light to analyze samples
  - c. It is self certifying
  - d. The test procedure is controlled by a central processing unit
  - e. It provides a printed evidence document showing test results
  - f. It expresses the results as grams of alcohol per 210 Liters of breath
  - g. The test procedure has built in safeguards to reduce uncertainty. The instrument can detect numerous problems and abort the test. It is designed to give a proper test or none at all.

- h. It is approved for evidentiary use by the National Highway Transportation Safety Administration and is on the Conforming Products List.
- i. DataMasters are in use in several jurisdictions.
  - 1) U.S., Canada, Europe.

### 2.0.2.3 PHYSIOLOGY OF ALCOHOL

- A. There are many types of alcohol
  - 1. Ethyl alcohol or grain alcohol
    - a. Used in alcoholic beverages
  - 2. Methyl alcohol or wood alcohol
    - a. Very poisonous, turns into formic acid
    - b. Damages the optic nerve
  - 3. Isopropyl alcohol or rubbing alcohol
    - a. Turns into acetone if consumed, stays with you a long time
  - 4. Other alcohols or volatile organic compounds on the breath
    - a. Poisonous
    - b. Concentration too low for DataMaster detection
- B. Ethyl Alcohol
  - 1. Mixes readily with water
    - a. Will be distributed in all of the body water
      - 1) Blood
      - 2) Brain
  - 2. Ethyl alcohol in the brain is what causes impairment
  - 3. Alcohol usually gets into the body by oral consumption
    - a. You cannot become impaired by absorbing alcohol through your skin
    - b. You cannot become impaired by breathing in alcohol
  - 4. Once consumed, alcohol enters the gastrointestinal tract

- a. The stomach is not an efficient absorber, may absorb up to 20%
  - b. The small intestine is an excellent absorber, 80% or more
  - c. Stomach contents will affect the rate of absorption
    - 1) By inhibiting absorption through the stomach walls
    - 2) By slowing passage from the stomach to small intestine
  - d. Ethyl alcohol is not changed chemically before being absorbed
5. Once absorbed, alcohol enters the circulatory system
- a. From the intestines it goes to the liver via the hepatic vein
    - 1) Some begins to be metabolized
    - 2) Most continues past the liver to the heart and then to the lungs.
  - b. In the lungs some of the alcohol enters the breath in accordance with Henry's Law
  - c. From the lungs the alcohol is carried to the heart and then into the arterial system
    - 1) Arteries carry the alcohol directly to the brain, where it causes impairment
    - 2) The arterial system carries the alcohol to all parts of the body, the distribution phase
    - 3) Blood carries alcohol into the capillary system
    - 4) The alcohol equilibrates with any water that it encounters
  - d. Blood carries the alcohol into the venous system and is carried back to the liver for more metabolizing
    - 1) Some of the alcohol is metabolized
    - 2) Most of the alcohol continues to the heart to repeat the cycle
  - e. When alcohol is being absorbed more quickly than it is being metabolized (burned off) its concentration in the blood increases.
    - 1) Generalization: A 235 lb. man will metabolize an average of one 12 fl. oz. beer per hour. Where as a 145 lb. women will metabolize an average of one-half of a 12 fl. oz. beer per hour. This assumes beer to be 4% alcohol by volume.

- f. As concentration increases, the impaired effects from the alcohol become more obvious
  - 1) The first effects are subtle
    - a) Inhibitions fade
    - b) Suppression of care
    - c) Reduced ability to recognize hazards
    - d) Inappropriate response to hazards
  - 2) Loss of efficiency in simple performance tests
  - 3) Horizontal Gaze Nystagmus
  - 4) Readily observed effects
    - a) Lack of coordination
    - b) Loss of balance
    - c) Emotional instability
  - 5) At high concentrations unconsciousness and respiratory paralysis can occur
  - 6) Untreated respiratory paralysis results in death
- g. The onset and magnitude of the various effects differ among individuals
  - 1) Native tolerance
  - 2) Use or consumption tolerance
- h. Because of differences in absorption, elimination and onset of various levels of effect, information about a defendant's actions in the hours prior to a DUI violation can be important evidence
- i. There is no known way to increase the rate of elimination of alcohol from the human body
- j. There is no known way to prevent the effects of alcohol

#### **2.0.2.4 LEGAL ASPECTS**

##### **A. DUI Statute (RCW 46.61.502)**

1. A person is guilty of driving while under the influence of intoxicating liquor or

any drug if the person drives a vehicle within this state

- a. And the person has, within two hours after driving, an alcohol concentration of 0.08 or higher as shown by analysis of the person's breath or blood made under RCW 46.61.506 or
  - b. While the person is under the influence of or affected by intoxicating liquor or any drug or
  - c. While the person is under the combined influence of or affected by intoxicating liquor and any drug
2. Constitutionally affirmed by State v. Brayman. (breath per se law)
  3. 46.04.670 defines vehicle
  4. State v. Day - public access
  5. 46.04.015 or 46.61.506 defines alcohol concentration as
    - a. g/210L breath
    - b. g/100ml blood
- B. Physical Control Statute (RCW 46.61.504)
1. Applies wherever DUI applies
  2. "Safely off the roadway" exception
    - a. Edmonds v. Ostby said it is a factual issue to be decided by the trier of fact
- C. Driving Or In Physical Control After Consuming Alcohol RCW 46.61.503
1. Person guilty of driving or in physical control of a motor vehicle after consuming alcohol if the person operates a motor vehicle within Washington and
    - a. Is under twenty-one years of age
    - b. Within 2 hours of driving is between a .020 and .079
    - c. A test over 2 hours may be used to show person was between a 020 and a .079 within the 2 hours of driving. If under 21 years old **and** over a .080 cite for DUI **only**.
  2. Arrest for "Driving After Consuming" (0.02 minor law)
  3. Test on the DataMaster for evidence
  4. A misdemeanor

**a. Wording on citation: “Minor driving after consuming alcohol”**

- D. Uniform Commercial Drivers Act (RCW 46.25.110)
  - 1. Violation of the Act, mandatory, gross misdemeanor
  - 2. Any person who drives, operates, or is in physical control cannot have any alcohol in their system
    - a. Out of service for 24 hours, per CFR 392.5
    - b. If .040 or more, or refuse the test, their CDL will be disqualified
- E. Evidentiary Breath/Blood Test (RCW 46.61.506)
  - 1. A reading less than 0.080 may be considered with other evidence for determining if under the influence
  - 2. Breath based upon g/210L
  - 3. Testing methods approved by the State Toxicologist
  - 4. Blood test for alcohol or drug content
  - 5. Person has a right to additional test
- F. Implied Consent (RCW 46.20.308)
  - 1. Any person who operates a motor vehicle in the state of Washington is deemed to have given consent to test breath/blood for alcohol concentration or the presence of any drug
  - 2. Applies wherever DUI applies
  - 3. Elements
    - a. Driving or Physical Control of a motor vehicle within state of Washington. (RCW 46.04.320 - motor vehicle, but not trains)
    - b. Probable cause that subject is under the influence of alcohol or any drug, or has alcohol in his/her system in a concentration of 0.020 to a .079 and was under the age of 21
    - c. Lawful arrest
    - d. Implied consent warning read
      - 1) License, permit, or privilege to drive will be revoked or denied if refuse to submit
      - 2) License, permit, or privilege to drive will be revoked or denied if:

- a) 0.080 or more and age 21 or over OR
- b) 0.020 or more and under age 21
- 3) A bright line on refusals (DOL v. Lax, 1995). Once refused, no further testing by the officer needs to be done. The officer determines if a good faith attempt to provide a sample was made or if it is a refusal.
  - a) Condensation in the mouthpiece, buzzing sound, and 'Please Blow' stops flashing. If in doubt about the sample acceptance of an instrument the officer can run a TEST with his breath to check it. Include the ticket with your case report.
- 4) Reading implied consent warnings three times is sufficient. The implied consent warning to be given at the time of arrest need only be "substantially" the same as the wording of the implied consent statute.
  - Search Warrants
  - Nothing in the implied consent law prevents a police officer from getting a search warrant in order to obtain breath blood evidence samples.
- 5) Must be read in a language person understands
- 6) DOL requests that place/city etc. be spelled out clearly
- e. If a breath test is 0.080 or more (adult) or 0.020 or more (minor) **or** the person refuses the test, the officer shall do the following. The results of both breath samples must exceed the limit.
  - 1) Serve the 'Driver's Hearing Request Information' notice of DOL intent to revoke or deny the person's driver's license.
    - a) The person has 30 days to request the hearing with a \$100.00 fee. Not necessary to read form to subject. Simply complete top two lines and the date on the bottom.
    - b) The person detaches the bottom of the notice and keeps it with their drivers license
    - c) Do not give bottom portion to a revoked, suspended or any unlicensed driver
  - 2) Mark driver's license
    - a) Use the diamond punch by the DataMaster and punch next to the expiration where 'Driver's License' is printed.

- b) The marked license is now a temporary and is valid for 60 days from arrest date.
- c) DOL will handle if blood was taken.
- d) Temporary is not valid longer than the license it replaces
- 3) Submit/ fax report to DOL within 72 hours Breath/Blood Test or the 'Report of Refusal to Submit to Breath/Blood Test'
  - a) Page 3 of the DUI Packet
  - b) For a blood test, submit the form when results are returned to you.
- f. After the Implied Consent Warning read
  - 1) Subject refused or
  - 2) Had results of .080 or more and 21 or over or
  - 3) 020 or more under age 21 or
  - 4) 040 or more for commercial motor vehicle driver
- G. Implied Consent for Commercial Motor Vehicle (46.25.110)
  - 1. All out of service for 24 hours
  - 2. 0.040 or more submit the Report of Breath/Blood Test to DOL within 72 hours
  - 3. If a refusal, submit Report of Refusal to Submit to Breath/Blood Test to DOL within 72 hours
  - 4. Go through the complete Implied Consent Breath or Blood plus the gray outlined part 'for commercial driver's only'
    - a. Marking of boxes in Implied Consent
      - 1) If Commercial Driver and DUI mark boxes in both sections of form, relating to DUI and Commercial Vehicle
- H. DOL Administrative Hearings
  - 1. Civil hearing
  - 2. Held in county of arrest
  - 3. To be from the officers arrest report so his/her attendance is not needed, (exception is, the commercial driver where your will be required to attend).

Hearing within 60 days of the arrest (or issuance of notice by DOL if blood).

- a. The time frame is very short between when DOL requests the report and the hearing date.
4. A preponderance of the evidence. Officer's DUI arrest report under declaration and any other evidence accompanying the report shall be admissible without further foundation. Certifications authorized by criminal rules shall be admissible without further foundation
5. No prosecutor except in Superior Court, will have Deputy Attorney General
6. Hearing Officer may issue subpoenas for attendance. If you want to attend it is okay with DOL if you notify them in advance.
7. DOL Hearings format: Include the following in the your arrest report
  - a. Adult
    - 1) Officer had reasonable grounds to believe the person had been driving or in actual physical control of a motor vehicle within this State
    - 2) There was probable cause the person was under the influence of intoxicating liquor or any drug
    - 3) Person was under lawful arrest
    - 4) The Implied Consent Warning was read to the person
    - 5) The person refused to submit to the test required or
    - 6) If tested, consent was given or the person was tested without consent as permitted (special evidence warning); plus the person's breath/blood was 0.080 or more within two hours
  - b. Minor, under age 21
    - 1) Officer had reasonable grounds to believe the person had been driving or in physical control of a motor vehicle within this State
    - 2) There was probable cause the minor had alcohol in his/her system in a concentration of 0.020 or more and was under the age of 21
    - 3) Minor was under lawful arrest
    - 4) The Implied Consent Warning was read to the person
    - 5) The minor refused to submit to the test required, or if tested,

consent was given or the person was tested without consent as permitted (special evidence warning); plus the person was under the age of 21 with a 0.020 or more within two hours

c. Commercial Motor Vehicle Driver

- 1) The officer had reasonable grounds to believe the person had been driving or was in actual physical control of a commercial motor vehicle within this state while having alcohol in the their system
  - 2) The driver was lawfully arrested
  - 3) Commercial Implied Consent read
  - 4) The driver refused or had a reading of 0.040 or more
8. Include additional officer' reports for the record. This will help establish your probable cause.
  9. DOL requests that if you run a breath test for another officer, you only run the test. Let the arresting officer complete all the forms
  10. Fax a copy of your DataMaster Breath Test Document along with your reports to DOL within 72 hours.

I. Case Law

1. The subject has a right to an attorney before the implied consent test (State v Wakenight)
2. Right to have attorney actually present within 30 minutes (State v Fitzsimmons)
3. The subject has a right to a private conversation if they or their attorney request it. (State v Koch)
  - a. Do not jeopardize officer safety
  - b. Need not interrupt 15 minute observation however it probably will, so start 15 minutes over
4. If the subject is to be detained and asks for additional tests, refer to local court rules for transportation guidelines. (State v McNichols)
  - a. RCW 46.61.506 states the failure or inability to obtain an additional test by a person shall not preclude the admission of evidence taken
  - b. If the person is to be released in a timely manner they may go obtain their own test

5. A sample blown into a defective instrument does not relieve the subject of the requirement to give a full test (2 samples) at another instrument (Sunnyside v Sanchez)
  6. If one of the two samples required to get a printout is refused it is a refusal (DOL v Rogers, 1988)
- J. Voluntary Blood/Urine/Breath
1. You may want to show a person is clear of alcohol, drugs
  2. Obtain a signature for a voluntary sample
- K. 2004 - New DUI laws (Effective June 10, 2004)
1. Clarifies that search warrants may be obtained for blood tests even if the implied consent statute applies;
  2. Increases the information that must be given to an arrestee when the arrestee is deciding whether or not to give a breath sample;
  3. Allows the implied consent warnings to deviate from the exact statutory language;
  4. Removes the requirement that the state demonstrate that there is no BAC machine in the back of the ambulance or at the hospital in order to collect a blood sample; and
  5. Increases the list of people who may draw the blood sample; and
  6. Changes the admissibility standard for breath tests.
  7. Amends \*RCW 10.05.140 dealing with court ordered "ignition interlock devices".
  8. Amends \*RCW 46.20.308 dealing with occupational licenses, creating "temporary restricted licenses".
  9. Authorizes DOL to take administrative action against a driver who is required to maintain an ignition interlock device and fails to do so according to court order.
  10. Amends \*RCW 46.20.3101 license suspensions for refusals.
  11. Amends \*RCW 46.20.720 specific calibration settings for interlock ignition devices before vehicle can start.
- L. Breath test defined by WAC 448-13-040, State Toxicologist: Dr. Fiona J. Couper
1. 15 minute observation period.
    - a. To ensure that any alcohol in the person's mouth has time to

dissipate before the samples are taken

- b. The person does not have any foreign substances in the mouth. Such determination shall be made by either an examination of the mouth **or** a denial by the person that he/she has any foreign substances in the mouth
  - c. Upon checking the person's mouth for foreign objects before starting the 15 minutes, clear the person's mouth of all objects except dental work, and if necessary have the person rinse their mouth. (i.e., chewing tobacco, etc.)
  - d. If the person puts anything into their mouth, smokes, or vomits the mouth must be rechecked and the 15 minutes started over
  - e. The mouthpiece and the subject's own blood are not foreign
  - f. Tongue Jewelry: ask the subject to remove, if unable or unwilling then request a blood sample under the implied consent (other physical limitation language)
  - g. Vomiting or regurgitation may bring alcohol back up to the mouth and may require a new 15 minutes and instructions not to do it or you will be refused
  - h. Observe the subject until the last sample is completed
2. The simulator temperature was (**34° C +/- .2°C**)
- a. Two types of simulators, Digital and Mercury in glass.
    - 1) The solution in the simulator obeys Henry's Law
    - 2) At any other temperature the instrument cannot run a valid simulator test on itself and the test results are not admissible
    - 3) The solution was prepared by the State Toxicology Lab
  - b. Two valid breath samples are required
  - c. The test results will be provided in the form of a printout
  - d. The results will indicate the grams of alcohol/210 liters of breath
- M. Admissibility of Breath Test Results
1. The test was done by a person authorized by the State toxicologist
  2. The person tested did not vomit, eat, drink, smoke, or have any foreign substance in his or her mouth for at least 15 minutes before the test
  3. The temperature of the test simulator solution was at the appropriate level as

measured by a thermometer approved by the State Toxicologist

4. The internal standard test produced a "verified" message
5. Two samples agreed to within a specified limit
6. The simulator test was within a specified range
7. Blank tests showed a .000 result.

#### **2.0.2.5 DUI ARREST REPORT**

##### **A. Constitutional Rights**

1. Read it to a person acting unconscious
2. Must get translator for non-English/deaf speaking person. Spanish form available. Spanish tapes from court translator

##### **B. Implied Consent Warning for Breath (Adult, Minor, Commercial)**

1. Officer signs on "Officer's Signature" line
2. Have defendant sign or you can write 'refused to sign'
3. Have defendant mark the YES/NO box

##### **C. Implied Consent Warning for Blood**

1. Blood is the only legally acceptable alternative when breath is impractical.
2. Emergency medical vehicle, ambulance, hospitals, clinic for blood draws. The category of person who may withdraw blood samples is expanded to include licensed practical nurses, nursing assistants, physician assistants, first responders, emergency medical technicians, health care assistants, or any trained technician.
3. When the person is incapable of providing a breath sample or you have probable cause the person is under the influence of drugs
4. If during a breath test interference is detected, this will invalidate the test. The subject will be required to repeat the test. A subject whose breath registers the presence of interference on two or more successive breaths shall be deemed to have a physical limitation rendering them incapable of providing a valid breath sample and will be required to provide a blood sample under the implied consent statute, RCW 46.20.308. (WAC 448-16-040).
5. Read it to a supposedly unconscious person, if really unconscious use the special evidence warning

##### **D. Special Evidence Warning**

1. Four times when blood can be taken without consent. If in doubt who is driving, take blood from all suspects
    - a. Vehicular Homicide
    - b. Vehicular Assault
    - c. Unconscious (DUI/ Physical Control/Minor Driver). If possibly "acting" unconscious read the form anyway
    - d. DUI from an accident with serious bodily injury to another
  2. When taking blood at a hospital you must have probable cause
    - a. Observations at the scene
    - b. Information from a reliable informant
    - c. Officer at the scene
      - 1) Relay from Communications
- E. Blood sample collection (State Tox blood kit, gloves)
1. Must be drawn by a physician, registered nurse, or qualified technician
    - a. Officer should try to be a witness to the drawing of the blood sample
      - 1) This may avoid the need for the nurse to be in court
      - 2) Document all critical information (information on DUI Arrest Report) and qualifications regarding person who drew blood sample
  2. Must be placed in a grey top tube
    - a. Tubes available from State Toxicology Lab
    - b. Expiration date on tube
    - c. White powder in tube, not empty
    - d. Record evidence information on tube
    - e. Record evidence and chain of custody information on form
    - f. Use only Toxicology Lab mailing kit to mail tubes to the State Toxicology Laboratory
      - 1) Postal regulations
      - 2) Does not need to be refrigerated

- 3) Do not touch blood, prevent disease
- g. Hospital analysis is not approved by the State Toxicologist
  - 1) Use ONLY the State Toxicology Lab for analysis
  - 2) The State Toxicology Lab uses whole blood where many hospitals use plasma or serum analysis
- F. DUI Interview
  1. Statement in question form
  2. First and last drink times
  3. Note all answers, sayings and statements
  4. Note if invokes right to silence, defense will ask about blanks on forms
  5. Observations
- G. Three Nationally Recognized Sobriety Tests
  1. Divided attention tests on form
  2. Review clues present in each test
    - a. Horizontal Gaze Nystagmus (6 clues present)
      - Equal tracking
      - Equal pupils
      - Resting Nystagmus
      - Also check for Vertical Nystagmus
    - b. One Leg Stand (4 clues present)
      - Sways while balancing
      - Uses Arms for balance
      - Hopping
      - Puts foot down
    - c. Walk and Turn (8 clues present)
      - Cannot keep balance
      - Starts too soon
      - Stops walking
      - Miss heel to toe
      - Steps off the line
      - Uses arms for balance
      - Improper Turn
      - Actual number of steps taken

- d. Other sobriety tests may also be used, thoroughly document all test results.
- 2. PBT (Pre-Arrest Breath Test)
  - a. Must be voluntary, may be used to assist in determining probable cause and used in probable cause hearings
  - b. Does not satisfy Implied Consent for DUI, Commercial Drivers, or Minors
  - c. Operating instruction will be given later

#### 2.0.2.6 THE DATAMASTER INSTRUMENT

- A. The physical portion of the DataMaster breath test system includes the instrument, simulator, plastic mouthpieces and evidence documents
  - 1. The DataMaster and DataMaster CDM instruments
    - a. Metal case, 8"x 24"x 15" ap., 45 lbs, 25 lbs for CDM
    - b. Power cord
      - 1) Moving the instrument may pull the cord out. Call a technician before moving
    - c. On-Off switch
      - 1) Always leave the instrument on
      - 2) If you need to turn the instrument off, call a technician first
    - d. Display
      - 1) Liquid crystal display, with ready light
      - 2) Time displayed
    - e. RFI antenna
      - 1) To detect any radio transmission and abort test if necessary
    - f. Breath tube
      - 1) Heated, warm/hot to the touch, to eliminate condensation
      - 2) Must not lay behind the machine/ keep forward to avoid re-circulating purged air
      - 3) There should never be a mouthpiece in the breath tube except when a sample is being taken

- g. Printer ports
    - 1) Evidence document is drawn into the printer at the beginning of a test and remains there until the end, when it is printed and ejected
    - 2) Do not remove document once it is taken into the printer. If it is not used it will remain for the next test
    - 3) The evidence document has three copies, two copies for the CDM. CDM has a separate laser printer.
      - a) court
      - b) officer
      - c) defendant
  - h. Keyboard
    - 1) Top row of keys are locked out to operators except the RUN button. If a top key is hit prior to hitting RUN and "Password" appears, hit enter to clear.
  - i. Phone cord outlet
    - 1) Transmits data to the host computer at the Breath Test Section in Seattle
2. Simulator / Guth Model 34C or Guth digital 2100 model
- a. It is used to check the accuracy of the DataMaster.
  - b. It has a motor, thermometer, paddle attached to a jar containing a known solution prepared by the State Toxicology Laboratory
  - c. The thermometer shows the temperature of the solution, it must be **34° C +/- .2°C** / Digital 2100 model shows temperature on LED display, shows temperature to the fourth digit i.e. 34.00
    - 1) Each graduation equals 1/10th degree C
    - 2) Be able to draw a simple picture of the thermometer for court
    - 3) The paddle inside the jar keeps the solution at an even temperature
  - d. On-Off switch should always be on
  - e. If the Digital model 2100 simulator displays an error message, turn the power switch off and back on and wait approximately 5-10 minutes to reach acceptable temperature, or clear error then proceed

with test if ok. If still displaying an error message, tag out of service and notify WSP radio of error message.

- f. The power lamp - amber - shows the simulator is on
  - g. The heater lamp - red - shows the heater is on
  - h. The plastic tubing delivers the sample to the instrument during the external standard phase
  - i. If the tubing is kinked it can cause a low standard reading
  - j. The solution batch number is displayed on the simulator/jar
3. Features of the Guth model 2100 Digital simulator
- a. Microprocessor controlled, mercury column is eliminated
  - b. Maintains a precise temperature of 34°C +/- .05°C or better
  - c. High intensity LED display, provides maximum visibility of temperature and heater activity.
  - d. RFI protected
  - e. Malfunction indication, simulator provides an audible and visual indication if a malfunction occurs.
4. Plastic mouthpieces with moisture baffles are used to take samples
- a. Use the plastic bag to handle the mouthpiece and prevent disease
  - b. Open the bag carefully to leave the mouthpiece ports clear
  - c. Discard the mouthpiece and bag immediately after the breath sample
  - d. Use a new mouthpiece for each sample

#### **2.0.2.7 PRINCIPLES OF OPERATION**

- A. An accurate and reliable breath test requires a good instrument, program and protocol
- B. The following are required for an accurate and reliable test.
  - 1. An accepted method of analysis
  - 2. An instrument in proper working order
  - 3. A properly calibrated instrument

4. A deep lung sample of breath from a living human being
  5. A procedure for conducting the test that protects against electrical or mechanical conditions that introduce uncertainty
  6. An analysis of the test results to show that they are certified and reliable
- C. The DataMaster uses infrared spectroscopy, an accepted method of analysis
1. Beers Law says that the concentration of ethanol in a sample is proportional to the infrared light absorbed by the sample
    - a. It measures the infrared light transmitted through an empty sample chamber
    - b. Measures infrared light transmitted through the sample
    - c. The difference is used to calculate the concentration of ethyl alcohol in the chamber
  2. In the light path, filters are used to distinguish alcohol and acetone
  3. Over 100 substances on human breath absorb infrared light as ethanol does, but all of them combined on a healthy human breath would not affect the DataMaster result
    - a. Acetone can be on human breath (particularly diabetics) and affect the reading, so the DataMaster detects acetone as an interfering substance
      - 1) Interfering Substance  .010 will abort the test
- D. When the 'RUN' button is pushed the instrument is checked internally
1. If there has been a change of any kind, a message will appear on the display and the DataMaster will not proceed with a test
    - a. Ram Error
    - b. Temperature High
    - c. Temperature Low
    - d. Fatal Systems Error
    - e. Pump Error
- E. The DataMaster checks its calibration during each test
1. Calibration is checked with an internal standard
    - a. Quartz Plate

- b. During each test the value of the Quartz Plate is checked against its value at the time at which the instrument was calibrated
- c. If "Calibration Error" appears the test aborts
2. Accuracy is checked using a vapor sample from a simulator containing a known external standard solution
  - a. Results are displayed during the external standard phase
  - b. Results must be .072 to .088 inclusive
  - c. If the results are not within the required values, the test will abort
3. Sample Control
  - a. A proper 15 minute observation period
  - b. The most accurate and reliable sample is one of deep lung or alveolar air
  - c. The best sample is a product of time and flow rate
  - d. A long sample with moderate flow is better than a short, hard blown sample
  - e. When sampling requirements have been met the sample can be accepted
    - 1) At least 5 seconds of acceptable sample flow
    - 2) At least 1.5 liters breath
    - 3) Minimum slope to BrAC curve
  - f. When the alcohol concentration of the sample has peaked then sharply declines during the blow the display reads 'Invalid Sample'
    - 1) The test stops and all data is lost
    - 2) Invalid Sample is recorded in the database
    - 3) The operator must assume mouth alcohol and begin a new 15 minute observation, then run the test again
    - 4) Sucking or stop-start blowing may cause "Invalid Sample"
  - g. Good samples can be achieved by instructing the person and by coaching during the blow
    - 1) "Blow steadily into the mouthpiece 10 to 15 seconds, I will tell you when to stop."

- 2) The blow need only be strong enough to make the "Please Blow" become steady, but should be as long as possible. A sound will accompany the blow when air is traveling into and thru the chamber.

F. Blank tests are run before and after any sample introduced into the sample chamber.

1. Blank tests ensure that the sample chamber has been completely purged of the previous sample
2. If any blank test results are other than .000, the display reads "Ambient Fail" or "System Won't Zero"
  - a. The test will abort. Start test over and use previous data
  - b. This does not mean that the instrument is broken
  - c. Some condition exists that prevents a complete purge of the sample chamber.
    - 1) Solvents; hand cleaner, fingerprint ink
    - 2) Person's clothes soaked in alcohol
    - 3) A mouthpiece left in the breath tube during purge
    - 4) The breath tube not forward of the DataMaster
    - 5) Person standing next to breath tube during purge
    - 6) Mechanical or electrical problems
    - 7) Poor room ventilation
    - 8) Electromagnetic interference (RFI)
      - a) The instrument design and protocol prevent it from affecting the test results
      - b) Metal instrument case
      - c) Effective ground
      - d) Separate circuit boards
      - e) WAC requirement that the two samples be within 10% of their average
      - f) Radio frequency detector
        - Detects radio waves transmitted nearby

- The test stops, must start over, use previous data
- G. The DataMaster test results are analyzed to show that they are consistent with a certified and reliable test result
1. The two sample results must be within 10% of their average
    - a. Add the sample results and divide by two for the average
    - b. Multiply the average by .9 to get the lower limit
    - c. Multiply the average by 1.1 to get the upper limit
  2. Most differences in sample results is due to sample differences, not instrument differences
    - a. Breathing patterns
    - b. Length of the sample blown
    - c. Consistent instruction and coaching will result in smaller differences between sample results. Over 50% of 2 digit samples are the same. 98% meet the  $\pm 10\%$  of the average rule required by the WAC's
    - d. The 10% of the average rule protects against
      - 1) Mouth alcohol
        - a) Raw alcohol in the mouth dissipates rapidly
        - b) If raw alcohol is present in the mouth at the time the sample is taken, the two sample results will not be within 10% of their average
      - e. Electromagnetic radiation
        - 1) Radiation would have to strike only the sample analysis
        - 2) It would have to strike at both samples in exactly the same way
      - f. Instrument precision
        - 1) Precision is the ability to get the same results from repeated measurements.
    3. The  $\pm 10\%$  rule is not computed for results below 0.01 g/210 L

H. When the test protocol has been followed and an evidence document is printed out, the operator can be assured that the test results are accurate and reliable

### **2.0.2.8 THE PRE TEST PERIOD**

- A. Check the RFI antenna
  - 1. If there is no antenna, advise WSP radio and go to a different instrument
- B. Check the breath tube
  - 1. It should be warm/hot to the touch
  - 2. The breath tube should be upright/forward
  - 3. If it is cold, advise WSP radio and go to a different instrument
- C. Check the simulator temperature
  - 1. It must be  $34^{\circ}\text{C} \pm .2^{\circ}\text{C}$
  - 2. If the temperature is out of range.
    - a. Check to see that the simulator is turned on. If it's off, turn it on, and in 10-15 minutes recheck the temperature. If it is still not correct, call WSP radio and tag out of service
    - b. Look at the paddle to be sure it is turning. If it is not turning, advise WSP radio and go to a different instrument
  - 3. Check that there are no kinks in the tubing

### **2.0.2.9 THE OBSERVATION PERIOD**

- A. Read the Miranda Rights and Implied Consent
- B. Check person's mouth and begin the 15 minute observation using the DataMaster clock
  - 1. It will disappear once 'RUN' is pushed
  - 2. It may be different than your watch, record the exact time from the DataMaster clock. 16 minutes must pass before the test can begin; this is programmed into the software to assure a complete 15 minutes has occurred.
- C. You must keep the person under observation while entering data, etc.
- D. Make a note if subject has odor of volatile organic compounds (e.g., paint, thinner, etc.) about his person or clothing. If noted, determine time of last exposure.

### **2.0.2.10 INSTRUMENT OPERATION**

- A. When 15 minutes is completed push 'RUN'

- B. Insert Ticket
  - 1. Straight, face-down, notch to the right, into the bottom slot, colored side up.
  - 2. If a ticket is already in the DataMaster, it should not ask for a new one.
- C. Enter Data
  - 1. Be accurate
  - 2. Use back space, control X, and delete to correct errors
  - 3. You have 5 minutes to enter each data item and one minute for Y/N questions
    - a. If time expires, the display will revert to 'Ready - Push Run' and all data is lost
- D. Data Entry
  - 1. Some data for statistical database, some for evidence document
  - 2. Refer to codebook if necessary
    - a. Sim Temp **34° C +/- .2° C?**
      - 1) Look at the thermometer
      - 2) Y / N answer. N will abort the test
    - b. Observation Began
      - 1) Enter the time you started your 15 minute observation
      - 2) Use the clock on the instrument
      - 3) Use 24 hour time
    - c. Citation Number
      - 1) Enter the letters/numbers of the alcohol related citation. If none hit enter and continue
    - d. Operators Name (L/F/M)
      - 1) Emphasize slash between names
      - 2) 40 characters
      - 3) First character must be alpha the remaining may be alpha, slash, or hyphen
      - 4) Enter your name the way you sign a ticket

- e. Arresting Agency
  - 1) 7 characters
  - 2) First 3 may be alpha or numeric, remaining numeric
- f. Subjects Name (L/F/M)
  - 1) Emphasize slash between names
  - 2) 40 characters
  - 3) First must be alpha, remaining alpha, slash, hyphen
  - 4) Enter full name as shown on Driver's License
  - 5) Enter "test" for a sample test
- g. Subjects DOB (mm/dd/yyyy)
  - 1) 8 numbers, slash automatic
  - 2) Must be valid month/day combination
  - 3) Enter (00/00/0000) for a sample test
- h. Subjects Sex (M/F)
  - 1) Must be M or F
- i. Subject's Ethnic Group
  - 1) Must be I, B, A, W, or U, for the DataMaster only 1 character.
  - 2) DataMaster CDM: A, B, E, H, I, P, W, O
- j. D.L. State/Number
  - 1) Two letter state or country abbreviation, the slash is automatic
  - 2) Next, the license number
  - 3) If unknown or none, enter XX for the state and press Enter/Return to continue
  - 4) For an \* hit shift key and 8
- k. County of Arrest
  - 1) the 2 digit county code

- I. Crime Arrested For
  - 1) 2 numeric characters
  - 2) 00 for practice tests
- m. Accident Involved
  - 1) Must be Y or N
- n. Drinking Location
  - 1) First character must be numeric, the second alpha, the remaining 6 numeric
  - 2) Use coded drinking locations whenever possible
  - 3) Enter 0000000 for practice test
  - 4) Emphasize entering this data goes to liquor control board each month.
- o. Solution Batch #
  - 1) 5 characters, numeric
  - 2) Do not transpose, on evidence document
  - 3) Enter the correct solution batch for practice tests
- p. PBT Test Given (Y/N):
  - 1) Must be Y or N
- q. PBT Time:
  - 1) Military Time
  - 2) Must be a time greater than 15 minutes prior to breath test
- r. PBT Result:
  - 1) Enter three digit result

F. Review Data? (Y/N)

- 1. One minute to answer
- 2. Always review if any doubt about accuracy
- 3. Use back space and control I (moves cursor forward) to move cursor in review mode

- G. Purging
  - 1. Air is drawn through breath tube to flush chamber. If the purge is unsuccessful the display will read "AMBIENT FAIL"
    - a. Chamber vented out back of instrument
    - b. Keep breath tube upright/forward - away from vent
    - c. Some Ambient Fail causes
      - 1) Mouth piece left in breath tube
      - 2) Room odor; alcohol/chemical odor (fingerprint ink, WD40)
      - 3) Subject's clothes soaked in alcohol
      - 4) Subject with very strong alcohol odor on breath near breath tube while trying to purge
    - d. Start test over, use previous data
- H. Ambient Zeroing
  - 1. Very small adjustment possible
  - 2. If large adjustment required - "SYSTEM WON'T ZERO"
    - a. "SYSTEM WON'T ZERO" does not mean that the instrument is broken - something prevented a complete purge of the sample chamber
- I. Blank Test
  - 1. Displays .000
- J. Internal Standard
  - 1. A quartz plate that checks the instrument calibration internally
  - 2. If check is unsuccessful - "CALIBRATION ERROR"
- K. Subject Refuse? (Y/N)
  - 1. A beep will sound to alert operator to respond
  - 2. One minute to select Y or N
  - 3. "Y" results in a "Refusal"
  - 4. "N" results in a request for a breath sample
- L. Please Blow

1. Put mouthpiece in when "PLEASE BLOW" appears - not before
2. Take care in opening the plastic bag not to get plastic in mouthpiece ports
3. Use the plastic bag to handle the mouthpiece to prevent transmission of disease
4. Instruct the subject, watch the display and coach the subject, provide clear instructions – very important.
  - a. "Blow steadily into the mouthpiece 10 - 15 seconds, I will tell you when to stop
  - b. The blow need only be strong enough to stop "PLEASE BLOW" from flashing, but should be as long as possible. A sound will accompany the blow when air is traveling into and thru the sample chamber
5. Hard blow may not be accepted
6. Stop-start blowing or sucking will not be accepted and may cause INVALID SAMPLE
  - a. If this occurs a mouth check and a restart of the 15 minute observation period is required
7. When the sample is accepted, REMOVE the mouthpiece using the plastic bag for protection
  - a. A mouthpiece left in the breath tube restricts the flow of purge air and will result in "Ambient Fail"
8. The alcohol reading will not appear on the display, wait for the document
9. If after two minutes of "PLEASE BLOW", a sample has not been accepted, the display will read "SUBJECT REFUSE? Y/N"
  - a. "Y" response gives a "REFUSAL" document
  - b. "N" response gives an "INCOMPLETE" document
  - c. No response will give an "INCOMPLETE" document
  - d. The officer must decide whether the subject is unable or unwilling to provide a proper sample and be able to articulate the cause/facts for his/her reasoning in the arrest report
    - 1) Unable - "INCOMPLETE". Use Implied Consent Warnings for Blood
    - 2) Unwilling - "REFUSAL". Be able to articulate the reasons for a refusal

- e. Distribute these documents as you would a complete test document
10. If "INVALID SAMPLE" appears on display
- a. You must assume it was caused by mouth alcohol
  - b. Check subject's mouth and wait 15 minutes - then start again, you will not be able to use previous data
  - c. "INVALID SAMPLE" will appear in the data base
  - d. "INVALID SAMPLE" does not mean that the instrument is broken - the sample offered was unacceptable
11. If "INTERFERENCE DETECTED" appears on the display
- a. Try one more test
  - b. If it occurs again try to obtain a blood sample under the implied consent for blood (other physical limitation language)
- M. Analyzing
- 1. Analyzing alcohol in the breath sample
- N. Purging - Ambient Zeroing - Blank Test .000
- O. External Standard (the simulator solution)
- 1. Must be between 0.072 and 0.088, inclusive
  - 2. If the external standard is outside the limits, the test will abort and "Simulator Out of Range" will appear on the display. You will have to put the instrument out of service and go to another location.
  - 3. Simulator is to remain on. Do not disconnect or interfere with hoses in back of the instrument. Kinked hoses cause low external standard
- P. Analyzing
- 1. Analyzing alcohol in the external standard, results will be on the display
- Q. Purging - Ambient Zeroing - Blank Test .000
- R. Subject Refuse? (Y/N)
- 1. One minute to select Y or N
  - 2. "Y" results in a "Refusal"
  - 3. "N" results in a request for a breath sample

- S. Please blow
1. Second breath sample
  2. Put a new mouthpiece in the breath tube
  3. Instruct the subject and watch and listen
  4. Obtain sample, remove and discard mouthpiece using plastic wrapper
  5. Consistent sample desirable
  6. If "SAMPLES OUTSIDE 10%" appears on the display, the test aborts as the two samples are not within 10% of their average
    - a. Not a valid test, run the test again
    - b. Do not need to check mouth or wait an additional 15 minutes but continue to keep in direct observation
    - c. Will be in the database

T. Analyzing - Purging - Blank Test .000

U. Breath Test Document

1. Instrument serial number and software version near the top
2. The reading is to three digits. e.g.: .128g/210L
3. Sign it and distribute it to the court, officer, and defendant
4. If "Printer Error" appears on display, test data is lost/not retrievable.
  - a. Put the instrument out of service and go to another instrument.
    - 1) If the document is stuck in the instrument, just leave it there.
5. "Insert Ticket" message on display:
  - a. If the ticket is already in the instrument, gently remove and insert a new ticket
6. If printed ticket is not legible, is not in the right position, back, etc), or stuck in the instrument.  way down, on t
  - a. Printer not performing properly
  - b. Call WSP, tag instrument "OUT OF SERVICE / DO NOT PUSH RUN" a technician may be able to reprint ticket

c. **DO NOT PUSH RUN or TURN INSTRUMENT OFF**

- V. If test result  $.25 \text{ g}/210 \text{ L}$  or more, wait  hour and retest. If rehospitalize subject
- W. Message Codes - a complete list with procedures to follow will be displayed at the instrument location
  - 1. If "DETECTOR OVERFLOW" appears on the display
    - a. It is probably an equipment problem, try one or more tests
    - b. Call WSP and tag instrument 'Out of Service'
- X. Several of the Message Codes allow the operator to press the Run Button again and then reuse the previously entered data

**2.0.2.11 ALCOSENSOR III AND ALCOSENSOR FST PRE-ARREST BREATH TEST INSTRUMENT (PBT).**

A. Introduction

1. The PBT can be a very useful tool for establishing probable cause to arrest for DUI
2. The PBT can also be useful for enforcing "minor in possession" laws
3. The PBT is not the evidential breath alcohol test under the implied consent law since it is voluntary and typically performed prior to arrest
4. Only the Alcosensor III and Alco-Sensor FST PBT instruments are approved in the Washington Administrative Code. If your agency uses a different PBT instrument you must contact the State Toxicology Laboratory to determine its acceptability for use.
5. Following your successful completion of this course you will be certified operators of both the DataMaster and the Alcosensor III, Alco-Sensor FST PBT. Refresher classes will renew your operator status with regard to both instruments.

B. Nomenclature

1. Temperature display
2. Set button
3. Read button
4. Digital display
5. Breath intake port

6. Mouthpieces (straight white and clear with saliva trap)
- C. Theory of Operation
1. The instrument uses a fuel cell to detect and quantify ethyl alcohol
  2. The fuel cell oxidizes the alcohol which releases electrons available for an electrical current flow that is proportional to the concentration of alcohol
  3. The current flow is measured and becomes an index of alcohol concentration
  4. The results are shown on a digital display
- D. Steps of Operation / Alcosensor III PBT
1. Preliminary Considerations
    - a. The PBT is usually the last test administered along the roadside
    - b. The person must be advised the test is voluntary, and not an alternative to an evidential alcohol test. After determining the subject's willingness to do the test, the question must be asked: "Have you consumed any alcohol in the last fifteen minutes?"
    - c. If subject acknowledges alcohol consumption in the last fifteen minutes then a test should not be administered unless willing to wait fifteen minutes. This may not be practical and the decision to arrest will need to be based on other information.
    - d. Ask the person if they have anything in their mouth, i.e. gum, Mint etc. Ask them to remove it, this is voluntary, we can't force them to remove it.
      - 1) The purpose of the 15 minute wait is to guard against mouth alcohol
      - 2) Might look for open containers in vehicle to corroborate subject's statement about drinking or not drinking within last 15 minutes and make a note of it
    - e. Check the temperature display, it should be 20-36<sup>o</sup> C
    - f. Push the "Set" button
  2. Push and hold the "Read" button and confirm that the displayed results go down to 0.003 or less and remain there. If not, push the "Set" button again and then push and hold the "Read" button. You may have to wait a few minutes for this to be accomplished.
  3. Attach the mouthpiece in one of the following configurations:
    - a. Attach the clear saliva trap mouthpiece to the straight tube white mouthpiece. Next, attach the straight white mouthpiece to the breath

intake port. Have the clear saliva trap mouthpiece facing to the opposite side of the instrument display.

- b. Attach the straight white mouthpiece with one-way valve in the proper direction so that the breath will flow in the proper direction. Reversing the direction will mean that the subject will not be able to exhale into the mouthpiece.
  - c. Demonstrate these configurations to the students.
  - d. Use plastic bags when handling (attaching, removing and disposing of) mouthpieces.
4. Have subject blow at least a 5 second sample. While the subject is still blowing press and hold the "Read" button. This will obtain that last sample of breath. Keep subject at a safe distance and remember officer safety issues. Monitor flow with back of hand to ensure subject does not suck back (this will not be necessary if using a mouthpiece with a one-way valve).
  5. Keep the "Read" button depressed and observe the displayed result until the peak value is obtained. This may take up to 45 seconds or longer. This is very important to obtain an accurate result.
  6. Record the results to three decimal places in your case report.
  7. Note also in your case report the serial number or the state tag number of the PBT instrument.
  8. Remove and discard the clear saliva trap mouthpiece or the white mouthpiece with one-way valve using the plastic bag to handle. The white tube mouthpiece (without one-way valve) can be reused but should be discarded after approximately ten tests or when becoming saturated with moisture or debris after multiple tests.
  9. Press the "Set" button and LEAVE in this position until next use.

E. Additional Considerations

1. It may take up to five minutes to zero between tests on the PBT. The manufacturer recommends no more than five tests per hour when results are near 0.10. If many low tests (near zero results) are run in a row, over five tests per hour is acceptable.
2. If the PBT displays "888" this means the battery is low. Contact your local PBT Technician for a battery replacement. The battery can last up to 500 tests.
3. The PBT should be stored where it will not encounter extreme heat or cold.
4. Radios should not be transmitted near the PBT when in operation. These signals may bias the test results. Watch for the continuous smooth rise in the results.

5. The PBT instruments must be tested at least every 6 months by a responsible technician. It is very important that you provide your instrument to the technician so this can be done and records kept. This will be important if your results are to be admissible in a probable cause hearing. The instruments can be checked more frequently by the technician and you may want to have this done following a significant arrest where the PBT will be critical evidence. The Technician will use a gas standard.
6. Generally, the PBT test results alone should not be the sole basis for the decision to arrest. However, there may be the circumstance (e.g., accident) where it is the sole basis for probable cause.
7. A negative PBT test result can help add to the probable cause to believe that the subject is on some other drug and a Drug Recognition Expert (DRE) should be called.
8. Do not allow any samples to be provided by an individual who has been smoking within three minutes. Smoke will ruin the fuel cell costing nearly \$250. When properly used, the fuel cell should last up to 3000 tests.
9. The most common problems encountered with PBT use are:
  - a. Allowing someone to smoke and then blow into the PBT within 3 minutes
  - b. Breaking off the mouthpiece tip on top of the instrument
  - c. Leaving the PBT on the vehicle and then driving off and losing or driving over it
  - d. Failing to keep the READ button depressed long enough to obtain a peak value
  - e. Not obtaining a deep lung sample
10. There are three questions related to the PBT that must be answered on the DataMaster
  - a. PBTTESTGIVEN? (Y/N):
    - 1) If "N", the next two questions will not appear
    - 2) If "Y", then
      - a) PBT TIME:
        - Use military time
      - b) PBT RESULT:

- The decimal is automatic, report to three digits

F. Alcosensor- FST/ PBT

A. Nomenclature

1. Mouthpiece: Insert the closed end of the mouthpiece into the mouthpiece channel, and then rotating the shaft of the mouthpiece downward, the flat side of the mouthpiece and the two holes on the underside of the mouthpiece will naturally align and attach to the appropriate ports on the Alco-Sensor FST.
2. ON Button: the ON button labeled with a ( I ) symbol, is the larger of the two buttons on the FST case. The button is located opposite the display and will naturally rest under the operator's forefinger when holding the instrument. To turn the FST on press and hold the button for one second, a beep and or display powering ON will indicate that power up has been successful.
3. The OFF button (labeled with an O symbol) is located on the Alco-Sensor FST case beneath the display. Press the button holding it for two seconds to shut the FST off. This will reset the instrument to the standard subject test sequence.
4. The battery cover is located on the base of the Alco-Sensor FST. Two AA batteries should run in excess of 500 tests. When changing batteries always replace both batteries.

B. Steps of operation

1. Attach a clean unused mouthpiece from a sealed bag.
2. Depress the power on button and hold for 1 second. The battery strength indicator and temperature in Celsius will be displayed momentarily. If you wish to have the display's back lighting illuminate, hold the power on button for an extra second or two.
3. The FST/PBT is designed to operate when the UNIT temperature (not ambient temperature) is between 0° C and 50° C. If the temperature is outside of the proper operating range, the instrument will indicate a temperature out of range condition before powering off. If you must perform a test with the FST/PBT, place it in an environment that will bring it to proper operating temperature.
4. If the instrument does not have sufficient battery power to perform a test either the instrument display will not power on or (BAT) will be displayed and testing will be disabled.
5. If your unit displays (BLN), this is an indication that the instrument is performing a blank test automatically. The unit will then display the result of the blank test. If the blank test is successful, a zero result appears on the

display. If it is not successful, a status message E 11 (Air Blank Out Of Range Message) is displayed and the test sequence is aborted.

6. When the display shows the icon of a person's head flashing and/or BLO displayed, instruct the subject to take a deep breath, hold it and then blow steadily through the mouthpiece for as long as he or she can. The icon of the head will stop flashing and a dash appears to the right of the head indicating the instrument senses sufficient breath blow.
7. Additional dashes will appear as the subject continues to provide a sample. Once three dashes appear an automatic sample will be taken. (It is not necessary for the subject to blow hard but rather a steady or continuous sample is best for sample collection). At the end of the analysis phase a result will be displayed in three digits. The result will be displayed for fifteen seconds before the instrument will power itself off, (Remove the mouthpiece).
8. You can turn the instrument off manually by pressing the OFF button for two seconds. The OFF button is the small button directly under the LED display. If after the FST is powered off and you want to view the last test result, it is possible to do so.
9. To recall the last test result, momentarily press the OFF button and then simultaneously press the ON button. The display will show the first menu item off a list of optional functions that the instrument can perform. The first item on the list is RCL (Recall Last Test). To execute this function, pressing the OFF button will prompt the instrument to alternately display the result from the last test performed with an intermittent displayed RCL.

C. Manual Sampling.

1. In the rare occasion when a subject is unable to provide an adequate breath flow to trigger the automatic sample capture feature, a manual sample capture is possible. This process requires that the operator follow the normal test procedure up to the point that "BLO" is displayed. At this point the operator should instruct the subject on how to provide a sample.
2. As close to the end of the exhalation as possible (but while the subject is still blowing) the operator can collect a manual sample by pressing the ON button
3. Errors in Manual Testing that must be avoided include capturing a sample after the exhalation has ceased. In all of these cases, a dilute sample will be drawn into the instrument for analysis and a corresponding low or zero result will occur.
4. Multiple tests
  - a. You do not have to wait 5 minutes between tests with the FST PBT. You can do one test after another.

D. Practical Tests

1. Set up simulators/ gas standard for doing the PBT practical tests.

2. Have either the student or a partner provide samples using the simulators.
3. When using simulators, have student hold PBT on side or upside down to keep water from entering the fuel cell. Demonstrate this to students.

#### **2.0.2.12 CASE REPORTS**

- A. Clear, thorough and complete case reports are very important
  1. Case can stand alone on the case report
  2. Substantiating evidence such as driving, physical test, observations, statements, should make your case prior to even administering the breath test
  3. Be sure to include all information DOL needs for a hearing so you do not have to appear for their civil hearing. Fax report to DOL within 72 hours.
    - a. Any question about your case that is not answered in your report leaves the defense an opportunity

#### **2.0.2.13 REVIEW**

- A. Court Testimony
- B. Primary evidence is your good case report
- C. The DataMaster uses infrared energy to analyze the samples
- D. The breath tube should be warm-hot to the touch
- E. The RFI antenna was /was not in place
- F. Simulator temperature was **34° C +/- .2 C°**
  1. Be able to draw thermometer
  2. Be able to say the paddle was turning
- G. 15 minute observation
- H. Followed the directions on the display
- I. External Standard was 0.072 - 0.088 inclusive
- J. Signed breath test document
- K. Current defense tactics
- L. When asked in court what you were taught in Basic: The up to sixteen hour

DataMaster Operator and PBT Course consists of a lecture, a practice session, a written exam, and a practical exam. The course covers legal aspects of breath testing, the theories upon which the DataMaster and PBT operate and detailed instruction in how to operate the DataMaster and PBT instruments

**2.0.2.14 WRITTEN AND PRACTICAL EXAM**

- A. 80% to pass on written
- B. Pass / Fail practical.

Archived 11/18/2014

### 3.0 DATAMASTER AND PBT OPERATOR REFRESHER COURSE

#### 3.0.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals who are currently Qualified Operators of the DataMaster Breath Test Instrument. Those individuals successfully completing this training course will have their status as certified operators renewed for three more years.

#### 3.0.2 LESSON PLAN

##### REFRESHER COURSE FOR DATAMASTER AND PBT OPERATOR

To be presented in up to 4 hours.

##### 3.0.2.1 INSTRUCTIONAL OBJECTIVES

1. To refresh the student's skill in operating the DataMaster/ CDM.
2. To upgrade the student's certified operator status of the DataMaster.
3. To acquaint the student with techniques that help to achieve an admissible test result.
4. To assist the student to prepare to testify in court regarding DataMaster tests.
5. To provide an opportunity for the student to have practice using the DataMaster.
6. To test the student's knowledge of DataMaster procedures and ability to conduct an admissible test.
7. To understand the purpose, principles, and operation of the simulator.
8. To know the legal applications of the instruments.
9. To refresh the students with the nomenclature, theory and legal aspects of Alcosensor and Alco-sensor FST (PBT) instrument.
10. The student will successfully complete a written examination (80 percent minimum) and successfully perform a practical test on both the DataMaster and the PBT.
11. To review the Standardized Field Sobriety Tests.

##### TRAINING AIDS

- White/Black board
- Training instruments
- Breath test forms/documents
- Data entry code books
- DataMaster Operator's Manual
- Blood vial kit and gloves

- Practical exercises/training forms
- Alcosensor III / FST (PBT) with mouthpieces

**EXAMINATION:**

- Written exam - 80%
- Practical exercise - Pass/Fail

**PRE-INSTRUCTION**

- Verify students are not over 90 days past their DataMaster card expiration date, no exceptions
- Have a class roster filled out
- Written exam, pass/fail practical

**3.0.2.2 INTRODUCTION**

- A. This outline will refresh the student on operation of the DataMaster / DataMaster CDM (Compact DataMaster) and the PBT.
- B. The DataMaster CDM is the equivalent of the DataMaster, only smaller.
- C. The DataMaster is a state of the art forensic breath test instrument that uses infrared spectroscopy to analyze a sample of human breath for ethanol concentration.
  - 1. Measures ethanol directly.
  - 2. Instrument detects numerous possible problems and aborts the test. It is designed to give a proper test or none at all.
    - a. 15-minute observation time.
    - b. Simulator temperature is correct "Y", "N" will abort test.
    - c. Invalid Sample, mouth alcohol is presumed to be present.
    - d. External Standard is out of range (range .072-.088 inclusive)
    - e. Interfering Substances over a .010.
    - f. Radio Frequency Interference.
    - g. Calibration Error, internal standard not verified.
    - h. Filter Error
    - i. Sample Outside 10% of their average
    - j. Ambient Fail, it cannot purge itself
    - k. Detector Overflow

- I. System Won't Zero, it cannot zero itself
- m. Fatal System Error, Temperature High, Temperature Low, Not Calibrated, Ram Error, Out of Service, Not Set Up
- 3. Results expressed as grams of ethanol/210 liters of breath (g/210L)
- 4. Collects data
  - a. Statistics used to support legislation
  - b. Drinking locations to assist the Liquor Control Board
- 5. Washington Supreme Court has approved the DataMaster (State v Ford, 1988)

### 3.0.2.3 LEGAL ASPECTS

- A. DUI Statute (46.61.502) affirmed by State v. Brayman. (per se law)
  - 6. A person is guilty of driving while under the influence of intoxicating liquor or any drug if the person drives a vehicle within this state:
    - a. And the person has, within two hours after driving, an alcohol concentration of 0.08 or higher as shown by analysis of the person's breath or blood made under RCW 46.61.506 or
    - b. While the person is under the influence of or affected by intoxicating liquor or any drug or
    - c. While the person is under the combined influence of or affected by intoxicating liquor and any drug.
  - 7. 46.04.670 defines vehicle
  - 8. State v. Day - public access
  - 9. 46.04.015 defines alcohol concentration as
    - a. g/210L breath
    - b. g/100ml blood
- B. Physical Control Statute (46.61.504)
  - 1. The statute is the same as DUI, except the person is in actual physical control of a motor vehicle
  - 2. Applies wherever DUI applies
  - 3. "Safely off the roadway" exception

- a. Edmonds v. Ostby said it is a factual issue to be decided by the trier of fact
- C. "Driving After Consuming" (0.02 Law) (46.61.503)
  - 1. Person guilty of driving or being in physical control of a motor vehicle after consuming alcohol if the person operates or is in actual physical control of a motor vehicle within Washington and
    - a. Is under twenty-one years of age
    - b. Within 2 hours of driving or physical control has an alcohol concentration of at least .020, but less than .080. If the person under 21 years of age is over a .080, cite for DUI only.
    - c. A test over 2 hours may be used to show person was 0.02 or more within the 2 hours of driving or physical control
  - 2. Arrest for "Driving After Consuming" (0.02 minor law)
  - 3. Test on the DataMaster for evidence
  - 4. A misdemeanor
- D. Uniform Commercial Drivers Act
  - 1. RCW 46.25.110, violation of the Act, mandatory, gross misdemeanor
    - a. Any person who drives, operates, or is in physical control cannot have any alcohol in their system
      - 1) Out of service for 24 hours, per CFR 392.5
    - b. If 0.04 or more, or refuse the test, their CDL will be disqualified
- E. Breath/Blood Statute (RCW 46.61.506)
  - 1. A reading less than .080 may be considered with other evidence for determining if under the influence
  - 2. Breath based upon g/210L
  - 3. Testing methods approved by the State Toxicologist
  - 4. Blood test for alcohol or drug content, (nothing in the implied consent law prevents a police officer from getting a search warrant in order to obtain breath/ blood evidence\_samples.
  - 5. Person has right to additional test
- F. Implied Consent (RCW 46.20.308)

1. Any person who operates a motor vehicle in the state of Washington is deemed to have given consent to test breath / blood for alcohol concentration or the presence of any drug.
2. Applies wherever DUI applies
3. Elements:
  - a. Driving or Physical Control of a motor vehicle within state of Washington (46.04.320 - motor vehicle / does not include trains.)
  - b. Probable cause under the influence of alcohol, or the presence of any drug, or has alcohol in his/her system in a concentration of greater than 0.020 and was under the age of 21.
  - c. Lawful arrest
  - d. Implied Consent warning read
    - 1) License, permit, or privilege to drive will be revoked/denied if refuse to submit.
    - 2) License, permit, or privilege to drive will be revoked or denied if age 21 or more and 0.08 or more, OR if under age 21 and 0.02 or more.
    - 3) A bright line on refusals (DOL v. Lax, 1995). Once refused, no further testing by the officer needs to be done. The officer determines if a good faith attempt to provide a sample was made or if it is a refusal (condensation in the mouthpiece or sound and 'Please Blow' stops flashing). If in doubt about the sample acceptance of an instrument, the officer should run a TEST with his breath to check it. Report it along with the ticket copy for the hearings.
    - 4) Reading three times is sufficient.
    - 5) Must be read in language person understands.
    - 6) DOL request spell out place/city etc.
    - 7) For Commercial Motor Vehicle Driver, read complete Implied Consent, including gray area.
4. If a breath test is 0.080 or more (adult) or 0.020 or more (minor) or the person refuses the test, or .040 or higher for a Commercial Motor Vehicle Driver. (The results of both breath samples must exceed the limit), the officer shall:
  - a. Serve the Driver's Hearing Request Information notice of DOL intent to revoke or deny the person's driver's license. (in the DUI Packet)
    - 1) Detach the Notice, the person must return it to DOL in 30

days with \$100 to schedule a hearing. Not necessary to read form to subject. Simply complete top two lines and the date on the bottom.

2) The person detaches the very bottom of the Notice as it is the validation date for the person's 'marked' Driver's License.

b. Mark driver's license, use the diamond punch by the DataMaster and punch next to the expiration date where 'Driver's License' is printed.

1) The marked drivers license is now a temporary valid for 60 days from arrest date or DOL issue date if blood taken. Temporary not valid any longer than any license it replaces.

c. Submit to DOL in 72 hours the 'Report of Breath Test' or the 'Report of Refusal to Submit to Breath/Blood Test'.

1) Submit 'Report of Blood Test' when you receive blood results from the State Toxicology Lab.

G. DOL Administrative Hearings

1. A civil proceeding

2. Held in county of arrest

3. To be from the officers arrest report so his/her attendance is not needed. You may be required to attend if it involves a commercial motor vehicle driver

4. Hearing within 60 days of the arrest or issuance of notice by DOL if blood. So by the time DOL knows they will have a hearing and need your report, time is very short. (usually 30 days or less)

5. A preponderance of the evidence. Officer's DUI arrest report under declaration and any other evidence accompanying the report shall be admissible without further foundation. Certifications authorized by criminal rules shall be admissible without further foundation.

6. No prosecutor except in Superior Court, will have Deputy AG.

7. Hearing Officer may issue subpoenas for attendance. If you want to attend it is okay with DOL if you notify them in advance.

8. Fax a copy of your DataMaster Breath Test Document ticket with arrest report to DOL.

9. DOL Hearings format: Include the following in your arrest report.

a. Adult

1) Officer had reasonable grounds to believe the person had been driving or in actual physical control of a motor vehicle

within this state.

- 2) There was probable cause the person was under the influence of intoxicating liquor or any drug.
  - 3) Person was under lawful arrest.
  - 4) The Implied Consent warnings were read to the person.
  - 5) Additional:
    - a) That the person refused to submit to the test required or
    - b) If tested, consent was given or the person was tested without consent as permitted (special evidence warning); plus the person's breath/blood was 0.080 or more within two hours
- b. Minor, under age 21
- 1) Officer had reasonable grounds to believe the person had been driving or in actual physical control of a motor vehicle within this state
  - 2) There was probable cause the minor had alcohol in his/her system in a concentration of .020 or more and was under the age of 21
  - 3) Minor was under lawful arrest
  - 4) The Implied Consent was read to the person
  - 5) Additional:
    - a) The minor refused to submit to the test required or
    - b) If tested, consent was given or the person was tested without consent as permitted (special evidence warning); plus the person was under age 21 and had a breath/blood result of more than .020 within two hours
- c. Commercial Driver
- 1) The officer had reasonable grounds to believe the person had been driving or was in actual physical control of a commercial motor vehicle within this state while having alcohol in the their system
  - 2) The driver was lawfully arrested

- 3) Commercial Implied Consent read
- 4) The driver refused or had a reading of 0.040 or more
- d. You can send another officer's sworn report that contains probable cause about your case to help with your probable cause.
- e. DOL requests that if you run a DataMaster test for another officer, you only run the test, and let the arresting officer complete all the forms.

#### H. Case Law

1. The subject has a right to an attorney before the breath/blood test (State v Wakenight)
  - a.. Right to have attorney actually present within 30 minutes. (State v Fitzsimmons)
  - b. The subject has a right to a private conversation with their attorney. (State v Koch)
    - 1) Need not jeopardize officer safety.
    - 2) Need not interrupt 15 minute observation however it probably will, so start 15 minutes over.
  2. If the subject is to be detained and asks for additional tests, refer to local court rules for transportation guidelines. (State v McNichols)
    - a. RCW 46.61.506 states the failure or inability to obtain an additional test by a person shall not preclude the admission of evidence taken.
    - b. If the person is to be released in a timely manner they may obtain their own test.
  3. A sample blown into a defective instrument does not relieve the subject of the requirement to give a full test at another instrument. (Sunnyside v Sanchez)  
If one of the two samples required to get a printout is refused it is a refusal. (DOL v. Rogers, 1988)

#### I. 2004 - New DUI laws (Effective June 10, 2004)

1. Clarifies that search warrants may be obtained for blood tests even if the implied consent statute applies;
2. Increases the information that must be given to an arrestee when the arrestee is deciding whether or not to give a breath sample;

3. Allows the implied consent warnings to deviate from the exact statutory language;
4. Removes the requirement that the state demonstrate that there is no BAC machine in the back of the ambulance or at the hospital in order to collect a blood sample;
5. Increases the list of people who may draw the blood sample; and
6. Changes the admissibility standard for breath tests.
7. Amends \*RCW 10.05.140 dealing with court ordered "ignition interlock devices".
8. Amends \*RCW 46.20.308 dealing with occupational licenses, creating "temporary restricted licenses".
9. Authorizes DOL to take administrative action against a driver who is required to maintain an ignition interlock device and fails to do so according to court order.
10. Amends \*RCW 46.20.3101 license suspensions for refusals.
11. Amends \*RCW 46.20.720 specific calibration settings for interlock ignition devices before a vehicle can start.

*\* See specific RCW or WAC for full explanation of the law.*

J. Breath test defined by WAC 448-13-040 - State Toxicologist: Dr. Fiona J. Couper

1. 15 minute observation period. The person does not eat, drink, smoke, or vomit.
  - a. No foreign substance in mouth.
  - b. The simulator temperature was **34° C +/- .2° C**
  - c. Two valid breath samples are required.
  - d. The test results will be provided in the form of a printout.
  - e. The results will indicate the grams of alcohol/210 liters of breath.
2. WAC requires that for the admission of breath test results as evidence, the operator must testify about
  - a. 15 minute observation period
    - 1) To ensure that any alcohol in the person's mouth has time to dissipate before the samples are taken
    - 2) The person does not have any foreign substances in their

mouth. Such determination shall be made by either an examination of the mouth **or** a denial by the person that he/she has any foreign substances in the mouth

- 3) Upon checking the person's mouth for foreign objects before starting the 15 minutes clear the person's mouth of all objects except dental work, and if necessary have the person rinse their mouth (i.e., chewing tobacco, etc.).
  - 4) If the person puts anything into their mouth, smokes, or vomits the mouth must be rechecked and the 15 minutes started over.
  - 5) The mouthpiece and the subjects own blood is not a foreign substance.
  - 6) Tongue Jewelry: ask the subject to remove, if unable or unwilling then request a blood sample under the implied consent (other physical limitations language)
  - 7) Vomiting or regurgitation may bring alcohol back up to the mouth and may require a new 15 minutes and instructions not to do it or they will be refused.
  - 8) Observe the subject until the last sample is completed.
3. The simulator temperature must be **34° C +/- .2° C**
    - a. The solution in the simulator obeys Henry's Law. At a constant temperature, the simulator solution will provide known values. If the temperature is too high or low, the value of the solution will be outside the proper range.
    - b. The solution is prepared by the State Toxicology Laboratory.

#### **3.0.2.4 DUI ARREST REPORT**

##### **J. Constitutional Rights**

1. Read it to a person acting unconscious.
2. Must get translator for non-English speaking subject, Spanish form available. Spanish tapes from court translator.

##### **K. Implied Consent Warning for Breath**

1. Officer signs on "Officer's Signature" line
2. Have defendant sign or write in "refused to sign".
3. Have defendant mark the YES\NO box.

L. Special Evidence Warning

1. Four times when blood can be taken without consent. If in doubt about who is driving, take blood from all suspects.
  - a. Vehicular Homicide
  - b. Vehicular Assault
  - c. Unconscious (DUI / Physical Control / Minor Driver). If possibly actingunconscious read the form. If in doubt about level of consciousness, read them the form.
  - d. DUI from an accident with serious bodily injury to another.
2. When taking blood at a hospital you must have probable cause.
  - a. Observations at the scene.
  - b. Information from a reliable informant.
    - 1) Officer at the scene
    - 2) Relay from Communications
3. Sample collection (State Toxicology blood kit, gloves)
  - a. Must be drawn by a physician, registered nurse, or qualified technician
  - b. Officer should be a witness to the drawing of the blood sample
    - 1) This may avoid the need for the nurse to be in court
    - 2) Document all critical information and qualifications regarding person who drew blood sample
  - c. Must be placed in a grey top tube
    - 1) Tubes available from State Toxicology Lab
    - 2) Check blood tube expiration date
    - 3) White powder (anti-coagulant) in tube, not empty
    - 4) Record evidence information on tube
    - 5) Record evidence and chain of custody information on form
    - 6) Use only Toxicology Laboratory mailing kit to mail tubes to lab

- a) Postal regulations
- b) Does not need to be refrigerated
- 7) Do not touch blood, prevents communicable disease
- 4. Hospital analysis is not approved by the State Toxicologist
  - a. Use ONLY the State Toxicology Laboratory for analysis
  - b. Toxicology Lab uses whole blood, the hospitals use blood plasma
- D. Implied Consent Warning for Blood
  - 1. Blood is the only legally acceptable alternative when breath is impractical.
  - 2. Emergency medical vehicle and ambulance added to hospital or clinic for blood drawing.
  - 3. Accident clause removed.
  - 4. When person is incapable of providing breath sample or you have PC the person is under the influence of drugs, read them the Implied Consent for Blood.
  - 5. Read it to a supposedly unconscious person. If really unconscious use the Special Evidence Warning.

Voluntary Blood, Urine, or Breath Test

- E. DUI Interview
  - 1. Statement in question form.
  - 2. First and last drink times
  - 3. Note all answers, statements or sayings.
  - 4. Note if invokes right to silence, defense will ask about blanks on forms.
  - 5. Observations
    - a. Be specific for subject arrested, don't generalize.
- F. Three Nationally Recognized SFST's (Standardized Field Sobriety Tests)
  - 1. Divided attention tests.
    - Review clues present in each test

- a. Horizontal Gaze Nystagmus (6 clues present)
  - ❖ Equal Tracking
  - ❖ Equal Pupils
  - ❖ Resting Nystagmus
  - ❖ Also check for Vertical Nystagmus
- b. One-Leg-Stand (4 clues present)
  - ❖ Sways while balancing
  - ❖ Uses arms for balance
  - ❖ Hopping
  - ❖ Puts foot down
- c. Walk and Turn (8 clues present)
  - ❖ Cannot keep balance
  - ❖ Starts too soon
  - ❖ Stops walking
  - ❖ Miss heel to toe
  - ❖ Steps off the line
  - ❖ Uses arms for balance
  - ❖ Improper turn
  - ❖ Actual number of steps
2. Other tests may be used and noted.
3. PBT, Pre-Arrest Breath Test
  - a. Must be voluntary, may be used to assist in determining probable cause and used in probable cause hearings but cannot be used in a trial as evidence.
  - b. Does not satisfy Implied Consent for DUI, Commercial Drivers, or Minors
  - c. Very important part of probable cause and your case

### **3.0.2.5 ALCOHOL PHYSIOLOGY REVIEW**

- A. Alcohol mixes readily with body water
- B. Alcohol is absorbed without being changed chemically
- C. Alcoholic beverages have differing alcoholic concentrations (by volume)
  1. Beer - 4 % by volume (3.2 % by weight)
  2. Wine - 12 to 15 percent by volume.
  3. Hard liquor (50 to 100 proof) - 25 to 50 percent by volume.
- D. Alcohol is absorbed mostly by the small intestine.

1. Food impacts absorption, lowers peak
- E. Blood flow will distribute alcohol throughout body.
  1. Alcohol is a small molecule that easily enters the brain.
- F. The liver will metabolize about 95 percent of the alcohol consumed.
- G. Alcohol absorption - elimination curve and where extrapolation comes to play.
- H. Isopropyl or methyl alcohol
  1. Very toxic, very low dose tolerated
  2. Isopropanol turns into acetone and stays with you a long time.
  3. Methanol turns into formic acid and can cause blindness.

### 3.0.2.6 THE PRE TEST PERIOD

- A. Check the RFI antenna.
  1. If there is no antenna, advise WSP radio and go to a different instrument.
- B. Check the breath tube.
  1. It should be warm/hot to the touch.
  2. The breath tube should be upright/forward of the back of the instrument.
  3. If it is cold, advise WSP radio and go to a different instrument.
- C. Check the simulator temperature.

#### Guth Model 34C simulator

1. It must be **34° C +/- .2° C**, if it is not in range:
  - a. Check to see that the simulator is turned on. If it's off, turn it on, and recheck the temperature in 10-15 minutes. If it is still out of range, call WSP radio and tag out of service.
2. Be able to draw the graduations on a thermometer, you should be able to do it in court Each graduation on the Mercury in glass thermometers is a tenth of a degree.
3. Look at the paddle to be sure it's turning. If it is not turning, advise WSP radio and go to a different instrument.
4. Check that the simulator tubing is not kinked.

Guth Model 2100 digital simulator

5. Temperature must be **34°C +/- .2°C**
6. Features of the Guth model 2100 digital simulator
  - ❖ Microprocessor controlled, mercury column is eliminated
  - ❖ Maintains a precise temperature of 34°C +/- .05°C or better
  - ❖ High intensity LED display, provides maximum visibility of temperature and heater activity
  - ❖ RFI protected
  - ❖ Malfunction indication, simulator provides and audible and visual indication if a malfunction occurs.

*\* If you see an error message on the digital simulator, turn off wait 3-5 seconds then turn on. If this does not correct the problem, then call WSP radio and advise of the error message.*

- D. Check the instrument time.
  1. It will disappear once "RUN" is pushed.
  2. It may be different than your watch.

**3.0.2.7 THE OBSERVATION PERIOD**

- A. Miranda Rights and Implied Consent.
- B. Check subject's mouth and begin the 15 minute observation using the DataMaster clock. Record time to the exact minute observed.
- C. You must keep subject under observation while entering the data.
- D. Make a note if subject has odor of volatile organic compounds (e.g., paint, thinner, etc.) about his person or clothing. If noted, determine time of last exposure.

**3.0.2.8 INSTRUMENT OPERATION**

- A. When 15 minute observation period is complete push "RUN".
- B. "INSERT TICKET" (DataMaster only)
  1. Straight, face-down, notch to the right, into the bottom slot. Colored side up.
  2. If there is already a ticket in the instrument you need not put a new one in.
- C. Enter data

1. Accuracy is important
  2. When the observation time question appears, the time you enter must be a minimum of 15 minutes or the instrument will abort the test.
  3. First question is Simulator Temperature (**34°C +/- .2°C**) Y/N? If "no", the DataMaster will abort the test. **LOOK** at the thermometer when you answer the question.
  4. Operator's name
    - a. Last /First/MI
    - b. Always enter name the same with each use
  5. Enter subject's name as it is on their driver's license. Emphasize the slash between the names
  6. Use backspace, control X, and delete to correct errors.
  7. You have 5 minutes to enter each data item and one minute to answer each Y/N question.
    - a. If the time expires, the display will show "READY- PUSH RUN" and all data is lost. Start over.
- D. Review data
1. One minute to answer "REVIEW DATA, Y/N?"
  2. Always review the data if any doubt about accuracy.
  3. Use "backspace" and "control I" (moves cursor forward) to move cursor in review mode.
- E. Purging
1. Air is drawn through breath tube to flush chamber. If the purge is unsuccessful, the display will read "AMBIENT FAIL".
    - a. Chamber vented out back of instrument.
    - b. Keep breath tube upright/forward - away from vent.
    - c. Some fail to purge causes:
      - 1) Mouthpiece left in breath tube.
      - 2) Room odor; alcohol/chemical odor (fingerprint ink, WD40)
      - 3) Subject's clothes soaked in alcohol.

- 4) Subject with alcohol odor on breath near breath tube while it is trying to purge.
  - d. Start test over, use previous data.
- F. Ambient Zeroing
1. Very small adjustment possible.
  2. If large adjustment required - "SYSTEM WON'T ZERO".
    - a. "SYSTEM WON'T ZERO" does not mean the instrument is broken. Something prevented a complete purge of the sample chamber.
- G. Blank Test
1. Displays .000
- H. Internal Standard
1. A quartz plate that checks the instrument calibration internally.
  2. If check is unsuccessful - "CALIBRATION ERROR".
- I. "SUBJECT REFUSE Y/N?"
1. A beep will sound to alert operator to respond
  2. One minute to select Y or N
    - a. "Y" results in a "refused" breath test document. Yes, the subject refused.
    - b. "N" results in request for sample
- J. "PLEASE BLOW"
1. Put mouthpiece in when "PLEASE BLOW" appears - not before.
  2. Open the plastic bag carefully, so that plastic does not get into the instrument.
  3. Use the plastic bag to handle the mouthpiece, this helps prevent communication of disease.
  4. Instruct the subject and watch the display
    - a. "Blow steadily into the mouthpiece 10 to 15 seconds, I will tell you to stop."
    - b. Consistent coaching will yield consistent samples.

- c. The blow need only be strong enough to stop "PLEASE BLOW" from flashing, but should be as long as possible. A sound will accompany the blow when air is traveling thru the sample chamber.
  - d. A hard blow will not be accepted.
  - e. Start/stop blowing or sucking, will not be accepted and may cause "INVALID SAMPLE".
    - 1) You must assume caused by mouth alcohol.
    - 2) Check subject's mouth and wait 15 minutes - then start again, you will not be able to use previous data.
    - 3) "INVALID SAMPLE" will appear in the database.
    - 4) "INVALID SAMPLE" does not mean that the instrument is broken - the sample offered was unacceptable.
5. As soon as the sample is accepted, REMOVE the mouthpiece using the plastic bag for protection.
- a. A mouthpiece left in the breath tube restricts the flow of purging air and may result in "Ambient Fail".
6. The alcohol reading will not appear on the display, wait for the document.
7. If, after TWO minutes of "PLEASE BLOW", a sample has not been accepted the display will read "SUBJECT REFUSE Y/N?".
- a. "Y" response gives a "REFUSAL" document.
  - b. "N" response gives an "INCOMPLETE" document.
  - c. No response at all will give an "INCOMPLETE" document after 1 minute.
  - d. The officer must decide whether the subject is unable or unwilling to provide a proper sample. Be able to articulate the cause/facts for your reasoning in the arrest report.
    - 1) If unable, end test with an "INCOMPLETE", then proceed with the Implied Consent Warnings for Blood.
    - 2) If unwilling, end test with a "REFUSAL". Be able to articulate the reasons for a refusal.
  - e. Distribute these documents as you would a complete test document.
8. If "INTERFERENCE DETECTED" appears on the display:

If during a breath test interference is detected, this will invalidate the test. The subject will be required to repeat the test. A subject whose breath registers the presence of interference on two or more successive breaths shall be deemed to have a physical limitation rendering them incapable of providing a valid breath sample and will be required to provide a blood sample under the implied consent statute, RCW 46.20.308. (WAC 448-16-040). There will be no printed document with an interferant test, this is not a valid test.

K. Analyzing

1. The breath sample is being tested.

L. Purging - Ambient Zeroing - Blank Test .000

M. External Standard (the simulator solution).

1. Must be .080 +/- .008 (.072 to .088, inclusive).
2. "EXTERNAL STANDARD OUT OF RANGE" will appear on the display and the test will abort if the external standard is less than .072 or more than .088.
3. Simulator is to remain on. Do not disconnect or interfere with hoses in back of the instrument. Kinked hoses cause low external standard.

N. Analyzing

1. The external standard value will be on the display after it is analyzed.

O. Purging - Ambient Zeroing - Blank Test .000

P. "SUBJECT REFUSE Y/N?"

1. If "N", subject supplies second sample.
2. If "SAMPLES OUTSIDE 10%" appears on the display, the test aborts as the two samples are not within 10% of their average.
  - a. Not a valid test, run the test again.
  - b. Do not need to check mouth or wait an additional 15 minutes, but continue to keep subject in your direct observation.
  - c. Will be in the database.
  - d. Consistent instruction is important to obtain consistent samples.

Q. Analyzing - Purging - Blank Test .000

R. Breath Test Document

1. Instrument serial number and software version near the top.

2. The reading is to three digits i.e., .128g/210L
3. Sign it and distribute to the defendant, court, officer.
4. If breath test document is jammed or garbled, secure the instrument and notify WSP radio. A copy can be obtained as long as the "Run" button has not been pushed.
  - a. Do not push "RUN".
  - b. Tape note over display, "OUT OF SERVICE - Copy Needed".
  - c. The test results are not admissible without an evidence document.
    - 1) You can't testify to what you saw.
    - 2) You can't testify from the statistical database.
  - d. Notify WSP of specific problem, leaving your name, agency, phone number, instrument serial number.
- S. If test result .250 g/210 L or more, wait  hour and retest.  
provide the subject with an opportunity to seek medical attention.
- T. Message Codes - a complete list with procedures to follow will be displayed at the instrument location. Be sure to check "DataMaster helps sheet for displayed messages". This sheet will guide you through displayed error messages on the BAC.
  1. "DETECTOR OVERFLOW"
    - a. Try one or more tests. If it occurs again, call WSP and tag instrument "Out of Service".

### **3.0.2.9 ALCOSENSOR III PRE-ARREST BREATH TEST INSTRUMENT (PBT)**

#### **A. Introduction**

1. The PBT can be a very useful tool for establishing probable cause to arrest for DUI.
2. The PBT can also be useful for enforcing "minor in possession" laws.
3. The PBT is not the evidential breath alcohol test under the implied consent law since it is voluntary and typically performed prior to arrest.
4. Only the Alcosensor III and Alco-sensor FST PBT instrument are approved in the Washington Administrative Code. If your agency uses a different PBT instrument you must contact the State Toxicology Laboratory to determine its acceptability for use.
5. Following your successful completion of this course you will be certified

operators of both the DataMaster / CDM and the Alcosensor III, Alco-sensor FST PBT. Refresher classes will renew your operator status with regard to these instruments.

B. Nomenclature

1. Temperature display
2. Set button
3. Read button
4. Digital display
5. Breath intake port
6. Mouthpieces (straight white and clear with saliva trap)

C. Theory of Operation

1. The instrument uses a fuel cell to detect and quantify ethyl alcohol
2. The fuel cell oxidizes the alcohol which releases electrons available for an electrical current flow that is proportional to the concentration of alcohol
3. The current flow is measured and becomes an index of alcohol concentration
4. The results are shown on a digital display

D. Steps of Operation

1. Preliminary Considerations
  - a. The PBT is usually the last test administered along the roadside
  - b. The person must be advised the test is voluntary, and not an alternative to an evidential breath alcohol test. After determining the subject's willingness to do the test, the question must be asked: "Have you consumed any alcohol in the last fifteen minutes?"
  - c. If subject acknowledges alcohol consumption in the last fifteen minutes then a test should not be administered unless willing to wait fifteen minutes. This may not be practical and the decision to arrest will need to be based on other information.
  - d. Ask the person if they have anything in their mouth, i.e., gum, mint etc. Ask them to remove it, this is voluntary, we can't force them to remove it.
  - e. Cannot have smoked within three minutes of taking the PBT test.
    - 1) The purpose of the 15 minute wait is to guard against mouth alcohol

- 2) Might look for open containers in vehicle to corroborate subject's statement about drinking or not drinking within last 15 minutes and make a note of it
2. Check the temperature display, it should be 20-36° C
3. Push the "Set" button
4. Push and hold the "Read" button and confirm that the displayed results go down to 0.003 or less and remain there. If not, push the "Set" button again and then push and hold the "Read" button. You may have to wait a few minutes for this to be accomplished.
5. Push the "Set" button
6. Attach the mouthpiece in one of the following configurations:
  - a. Attach the clear saliva trap mouthpiece to the straight tube white mouthpiece. Next, attach the straight white mouthpiece to the breath intake port. Have the clear saliva trap mouthpiece facing to the opposite side of the instrument display.
  - b. Attach the straight white mouthpiece with one-way valve in the proper direction so that the breath will flow in the proper direction. Reversing the direction will mean that the subject will not be able to exhale into the mouthpiece.
  - c. Demonstrate these configurations to the students.
  - d. Use plastic bags when handling (attaching, removing and disposing of) mouthpieces.
7. Have subject blow at least a 5 second sample. While the subject is still blowing press and hold the "Read" button. This will obtain that last sample of breath. Keep subject at a safe distance and remember officer safety issues. Monitor flow with back of hand to ensure subject does not suck back (this will not be necessary if using a mouthpiece with a one-way valve).
8. Keep the "Read" button depressed and observe the displayed result until the peak value is obtained. This may take up to 45 seconds or longer. This is very important to obtain an accurate result.
9. Record the results to three decimal places in your case report.
10. Note also in your case report the serial number or the state tag number of the PBT instrument.
11. Remove and discard the clear saliva trap mouthpiece or the white mouthpiece with one-way valve using the plastic bag to handle. The white tube mouthpiece (without one-way valve) can be reused but should be discarded after approximately ten tests or when becoming saturated with

moisture or debris after multiple tests.

12. Press the "Set" button and LEAVE in this position until next use.

### 3.0.2.10 ALCOSENSOR- FST / PBT

#### A. Nomenclature

##### 1. Mouthpiece:

Insert the closed end of the mouthpiece into the mouthpiece channel, and then rotating the shaft of the mouthpiece downward, the flat side of the mouthpiece and the two holes on the underside of the mouthpiece will naturally align and attach to the appropriate ports on the Alco-Sensor FST.

##### 2. ON Button:

The ON button labeled with a ( I ) symbol, is the larger of the two buttons on the FST case. The button is located opposite the display and will naturally rest under the operator's forefinger when holding the instrument. To turn the FST on press and hold the button for one second, a beep and or display powering ON will indicate that power up has been successful.

##### 3. The OFF button:

(labeled with an O symbol) is located on the Alco-Sensor FST case beneath the display. Press the button holding it for two seconds to shut the FST off. This will reset the instrument to the standard subject test sequence.

The battery cover is located on the base of the Alco-Sensor FST. Two AA batteries should run in excess of 500 tests. When changing batteries, always replace both batteries.

#### B. Steps of operation

##### 1. Attach a clean unused mouthpiece from a sealed bag.

##### 2. Depress the power on button and hold for 1 second. The battery strength indicator and temperature in Celsius will be displayed momentarily. If you wish to have the display's back lighting illuminate, hold the power on button for an extra second or two.

##### 3. The FST/PBT is designed to operate when the UNIT temperature (not ambient temperature) is between 0° C and 50° C. If the temperature is outside of the proper operating range, the instrument will indicate a temperature out of range condition before powering off. If you must perform a test with the FST/PBT, place it in an environment that will bring it to proper operating temperature.

##### 4. If the instrument does not have sufficient battery power to perform a test either the instrument display will not power on or (BAT) will be displayed and testing will be disabled.

5. If your unit displays (BLN), this is an indication that the instrument is performing a blank test automatically. The unit will then display the result of the blank test. If the blank test is successful, a zero result appears on the display. If it is not successful, a status message E 11 (Air Blank Out Of Range Message) is displayed and the test sequence is aborted.
  6. When the display shows the icon of a persons head flashing and/or BLO displayed, instruct the subject to take a deep breath, hold it and then blow steadily through the mouthpiece for as long as he or she can. The icon of the head will stop flashing and a dash appears to the right of the head indicating the instrument senses sufficient breath blow.
  7. Additional dashes will appear as the subject continues to provide a sample. Once three dashes appear an automatic sample will be taken. (It is not necessary for the subject to blow hard but rather a steady or continuous sample is best for sample collection). At the end of the analysis phase a result will be displayed in three digits. The result will be displayed for fifteen seconds before the instrument will power itself off, (Remove the mouthpiece).
  8. You can turn the instrument off manually by pressing the OFF button for two seconds. The OFF button is the small button directly under the LED display. If after the FST is powered off and you want to view the last test result, it is possible to do so.
  9. To recall the last test result, momentarily press the OFF button and then simultaneously press the ON button. The display will show the first menu item off a list of optional functions that the instrument can perform. The first item on the list is RCL (Recall Last Test). To execute this function, pressing the OFF button will prompt the instrument to alternately display the result from the last test performed with an intermittent displayed RCL.
- C. Manual Sampling.
1. In the rare occasion when a subject is unable to provide an adequate breath flow to trigger the automatic sample capture feature, a manual sample capture is possible. This process requires that the operator follow the normal test procedure up to the point that "BLO" is displayed. At this point the operator should instruct the subject on how to provide a sample.
  2. As close to the end of the exhalation as possible (but while the subject is still blowing) the operator can collect a manual sample by pressing the ON button.
  3. Errors in Manual Testing that must be avoided include capturing a sample after the exhalation has ceased. In all of these cases, a dilute sample will be drawn into the instrument for analysis and a corresponding low or zero result will occur.
- D. Multiple tests
1. You do not have to wait 5 minutes between tests with the (FST PBT). You can do one test after another.

E. Additional Considerations

1. It may take up to five minutes to zero between tests on the PBT, (AlcoSensor III model only). The manufacturer recommends no more than five tests per hour when results are near 0.10. If many low tests (near zero results) are run in a row, over five tests per hour is acceptable.
2. If the PBT displays "888" this means the battery is low. Contact your local PBT Technician for a battery replacement. The battery can last up to 500 tests.
3. The PBT should be stored where it will not encounter extreme heat or cold.
4. Radios should not be transmitted near the PBT when in operation.
5. These signals may bias the test results. Watch for the continuous smooth rise in the results.
6. The PBT instruments must be tested at least every 6 months by a responsible technician. It is very important that you provide your instrument to the technician so this can be done and records kept. This will be important if your results are to be admissible in a probable cause hearing. The instruments can be checked more frequently by the technician and you may want to have this done following a significant arrest where the PBT will be critical evidence. The Technician will use a gas standard.
7. Generally, the PBT test results alone should not be the sole basis for the decision to arrest. However, there may be the circumstance (e.g., accident) where it is the sole basis for probable cause.
8. A negative PBT test result can help add to the probable cause to believe that the subject is on some other drug and a Drug Recognition Expert (DRE) should be called.
9. Do not allow any samples to be provided by an individual who has been smoking within three minutes. Smoke will ruin the fuel cell costing nearly \$250. When properly used, the fuel cell should last up to 3000 tests.
10. The most common problems encountered with PBT use are:
  - a. Allowing someone to smoke and then blow into the PBT within 3 minutes
  - b. Breaking off the mouthpiece tip on top of the instrument
  - c. Leaving the PBT on the vehicle and then driving off and losing or driving over it
  - d. Failing to keep the READ button depressed long enough to obtain a peak value
  - e. Not obtaining a deep lung sample

There are three questions related to the PBT that must be answered on the DataMaster

- f. PBT TEST GIVEN? (Y/N):
  - 1) If "N", the next two questions will not appear
  - 2) If "Y", then
    - a) PBT TIME:  
--Use military time
    - b) PBT RESULT:  
--The decimal is automatic, report to three digits

F. Practical Tests

- 1. Set up Dry Gas Standards or Wet Bath\_Simulators for doing the PBT practical tests.
- 2. Have either the student or a partner provide samples using the simulators.
- 3. When using simulators, have student hold PBT on side or upside down to keep water from entering the fuel cell. Demonstrate this to students.

**3.0.2.11 CASE REPORTS**

- A. Clear, thorough and complete case reports are very important.
  - 1. Case can stand alone on the case report.
  - 2. Substantiating evidence as driving, physical test, observations, and statements.
  - 3. Be sure to include all information DOL needs for a hearing so you do not have to appear for their civil hearings.
  - 4. Avoid the appearance of stating the same thing on all reports.

**3.0.2.12 REVIEW**

- A. Court Testimony.
  - 1. Primary evidence is your case report.
  - 2. DataMaster uses infrared energy to analyze the sample.
  - 3. The breath tube should be warm or hot to the touch.
  - 4. The RFI antenna was present.

5. Simulator temperature (**34°C +/- .2°C**).
  - a. Be able to draw thermometer.
  - b. Be able to say the paddle was turning.
6. 15-minute observation.
7. Followed directions on the display.
8. External standard (0.072 - 0.088 inclusive).
9. Signed breath test document.
10. Current defense tactics.
11. When asked in court what you were taught in class, state to the effect: The DataMaster and PBT Refresher Course consists of a lecture, a practice session, a written exam, and a practical exam.

The class covers legal aspects of breath testing, the theories upon which the DataMaster and PBT operate, and detailed instructions on operating the DataMaster and PBT. (The Instructor's shall have discretion in administering this training outline).

**3.0.2.13 WRITTEN AND PRACTICAL EXAM**

- A. 80% on written.
- B. Satisfactory practical exercise.

## 4.0 BREATH TEST TECHNICIAN BASIC COURSE

### 4.0.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals as Qualified Breath Test Technicians. Those individuals successfully completing this training course are qualified to perform all areas of responsibility as outlined in the Washington Administrative Code.

### 4.0.2 LESSON PLAN

#### BASIC COURSE FOR BREATH TEST TECHNICIAN

To be presented in up to 140 hours.

##### 4.0.2.1 INSTRUCTIONAL OBJECTIVES:

1. Understand the legal foundation for breath alcohol measurement including the relevant statutes, administrative code and the case law.
2. Understand the basic mathematical foundation for the instrumentation and physiology of breath alcohol measurement and interpretation.
3. Read and discuss several published articles on forensic breath alcohol analysis.
4. Be able to perform computation using Widmark's equation
5. Be familiar with and able to perform computations associated with retrograde extrapolation
6. Learn the key nomenclature for the breath test instrument and the simulator
7. Learn the program policies and procedures as outlined in the Operations Manual, Technical Manual, Quality Manual, Forms Manual and Training Manual.
8. Learn to apply basic statistical computations relevant to the breath test program
9. Become familiar with the basic principles of organic chemistry
10. Learn the theory of the simulator and simulator solutions
11. Understand basic infrared theory as applied in breath alcohol instruments
12. Learn basic electronics as applied in the breath alcohol instruments
13. Understand basic principles of quantitative measurement
14. Understand and be able to successfully complete the Quality Assurance Procedure
15. Receive orientation and training at the State Toxicology Laboratory
16. Learn the use of a digital multi-meter for testing of breath test instruments

17. Learn important safety precautions relevant to the program
18. Learn the technical principles of the breath test instrument
19. Provide hands-on experience working with, repairing and testing the instruments
20. Learn the aspects of providing expert court testimony and experience a mock trial by actually providing testimony.
21. Participate in the preparation and conducting of a controlled drinking lab
22. Learn the relevant use and application of laptop computers
23. Become certified as Basic Instructors
24. Learn the procedures for certifying PBT instruments and become certified PBT technicians
25. Successfully pass examinations in each critical area of training along with a final exam

TRAINING AIDS:

- White/Black board
- DataMaster instruments with simulators
- All manuals including: Technical, Operations, Quality, Forms, Training
- Breath test forms/documents
- Digital multi-meters
- Drinking lab forms and materials
- All training outlines
- Alco-Sensor (PBT) with mouthpieces
- Research literature
- Calculators
- Simulator solutions
- Laptop computers
- DUI Arrest report forms

EXAMINATION:

- All written exams - 80%

PRE - INSTRUCTION:

- Have a class roster filled out.
- Verify current operator status
- Handout schedule and review
- Arrange for lodging

**4.0.2.2 LEGAL ASPECTS FO BREATH TEST PROGRAM**

- A. Statutes

B. Washington Administrative Code

C. Relevant Case law

**4.0.2.3 BASIC MATHEMATICAL PRINCIPLES**

A. Use of calculators

B. Basic algebra

C. Mathematical models

D. Significant digits

E. Rounding and reporting measurement results

F. Retrograde extrapolation

**4.0.2.4 WIDMARK'S EQUATION**

A. Widmark and his contributions

B. Basic equations

C. Uncertainty estimates

D. Relevant literature

E. Alcohol concentration in different beverages

**4.0.2.5 RETROGRADE EXTRAPOLATION**

A. General model

B. Assumptions

C. Computational steps

D. Limitations and relevant literature

**4.0.2.6 BASIC STATISTICS**

A. Data analysis

B. Measures of central tendency

C. Measures of variation

D. Linear regression

E. Descriptive statistics

- F. Inferential statistics
- G. Reporting statistical results
- H. Limitations of statistics

#### **4.0.2.7 PROGRAM POLICY MANUALS**

- A. Operations manual
- B. Technical manual
- C. Training manual
- D. Quality manual
- E. Forms manual

#### **4.0.2.8 NOMENCLATURE**

- A. Instrument nomenclature
- B. Simulator nomenclature

#### **4.0.2.9 ORGANIC CHEMISTRY**

- A. Organic molecules and bond structure
- B. Molecular formulas
- C. Ethanol and acetone
- D. Relevance to infrared absorption

#### **4.0.2.10 SIMULATOR THEORY AND OPERATION**

- A. Henry's Law
- B. Mathematical principles
- C. Solution preparation and testing

#### **4.0.2.11 INFRARED THEORY**

- A. Infrared spectrum
- B. IR spectrum for ethanol and acetone
- C. Molecular structure and bonding

- D. Theory of infrared absorption
- E. Theory of infrared detector
- F. Beer-Lambert Law and associated mathematics

**4.0.2.12 TECHNICAL PRINCIPLES OF THE BREATH TEST INSTRUMENT**

- A. Detector circuitry and signal processing
- B. Breath sampling parameters
- C. Analog and digital circuitry
- D. Software and relevant routines
- E. Error messages and interpretation
- F. Calibration factors and interpretation

**4.0.2.13 INSTRUMENT MAINTENANCE LAB**

- A. Take instrument apart and re-assemble
- B. Trouble-shoot and perform repairs
- C. Perform Quality Assurance Procedure

**4.0.2.14 CONTROLLED DRINKING LAB**

- A. Set up for lab and review data to be collected
- B. Assign personnel and instruments
- C. Have volunteers complete paperwork
- D. Collect data, analyze, plot and review on a later day

**4.0.2.15 EXPERT COURT TESTIMONY AND MOCK TRIAL**

- A. Review principles of expert court testimony
- B. Predicate questions
- C. Challenges to expect
- D. Mock court testimony
- E. Review mock court experience

#### **4.0.2.16 COMPUTER APPLICATIONS**

- A. Computer application in the program
- B. Database procedures
- C. Forms to be completed
- D. WEBDMS applications

#### **4.0.2.17 SIMULATOR SOLUTION CHANGING PROCEDURES**

- A. Equipment necessary
- B. Procedure
- C. Associated equipment and supplies
- D. Paperwork to be completed

#### **4.0.2.18 PBT CERTIFICATION**

- A. Equipment necessary
- B. Procedure
- C. Paperwork to be completed

#### **4.0.2.19 OPERATOR INSTRUCTOR TRAINING**

- A. Outlines to employ
- B. Class structure and visual aids
- C. Equipment to be employed
- D. Paperwork to be completed
- E. Practical instruction experience

#### **4.0.2.20 EXAMINATIONS**

- A. Article review quizzes
- B. Examination in key subject areas
- C. Final comprehensive exam

## 5.0 SIMULATOR SOLUTION CHANGER BASIC COURSE

### 5.0.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals as Simulator Solution Changers. The student must be a currently qualified Breath Test Instrument Operator. Those individuals successfully completing this training course are qualified to change the simulator solutions located at the breath test instruments.

### 5.0.2 LESSON PLAN

#### DATAMASTER SOLUTION CHANGER BASIC INSTRUCTION

To be presented in 4 hours

#### 5.0.2.1 INSTRUCTIONAL OBJECTIVES

1. To acquaint the student with the operation of the Breath Test Program of the Washington State Patrol.
2. To enable the student to perform external standard solution changes.
3. The student will demonstrate his/her ability to change BAC Datamaster external standard solutions using correct procedure.
4. The student will be trained to record and retain the proper records
5. The student will successfully complete a written exam.

#### REFERENCE MATERIALS

1. Breath Test Program Policy and Procedure Manual.
2. Title 448 W.A.C.
3. Operator Refresher Outline.

#### TRAINING AIDS

1. Black/White board.
2. Datamaster instrument.
3. Guth Simulators.
4. Handouts and supplies.
5. Plastic solution bottle with tape and label.

## WRITTEN AND PRACTICAL EXAMINATIONS

1. Final written exam covering lecture material - must score 80%.
2. Laboratory practical examination - must demonstrate proficiency in solution change procedure.

### **5.0.2.2 INTRODUCTION**

- A. Overview of Breath Test Program and the Solution Changer's role.

### **5.0.2.3 OPERATOR REFRESHER REVIEW**

- A. Review basic principles of instrument operation

### **5.0.2.4 LEGAL CONSIDERATIONS**

- A. Provide copies and review WAC rules that relate to simulator solution changing

### **5.0.2.5 SCIENTIFIC PRINCIPLES THAT APPLY TO THE DATAMASTER**

- A. Infra-red Spectroscopy.
  1. Beer's Law.
- B. Henry's Law.
  1. Volume not critical but temperature is.

### **5.0.2.6 THE DATAMASTER PROTOCOL**

- A. Sample acceptance parameters.
- B. Blank tests.
- C. Internal and external standards.
- D. Two samples.
  1. +/- 10% of the mean.
- E. Printed Evidence Document.

### **5.0.2.7 SIMULATOR**

- A. Nomenclature.
- B. Thermometer.

- C. Solution preparation, testing and certification.
- D. We are not saving simulator solutions - departmental policy, case law.
- E. Simulator Solution Changing Procedure.
  - 1. Review in detail the protocol from Policy/Procedure Manual
  - 2. Solution value will be near 0.080 g/210L
  - 3. Review in detail how to manually set the solution default value through the Set/Advance keys
  - 4. Review the F1/F2 functions in detail
- F. Demonstrate changing solution.
  - 1. Clean and dry simulator elements and jar.
  - 2. Check evidence tape on bottle for tampering.
  - 3. Pour contents of plastic bottle into simulator jar.
  - 4. Reattach jar to simulator top housing.
  - 5. Attach batch number label from plastic bottle to simulator.
  - 6. Review data entry format for Breath Test Section Personnel from Policy/Procedure Manual

#### **5.0.2.8 SUPERVISORY KEYS AND FUNCTION**

- A. Set - Advance.
- B. F1 - F2.
- C. Copy.
- D. Supervisory tests.
- E. Abort - **Never** abort during Ambient Zero.

#### **5.0.2.9 REPORTS AND FORMS**

- 1. Simulator Solution Replacement Record found in Policy/Procedure Manual (483.BTS)

#### **5.0.2.10 PRACTICAL LABORATORY**

- 1. Solution change procedure.

2. Purging the instrument.
3. Paperwork and supplies to check with instrument.

**5.0.2.11 REVIEW AND FINAL EXAM**

**5.0.2.12 ISSUE NECESSARY EQUIPMENT AND PAPERWORK**

Archived 11/18/2014

## 6.0 PRELIMINARY BREATH TEST (PBT) TECHNICIAN BASIC COURSE

### 6.0.1 OBJECTIVE

The Curriculum outlined in this chapter is approved for training individuals as PBT Technicians. The student must be a currently qualified Breath Test Instrument Operator. Those individuals successfully completing this training course are qualified to certify PBT instruments and be issued a permit card by the Washington State Toxicologist.

### 6.0.2 LESSON PLAN

#### BASIC COURSE FOR ALCO-SENSOR III AND FST PBT TECHNICIAN

To be presented in up to 4 hours.

##### 6.0.2.1 INSTRUCTIONAL OBJECTIVES

- A. Understand the legal support and use of the PBT in the context of DUI enforcement.
- B. Understand the theory of operation of the Alco-Sensor III and Alco-sensor FST PBT instrument.
- C. Qualify the student initially as a qualified PBT Operator prior to the PBT Technician training.
- D. Learn to diagnose and repair some common problems encountered with the PBT.
- E. Learn to test the PBT for accuracy according to the methods approved by the State Toxicologist.
- F. Understand the theory and operation of the gas standard devices which contain known alcohol standards and are used for testing the PBT instruments.
- G. Learn how to retain records regarding the regular testing of PBT instruments
- H. Understand the role of the PBT Technician in the total DUI enforcement program.
- I. Successfully complete a written exam. (80% minimum)
- J. Successfully demonstrate the ability to properly test and calibrate both Alco-Sensor III PBT and Alco-Sensor FST PBT according to the State Toxicologist protocols.

#### TRAINING AIDS

- A. White/Black board
- B. PBT instruments (both Alco-Sensor III and Alco-Sensor FST PBT) with gas standard equipment.
- C. PBT white tube mouthpieces and clear saliva trap mouth pieces

- D. 9 volt and AA batteries
- E. Digital multi-meter
- F. Forms for entering PBT test record results
- G. Small flat head screw driver

#### EXAMINATION

- A. Written exam – 80%.
- B. Practical demonstration

#### PRE-INSTRUCTION

- A. Have a class roster completed
- B. This course is designed to train the student to perform the periodic testing of PBT instruments as required in the Washington Administrative Code (WAC) to allow for their admissibility as probable cause devices.
- C. Successful completion of the course will qualify the student to test and perform minor repairs to the Alco-Sensor III and Alco-Sensor FST PBT instrument.
- D. The students permit card will show their status as a PBT Technician.
- E. The student must already be a qualified PBT operator.

#### **6.0.2.2 INTRODUCTION**

- A. The WAC allows for use of the Alco-Sensor III and Alco-Sensor FST PBT device as a screening test for probable cause.
- B. In order for a law enforcement officer to use the PBT results the WAC require that the PBT instruments be periodically tested by a qualified PBT Technician.
- C. You will be trained in the theory and operation of the PBT instrument along with how and when to test them and the associated records to keep.
- D. You will need to test the PBT instruments at least every 6 months. They may be tested more often. An operator may bring a PBT to you for testing if its use will be critical in a particular case.

#### **6.0.2.3 ALCO-SENSOR III & ALCO-SENSOR FST PRE-ARREST BREATH TEST INSTRUMENT OPERATION**

- A. Introduction
  - 1. The PBT can be a very useful tool for establishing probable cause to arrest for DUI
  - 2. The PBT can also be useful for enforcing “minor in possession/ consumption” laws
  - 3. The PBT is not the evidential breath alcohol test under the implied consent statute since it is voluntary and typically performed prior to arrest

- B. Only the Alco-Sensor III and FST PBT instruments are approved in the Washington Administrative Code (WAC 448-15). If your agency uses a different PBT instrument you must contact the State Toxicologist to determine its acceptability for use.
- C. Alco-Sensor III Nomenclature
  1. Temperature display
  2. Set button
  3. Read button
  4. Digital display
  5. Breath intake port – this is easily broken off and care must be taken when attaching and removing mouthpieces
  6. Mouthpiece
  7. Potentiometer used for calibration
- D. Alco-Sensor FST Nomenclature
  1. On button
  2. Off button
  3. Digital display
  4. Breath intake port
  5. Lanyard/Rubber cover
  6. Mouthpiece
- E. Theory of Operation
  1. The instrument uses a fuel cell to detect and quantify ethyl alcohol.
  2. The fuel cell oxidizes the alcohol which releases electrons available for an electrical current flow that is proportional to the concentration of alcohol.
  3. The current flow is measured and becomes an index of alcohol concentration.
  4. The results are shown on a digital display.
- F. Current case law prohibits the use of the PBT for evidential purposes. The State Toxicologist has indicated that the PBT may be used as an approved screening device, intending that it may be used for developing probable cause for arrest.
- G. Steps of Operation (ALCO-SENSOR III PBT)
  1. Preliminary Considerations
    - A. Usually the last test administered along the roadside.
    - B. After determining the subject's willingness to do the test, the question must be asked: "Have you had any alcohol to drink in the last fifteen minutes?"

- C. If subject acknowledges alcohol consumption within the last fifteen minutes then a test should not be administered.
  - The purpose of the 15 minute observation/wait is to guard against mouth alcohol.
  - Might look for open containers in the vehicle to corroborate the subject's statement about drinking or not drinking within the last 15 minutes and make a note of it.
2. Check the temperature display – should read between 20-36 degrees C.
3. Depress “SET” button.
4. Press and hold the “READ” button and confirm that the displayed results read 0.003 or less and remain there. If not, push the “SET” button again and wait up to 1 minute, then press and hold the “READ” button. You may have try this several times over a period of a few minutes.
5. Depress the “SET” button.
6. Attach the mouthpiece in one of the following configuration:
  - Attach the clear saliva trap mouth piece to the straight tube white mouthpiece. Next, attach the straight white mouthpiece to the instrument receptacle. Have the clear saliva trap mouthpiece facing to the opposite side of the instrument display.
  - Attach the straight white mouthpiece with on-way valve in the proper direction so that the breath will flow in the proper direction. Reversing the direction will mean that the subject will not be able to exhale into the mouth piece.
  - Demonstrate these configurations to the students.
  - Use clear plastic bags when handling mouthpieces.
7. Have subject blow and attempt to get at least a 5 second sample. While subject is still blowing press the “READ” button. This should be done as the subject is running out of breath but still blowing. This will obtain that last portion of the breath sample for analyzing. Keep subject at a safe distance and remember officer safety issues. Monitor air flow with the back of hand to ensure subject does not suck back (this will not be necessary if using a mouthpiece with a one way valve).
8. Keep the “READ” button depressed and observe the displayed result until a stable result is displayed. This may take up to 45 seconds or longer. This is very important to obtain an accurate result.
9. Record the results to three decimal places as displayed in your case report.
10. Note also in your case report the serial number or the state tag number of the PBT instrument.
11. Press the “SET” button and LEAVE in this position until next use.

12. Remove and discard mouthpiece.

#### H. Additional Considerations

1. It may take up to five minutes for the Alco-Sensor III PBT to zero between tests. The manufacturer recommends no more than five tests per hour when results are near 0.100 g/210L. An operator may not be able to perform replicate testing at close time intervals when subjects have a breath alcohol result of 0.100 g/210L and higher. If several low test results (near zero) are performed in a row, then more than five tests per hour is acceptable.
2. If the PBT displays "888" this means the battery is low. Replace with fresh battery. The battery can last up to 500 tests.
3. The PBT should be stored where it will not encounter extreme temperatures.
4. Radios should not be transmitted near PBT when in operation. These RFI signals may bias the test results. Watch for a continuous smooth rise in the results.
5. The PBT instruments must be tested at least every 6 months by a qualified technician. It is very important that you provide your PBT instrument to the technician so this can be done and proper records kept. This will be important if your results are to be admissible in a probable cause hearing. The instruments can be checked more frequently by the Technician and you may want to have this done following a significant arrest where the PBT will be critical evidence. The Technician will use a gas standard. Wet bath simulators are not to be used to certify PBT's.
6. Generally the PBT test results alone should not be the sole basis for the decision to arrest.
7. A negative PBT test result can help add to the suspicion that the subject is on some other drug and a Drug Recognition Expert (DRE) should be called if other indicators are present.
8. Do not allow any samples to be provided by an individual who has been smoking within three minutes. Smoke will ruin the fuel cell costing nearly \$300.00. When properly used, the fuel cell should last up to 3000 tests.
9. The most common problems encountered with PBT's are:
  - Allowing someone to smoke and then blowing into the PBT within 3 minutes
  - Breaking off the mouthpiece tip on top of the instrument
  - Leaving the PBT on the vehicle then driving off and losing it or driving over it
  - Failing to keep the READ button depressed long enough to obtain a peak value
  - Not obtaining a deep-lung sample

#### I. Steps of Operation Alco-Sensor FST PBT

##### 1. Preliminary Considerations

- A. Usually the last test administered along the roadside
  - B. After determining the subject's willingness to do the test, the question must be asked: "Have you had any alcohol to drink in the last fifteen minutes?"
  - C. If subject acknowledges alcohol consumption within the last fifteen minutes then a test should not be administered.
    - a. The purpose of the 15 minute observation is to guard against mouth alcohol. The presence of mouth alcohol will influence the test.
    - b. Might look for open containers in the vehicle to corroborate the subject's statement about drinking or not drinking within the last 15 minutes.
2. Push the "ON" button turning the PBT on.
  3. Watch as PBT will automatically check the temperature and perform a blank test.
  4. When PBT displays "BLO" attach a plastic mouthpiece to the PBT's breath intake port.
  5. Obtain a breath sample from the subject, have them attempt to blow for at least 5 seconds. If the subject provides a proper sample the FST PBT will automatically take the sample and analyze it. Remember, if subject is unable to provide a quality sample the operator can press the "ON" button while subject is still blowing to manually accept the sample. Keep subject at a safe distance and remember officer safety issues.
  6. Record the results to three decimal places as displayed in your case report.
  7. Note in your case report the serial number, or the state tag number of the PBT instrument.
  8. Remove and discard the mouthpiece.
- J. Practical Tests
1. Utilizing both Alco-Sensor III and Alco-Sensor FST PBT instruments have students perform at least one practice and one practical test on each PBT.

#### **6.0.2.4 GAS STANDARD EQUIPMENT NOMENCLATURE AND USE**

##### A. Nomenclature

##### 1. Gas tank

- Contains a known concentration of ethanol (a #2 type of gas)
- Concentrations usually near 0.082 g/210L
- Store tank in the upright position
- Tanks are not refilled, upon reaching the expiration date or emptying of gas you may be able to dispose of through a local fire department.

2. Regulator

- After attaching regulator observe pressure, if below 3 then replace the tank.
- Remove the regulator when transporting.

3. True Cal Device

- An instrument that monitors barometric pressure and provides a corrected estimate of the ethanol concentration.

**6.0.2.5 CERTIFICATION PROTOCOL (ALCO-SENSOR III PBT)**

- A. Refer to Alco-Sensor III and Alco-Sensor FST PBT Certification protocol in WSP Breath Test Program Calibration Technical Manual: The steps are as follows:
1. Obtain certified and current expiration dated 0.082 g/210L (+ or – 0.002) gas standard.
  2. If using a Tru-Cal device, this will determine the estimated concentration. This will be the value that the PBT will be certified and/or calibrated to. If not using a Tru-Cal device, refer to the altitude chart on the side of the tank for the correct reference value.
  3. Verify the PBT temperature is between 20 and 36 degrees C.
  4. Depress the “SET” button, then press and hold the “READ” button.
  5. The digits should read 0.003 or less within 10 seconds. If the digits do not read 0.003 or less, depress the SET button again, wait one minute and press and hold the READ button again.
  6. Attach mouthpiece to the gas standard and provide a sample, allow 3-5 seconds of gas flow.
  7. Push and hold the READ button while the sample is still being provided. Continue to hold the read button until the result stabilizes.
  8. Observe digital reading to determine if acceptably accurate.
    - If the results are within +/- 0.010 g/210L from the reference value for the gas standard, the PBT is properly calibrated and acceptably accurate.
    - If the result is **not** within the acceptable limits, proceed to step 10.
  9. Record the following information:
    - a. PBT Serial Number and/or State Tag Number (if applicable)

- b. 3 digit results
- c. Gas Standard batch or lot number and expiration date
- d. Date of certification
- e. Whether or not the instrument required recalibration. Not all instruments will require recalibration during the certification process. If instrument does not require recalibration skip to step number 10.

10. Recalibrating the Alco-Sensor III PBT

- If the result is outside + or – 0.010g/210L of the reference value, first zero the instrument to 0.003 or less, then turn the calibration screw clockwise two full turns.
- Re-introduce the gas standard and while holding the READ button, turn the calibration screw counter-clockwise slowly to value on the gas standard. Avoid adjusting to below the reference gas standard value during this procedure.
- Repeat steps 1 through 10 as often as necessary to obtain results within the acceptable range.
- If results are acceptable, only one test is necessary.

11. The PBT instruments are to be certified at least every 6 months.

12. If display on Alco-Sensor III PBT reads “888” the 9.0 volt battery needs to be replaced.

- 9 volt battery should be tested with a multi-meter at the time of each certification. You do not need to remove the battery. Just place the leads across the battery and you should observe at least 9.0 volts. If less than 9.0 volts replace the battery.

**6.0.2.6 CERTIFICATION PROTOCOL (ALCO-SENSOR FST PBT)**

- A. Refer to Alco-Sensor III and Alco-Sensor FST PBT Certification protocol in the WSP Breath Test Program Calibration Technical Manual: The steps are as follows:
  1. Obtain certified and current expiration dated 0.082 g/210L (+ or – 0.002) gas standard.
  2. If using a Tru-Cal device, this will determine the estimated concentration. This will be the value that the PBT will be certified and/or calibrated to. If not using a Tru-Cal device, refer to the altitude chart on the side of the tank for the correct reference value.
  3. Verify the PBT temperature is between 20 and 36 degrees C.

4. Attach a new mouthpiece and power the PBT on by pressing and holding both the ON and OFF button simultaneously.
5. The display should show the RCL message, which is the first option in the function menu. Momentarily depress and release the ON button until the displayed message reads ACC.
6. With ACC on the display press the OFF button to select the Accuracy check option. The temperature will be displayed. Ensure a Blank Test result of 0.000 g/210L is displayed. A flashing ACC message will appear.
7. While the display is flashing ACC, make an airtight connection between the delivery tube of the regulator and the open end of the mouthpiece.
8. Depress the regulator control button for approximately 7 seconds. At approximately 5 seconds depress and release the ON button (while the gas continues to flow) to manually accept the sample.
9. If the results are within  $\pm 0.010$  g/210L from the reference value for the gas standard, the PBT is properly calibrated and acceptably accurate and only one test is necessary. Proceed to the record keeping steps.
10. If the result is not within the acceptable limits, proceed to the calibration process.
11. Recalibrating the FST PBT
  - Temperature must be between 20 and 36 degrees C.
  - Attach a new mouthpiece and power the PBT on by pressing and holding both ON and OFF button simultaneously.
  - The display should read RCL, which is the first option in the function menu. Momentarily depress and release the ON button until the displayed message reads CAL.
  - Once CAL is displayed, depress the OFF button, this will initiate the calibration sequence.
  - Temperature will be displayed, ensure a Blank Test result of 0.000g/210L is displayed. A flashing CAL message will appear.
  - While the display is flashing CAL, make an airtight connection between the delivery tube of the regulator and the open end of the mouthpiece.
  - Depress the regulator control button for approximately 7 seconds. At approximately 5 seconds depress and release the ON button (while the gas continues to flow) to manually accept the sample.

- The result will automatically be displayed. If the result equals the expected reference value, depress the OFF button. You will see that each time you depress the OFF button, the cursor moves from the left most digit of the number to the right. After depressing the button three times, the value displayed will be accepted as the calibration value and will flash three times before the PBT will power down.
- If the result does not match the expected reference value of the gas standard you will need to adjust the displayed result to the proper value. The result displayed will have the digit furthest to the left flashing. If the flashing digit is incorrect, press and release the ON button as many times as necessary to cycle the displayed digit to the correct number. When the digit is correct, press the OFF button to move the flashing digit to the right. After you have adjusted the furthest to the right digit and the OFF button is depressed, the new calibration value will be flashed on the display three times. If you need to adjust this number further, pressing the OFF button again, while the entire calibration number is flashing, will provide you this option by displaying the most recently entered number with the digit furthest to the left flashing. If the calibration value is correct and you have not pressed the OFF button a second time, after the third flash the new calibration value will be accepted.
- Cycle the power on the instrument OFF and ON and repeat the certification process to verify the accuracy of the PBT instrument.

#### 6.0.2.7 RECORD KEEPING

- A. Complete Alco-Sensor III and FST PBT certification record
- B. Record results to three decimal places
- C. Be sure to note if instrument was recalibrated
- D. Record the expiration date and value of the gas standard

#### 6.0.2.8 PBT TROUBLESHOOTING AND REPAIRS

- A. If display on Alco-Sensor III PBT reads "888" the 9.0 volt battery needs to be replaced
  - 9 volt battery should be tested with a multi-meter at the time of each certification. You do not need to remove the battery. Just place the leads across the battery and you should observe at least 9.0 volts. If less than 9.0 volts replace the battery.

#### 6.0.2.9 ADDITIONAL CONSIDERATIONS

- A. There should be at least five minutes allowed between tests on the Alco-Sensor III PBT.

- B. The PBT should be stored where it will not encounter extreme heat or cold.
- C. Radios should not be transmitted near the PBT when in operation. These RFI signals may bias the test results.

**6.0.2.10 PRACTICAL AND WRITTEN EXAMS**

- A. Have student use gas standard devices to test both Alco-Sensor III and Alco-Sensor FST PBT's and properly record the information.
- B. Written exam (must obtain 80%).

Archived 11/18/2014

## 7.0 BREATH TEST INSTRUMENT BASIC INSTRUCTOR

### 7.0.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals as Instructors. The student must be a currently qualified Breath Test Instrument Operator. Those individuals successfully completing this training course are qualified to train other individuals as certified Operators.

### 7.0.2 LESSON PLAN

#### BASIC INSTRUCTOR COURSE FOR DATAMASTER INSTRUMENT

To be presented in 16 hours.

#### 7.0.2.1 INSTRUCTIONAL OBJECTIVES:

1. The student will have a thorough understanding of the DataMaster program.
2. The student will understand the basic principles of infrared spectroscopy as it relates to the DataMaster.
3. The student will understand the basics of the Beer/Lambert Law.
4. The student will understand where infrared energy fits in the whole electromagnetic spectrum.
5. The student will understand the basic relationship between infrared energy and its absorption by ethanol.
6. The student will know the basic nomenclature of the DataMaster.
7. The student will be familiar with the 'Error Message' codes and what they mean.
8. The student will understand how the DataMaster evaluates the presence of acetone.
9. The student will understand how the DataMaster evaluates for the presence of mouth alcohol.
10. The student will be familiar with the data entry questions and their meaning.
11. The student will be familiar with the steps on instrument operation and its purpose.
12. The student will know how to compute the +/- 10% between two breath tests.
13. The student will be able to explain the breath sampling parameters used in the instrument.
14. The student will know the importance and meaning of the external standard.
15. The student will know the importance of the simulator temperature and how to properly read, report, and instruct in this regard.

16. The student will be knowledgeable of the legal aspects of breath testing to include: Statues, WAC's, Case Law.
17. The student will know the purpose and operation of the Supervisory Control Panel.
18. The student will be aware of common troubleshooting problems as they relate to operation.
19. The student will be able to teach the entire outlines used in the Basic and Refresher Operator Classes.
20. The student will be thoroughly familiar with the exams given in the Basic and Refresher Operator Classes and be able to discuss them.
21. The student will know how to conduct a Basic 16 hour class.
22. The student will know how to conduct a Refresher 4 hour class.
23. The student will be familiar with the training record keeping system.
24. The student will pass an examination with 80% and be qualified as a DataMaster Instructor.

#### **7.0.2.2 INTRODUCTION**

- A. This unit of instruction is designed to make you competent Infrared Breath Test Instructors by giving you a better understanding of the DataMaster instrument.
- B. Class Handouts:
  1. Basic Operator outline/exam.
  2. Operator Refresher outline/exam.
  3. Data entry questions, set key operations, F1 key functions, keyboard password, diagnostic check functions.
  3. Prepared overhead transparencies.

#### **7.0.2.3 LEGAL ASPECTS**

- A. DUI law, minor law, commercial driver's act.
- B. Implied Consent law.
- C. Case law.

#### **7.0.2.4 NOMENCLATURE**

- A. Heated Breath Tube.

1. Heated so it is warm/hot to the touch. Apx. 50°C but not a required temperature.
  2. Heated to prevent condensation from forming in the tube.
  3. Loss of heat has no apparent effect on the breath test results but could cause 'Ambient Fail.'
- B. Five-Way Valve.
1. Directs the vapor flow path for the simulator and breath samples into the sample chamber at the appropriate times.
- C. Sample Chamber.
1. The IR path is 1.1. meters long through the use of mirrors and is said to be 'folded.'
  2. Its heat range is 48°C – 52°C inclusive. If the temperature is outside this range the instrument will display a message.
  3. The sample chamber holds .50 ml's. As air is blown through the chamber the excess air is vented through a one-way valve, not a closed system. When there is no more flow the air in the chamber becomes static and that's when the last three quarter second measurements are taken and averaged for that sample's reading.
  4. Infrared light source located at one end with the detector located at the far end.
- D. Filters.
1. Alcohol and Interference filters narrow the infrared energy to two wavelengths. 3.37 and 3.44 microns.
  2. Quartz standard/plate (Internal Standard) ensures that the instrument is working properly by checking the value received with a value which is stored into memory during calibration.
- E. Detector.
1. Is made from a photosensitive material.
  2. Reads the amount of infrared energy which is transmitted through the sample chamber.

#### 7.0.2.5 CHEMICAL PRINCIPLES

- A. The DataMaster is a forensic breath testing instrument which uses infrared spectroscopy to measure breath alcohol.
- B. Infrared spectroscopy is an analytical technique used to quantify the interaction between infrared light and organic molecules.

1. Organic molecules are those which contain carbon.
  2. Infrared describes a particular range of electromagnetic radiation.
  3. Wavelength and energy are inversely related, as the wavelength increases energy decreases.
- C. Ethanol molecules consist of six hydrogen, two carbon, and one oxygen atom arranged in a fixed order.
- D. When a molecule is exposed to infrared light the bonds between the atoms will oscillate-vibrate in a regular way. This phenomenon is known as absorbance.
1. This is dependent on the wavelength of infrared energy.
  2. A graph of absorbance versus wavelength is known as the infrared spectrum.
  3. Not all wavelengths of infrared are equally absorbed by a chemical substance.
- E. Absorbance is directly proportional to concentration (Beer/Lambert Law)
1. DataMaster relates absorbance to transmittance.

#### 7.0.2.6 STEPS OF OPERATION

- A. After the operator has completed the 15 min. observation period and has pushed RUN, answered the 15 data questions plus Review Data Y/N? the instrument will display 'Purging.'
1. Room air is being drawn through the breath tube into the sample chamber and being vented out of the one-way valve.
  2. Ensures that the sample chamber is clear of any alcohol from a previous test.
- B. Instrument displays 'Ambient Zeroing.'
1. If any atmospheric alcohol is present the instrument will set that to zero.
- C. 'Blank Test.'
1. Instrument checks the sample chamber for contaminants.
- D. 'Internal Standard'
1. The quartz plate is pulled into the path of the infrared light and the value is checked against that at the time of calibration.
- E. Instrument asks for subject sample. Sample is provided.
1. Lung capacity varies from individual to individual, 1 to 5L, approximately 2100ml for women and 2900ml for men.

2. An end expiratory breath is ensured by sample acceptance parameters. BrAC versus time curve (BrAC measured ever  $\frac{1}{4}$  second), measures breath flow rate, time (min. 5 seconds), and volume minimum of 1.5L.
  3. If mouth alcohol is present the BrAC curve will peak sharply and then decline to actual deep lung BrAC. This produces a negative slope which the instrument measures and displays 'Invalid Sample.'
  4. If the subject is unable (or unwilling) to provide an adequate sample within 2 minutes the instrument will ask if the subject is refusing the test. If 'N' is indicated or nothing is entered at all, the test is ended and an 'Incomplete' is printed on the evidence document/ticket.
- F. Alcohol molecules in the breath sample absorb the infrared light in proportion to the amount of alcohol in the sample.
1. This is a direct measurement of the amount of alcohol in the breath.
  2. Instrument uses two wavelengths of infrared light to achieve specificity for breath alcohol. Other organic compounds absorb at these wavelengths but no compound found in human breath will have the same ration at these wavelengths as ethanol.
  3. If the absorption ratio falls outside of these specifications the display will indicate the presence of an interferant.
- G. Infrared energy which is transmitted through the sample will be detected and measured by the detector.
1. The detector converts the infrared energy to electrical energy.
- H. Electrical energy is sent to the central processing unit.
1. A-D convertor converts the electrical energy (analog in form) to digital form for the micro-processing.
  2. Digital signals placed into formula which calculates the amount of alcohol per 210L of breath. These results are displayed on the screen, sent to the printer memory and stored in the memory.
- I. 'Analyzing' appears after alcohol has been introduced into the chamber.
- J. The 'Purging' appears again.
1. If the instrument cannot purge down to within .003 of original value during the first purge then 'System Won't Zero' is displayed and the test aborted.
  2. Instrument runs purge – blank test four times during the testing procedure. Before and after each sample.
- K. Instrument runs 'External Standard.'

1. External Standard test is independent check on operation and calibration of instrument.
2. Temperature must be  $34^{\circ}\text{C} \pm .2^{\circ}\text{C}$  and its value must fall between .090 and .110 g/210L inclusive. Emphasize that the operator visually checks the thermometer at the time they answer the question through the keyboard.
3. The scale on the thermometer must be thoroughly understood and the units clearly reported:  $34^{\circ}\text{C} \pm .2^{\circ}\text{C}$ .

Note: The simulator uses a mercury thermometer to measure the temperature. If the thermometer is broken there is a risk of mercury poisoning. A WSP technician must be notified immediately if this happens. Point out to operators the sections of the code book: General Information and Emergency Information.

4. The solutions are made by the State Toxicology Laboratory, are assigned a batch number and have affidavits sent with them.
  5. Instrument pumps air through simulator and samples headspace (vapor above solution.) A known air-water partition ratio exists in the headspace (Henry's Law.) Once the sample enters the sample chamber its alcohol content is determined in exactly the same way as the subject sample.
- L. Instrument analyzes, then purges the chamber and is ready for second subject sample. After the final blank test the evidence document is printed out.

#### 7.0.2.7 SUPERVISORY CONTROL PANEL

##### A. Nomenclature.

1. SET – used to view the options under which a DataMaster is operating. When the option has been reached press ADV key to change the option.
2. F1 – allows you access to nine functions and to initiate them press F2.
3. SUP – initiates a supervisory test. This test allows you to check the value of a simulator solution or purge the sample chamber depending on what is connected to the simulator ports.
4. TST – allows you to run a diagnostic check, which tests the mechanical and computer function, and the calibration.
5. MTR – allows you to check the detector voltage.
6. NV – allows you to bypass sampling parameters.
7. ABT – allows you to abort any test currently being performed by the DataMaster. **Do Not Press this Button During 'Ambient Zeroing.'**
8. CLR – used to clear the display and return it to a flashing READY – PUSH

RUN.

9. CPY – used to retrieve a copy of the last test performed, as long as none of the following have occurred: RUN button pushed, power outage, ABT pushed, TST pushed.
10. CAL – on older instruments, used to calibrate the instrument. **Do Not Push This Button.**

B. Instrument option settings for a practical instruction class.

1. Ensure that the time and date are correct when the instruments are powered on.
2. Press F1 so that the display reads 'Reset Options' then push F2 to have options reset for a breath test.
3. Use the SET and ADV keys to set the supervisory tests to 1. With the new software for '94' series it resets automatically.
4. Use the SET and ADV keys to set the data collection to OFF.
5. CRC/RAM ERROR at ---- is displayed, press CLR.

#### 7.0.2.8 TROUBLESHOOTING

A. 'Ambient Fail', 'System Won't Zero'

1. If messages appear on the display, restart the test.
2. If occurs again, run SUP test without simulator attached.
3. Purge until external standard readout is .000.
4. To avoid this problem purge the instruments between classes and blow the moisture out of the simulator tubing.
5. If there is a recurring problem contact a Technician.

B. Printer problems and ticket problems.

1. If a ticket does not feed out properly check to see if the operator has inserted it properly. Push CPY to get a copy of the last test.
2. If the instrument does not ask for the ticket let the test time out and then insert the ticket before pushing RUN. This will occur when the operator pulls the ticket out of the printer prematurely or there is a power failure.
3. No printing on ticket – the ribbon may be worn or out of its track. Call a technician.
4. Ticket does not feed into printer. Check to see if the ticket has been pushed

underneath the printer mouth.

- C. 'Invalid Sample'
  - 1. Operator may be blowing too hard. Moderate, long flow wanted.
  - 2. If this is a recurring problem, call a technician.
- D. 'Radio Interference'
  - 1. Check that no one is transmitting on a radio, and restart the test.
- E. 'Calibration Error'
  - 1. If it appears, it is often the traveling arm that holds the quartz that is sticking. Restart the test again.
- F. Data collection not working or display reads 'eLe ek04'.
  - 1. Press F1 so that display reads 'Clear Memory'. Push F2 to execute.
  - 2. Use SET and ADV keys to turn off data collection.
- G. If any of the following messages are displayed the instrument will not function. Call a technician.
  - 1. Fatal System Error.
  - 2. RAM/CRC Error.
  - 3. Not Calibrated.
  - 4. Temperature High or Low.
  - 5. Pump Error.
  - 6. Blank Error.
  - 7. Data Memory Battery Low.

#### **7.0.2.9 PRACTICAL**

- A. Review lesson plan for conducting a Basic Operator course.
- B. Review lesson plan for conducting an Operator Refresher course.
- C. Review all handouts.
- D. Review Operator Exams in detail.

- E. Assign each student a section of the lesson plan for conducting a course of instruction in Infrared Breath Test Refresher training to teach in front of this class. (apx. 20 min. each.)
- F. Critique each student and allow the class to comment.

**7.0.2.10 ADDITIONAL CONSIDERATIONS**

- A. Have a legible class roster completed for each operator class instructed. Rosters should be sent to the Seattle Breath Test Program, or to your local technician for entry into the training system.
- B. Basic Operator and Refresher students must obtain 80% on their exams to pass.
- C. Be sure each student conducts an acceptable practical test on the DataMaster.
- D. Operator cards are valid for 3 years. There is a 90 day grace period but let operators know that they should not count on a refresher class being available during their grace period, so do not WAIT.

**7.0.2.11 WRITTEN EXAMINATION**

- A. Must obtain 80% on the instructor exam.
- B. If fail to make 80%, a review shall be conducted and the test retaken.

## 8.0 BREATH TEST INSTRUMENT INSTRUCTOR REFRESHER

### 8.0.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals to continue in their role as Instructors. The student must currently be a qualified Breath Test Instrument Instructor. Those individuals successfully completing this training course are qualified to train other individuals as certified Operators.

### 8.0.2 LESSON PLAN

#### DATAMASTER INSTRUCTOR REFRESHER TRAINING

To be presented in 8 50 minute periods.

#### 8.0.2.1 INSTRUCTIONAL OBJECTIVES

1. The student will have a thorough understanding of the DataMaster program.
2. The student will understand the basic principles of infrared spectroscopy as it relates to the DataMaster.
3. The student will be familiar with the data entry questions and their meaning.
4. The student will be familiar with the steps of instrument operation and their purpose.
5. The student will know how to compute the +/- 10% between two breath tests.
6. The student will be able to explain the breath sampling parameters used in the instrument.
7. The student will know the importance and meaning of the external standard.
8. The student will know the importance of the simulator temperature and how to properly read, report, and instruct in this regard.
9. The student will be knowledgeable of the legal aspects of breath testing to include: Statutes, WACs, Case Law.
10. The student will be aware of common troubleshooting problems as they relate to operation.
11. The student will know how to conduct a Basic 16 hour class.
12. The student will know how to conduct a 4 hour Refresher class.
13. The student will be thoroughly familiar with the exams given in the Operator's classes and be able to discuss them with students.
14. The student will be able to teach the entire outlines used in the Basic and Refresher Operator Classes.

15. The student will pass an examination with 80% and be qualified as an Instructor.

#### **8.0.2.2 INTRODUCTION**

- A. This unit of instruction is designed to refresh and maintain your competency as operator Instructors on the DataMaster breath test instrument.
- B. Class Handouts:
  1. Basic Course Outline for DataMaster instrument.
  4. Refresher Course Outline for DataMaster instrument.
  3. Operator Basic and Refresher Exams.
  4. Data Entry questions, set key operations, F1 key functions, keyboard password.

#### **8.0.2.3 CHEMICAL PRINCIPLES**

- A. The Datamaster is a forensic breath testing device which uses infrared spectroscopy to measure breath alcohol.
- B. Infrared spectroscopy is an analytical technique used to quantify the interaction between infrared light and organic molecules.
- C. Ethanol absorbs the infrared energy.
- D. Absorbance is directly proportional to concentration (Beer/Lambert Law).

#### **8.0.2.4 NOMENCLATURE**

- A. Heated Breath Tube.
  1. Heated so it is warm/hot to the touch. Apx. 50<sup>0</sup>C but not a required temp.
  2. Heated to prevent condensation from forming in the breath tube.
  3. Loss of heat has no apparent effect on breath test results but could cause "Ambient Fail" and thereby abort the breath test.
- B. Five-Way Valve.
  1. Directs the vapor flow path for the simulator and breath samples into the sample chamber at the appropriate times.
- C. Sample Chamber.
  1. The IR path is 1.1. meters long through the use of mirrors and is said to be "folded".

2. Is heated to 48<sup>0</sup>C – 52<sup>0</sup>C, inclusive. If temperature is outside this range the instrument will display a message.
  3. Sample chamber is 50 ml's. As air is blown through the chamber the excess air is vented through a one-way valve, not a closed system. When there is no more air flow the air in the chamber becomes static and that's when the last three quarter second measurements are taken and averaged for that sample's reading.
  4. Infrared light source located at one end with the detector located at the other.
- D. Filters.
1. Alcohol and interference filters narrow down the infrared energy to two wavelengths: 3.37 microns and 3.44 microns.
  2. Quartz standard (internal standard) ensures that the instrument is working properly by checking the value received with a value which is stored into memory during calibration.
- E. Detector.
1. Reads the amount of IR energy which is transmitted.

#### 8.0.2.5 STEPS OF OPERATION

- A. Important to review and demonstrate to students in Basic and Refresher Classes.
- B. Emphasize the importance of 15 minute observation for mouth alcohol.
- C. After Operator has completed his 15 minute observation period and has started the testing procedure, including the data entry of the 15 questions the instrument will display "Purging".
- D. Instrument displays "Ambient Zeroing".
- E. "Blank Test".
- F. "Internal Standard" check.
- G. Instrument asks for subject sample. Sample is provided.
  1. An end-expiratory breath is ensured by sample acceptance parameters.
  2. If mouth alcohol is present the BrAC curve will peak sharply and then decline to actual deep lung BrAC. This produces a negative slope which the instrument measures and displays "Invalid Sample".
  3. To incomplete a test allow the instrument to time out. On older models hit 'N' at the question 'Subject Refuse Y/N?'.
- H. In '94' series results are no longer displayed on the screen, wait for the document.

Results in terms of grams of alcohol per 210 liters of breath, sent to the printer memory and stored in the memory.

- I. "Analyzing" after each introduction of alcohol.
- J. Instrument purges sample chamber.
- K. Instrument runs external standard.
  - 1. External standard test is independent check on operation and calibration of instrument.
  - 2. Temperature must be **34°C +/- .2°C**. Emphasize that the operator **MUST** visually check the thermometer at the time they answer the question. The scale on the thermometer must be thoroughly understood and the units clearly reported.
  - 3. Its value must fall between .090 and .110 g/210L inclusive of the two end values.

NOTE: The simulator uses a mercury thermometer to measure the temperature. If the thermometer is broken there is a risk of mercury poisoning. A WSP Technician must be notified immediately if this happens. Point out to operators the sections of codebook: General Information and Emergency Information.

- 4. The solutions are made by the State Toxicology Laboratory, are assigned a batch number and have affidavits sent with them.
- 5. Instrument pumps air through simulator and samples headspace (vapor above solution). A known air-water partition ratio exists in the headspace (Henry's Law). Once the sample enters the sample chamber its alcohol content is determined in exactly the same way as the subject sample.
- 6. The '94' series instruments ensure the external standard is within range or the test aborts.
- L. Instrument purges the sample chamber and repeats subject testing procedure. After final Blank Test the evidence document is printed and expelled from the printer. 94 series figure the 10% of the average rule automatically. If out of range the document will not print out, the test is aborted.

#### **8.0.2.6 LEGAL ASPECTS**

- A. Review current DUI law.
- B. Review current Implied Consent law.
- C. Explain any new relevant court decisions.

#### **8.0.2.7 SUPERVISORY CONTROL PANEL USE**

- A. A password protected built-in keyboard on 94 series models, the top row except 'RUN'.
- B. Nomenclature.
  - 1. SET – used to view the options under which a DataMaster is operating. When the option has been reached press ADV key to change the option.
  - 2. F1 – allows you access to nine functions and to initiate them press F2.
  - 3. SUP – initiates a supervisory test. This test allows you to check the value of a simulator solution or purge the sample chamber depending on what is connected to the simulator ports.
  - 4. TST – allows you to run a diagnostic check, which tests the mechanical and computer function, and the calibration.
  - 5. MTR – allows you to check the detector voltage.
  - 6. NV – allows you to bypass sampling parameters.
  - 7. ABT – allows you to abort any test currently being performed by the DataMaster. **Do Not Press this Button During 'Ambient Zeroing.'**
  - 8. CLR – used to clear the display and return it to a flashing READY – PUSH RUN.
  - 9. CPY – used to retrieve a copy of the last test performed, as long as none of the following have occurred: RUN button pushed, power outage, ABT pushed, TST pushed.
  - 10. CAL – on older instruments, used to calibrate the instrument. **Do Not Press This Button.**
- C. Options setting for instructing classes.
  - 1. Ensure that the time and date are correct when the instruments are powered on.
  - 2. Press F1 so that the display reads **RESET OPTIONS** then push F2 to reset the options for a breath test.
  - 3. Use the **SET** and **ADV** keys to set the data collection to **OFF**.
  - 4. If **RAM ERROR AT \_ \_ \_ \_** is displayed, press **CLR**.

#### 8.0.2.8 TROUBLESHOOTING

- A. "System Won't Zero", "Ambient Fail", "Detector Overflow"
  - 1. If this appears on the display restart test.

2. If message occurs again purge chamber by going to purge in F1.
  3. Purge until the display reads .000.
  4. To avoid this problem purge the instruments between classes and blow the moisture out of the simulator hosing.
  5. If there is a recurring problem contact a Technician.
- B. Printer problems and ticket problems.
1. If the ticket does not feed out properly check to see if the operator has inserted the ticket properly. Push **CPY** to get a copy of the last test.
  2. If the instrument does not ask for the ticket let the test time out and then insert the ticket before pushing the **RUN** button. This will occur when the operator pulls the document out of the printer or there is a power failure.
  3. No printing on ticket – ribbon may be worn or has come off spools. Call a technician.
  4. Ticket does not feed into printer. Check to see if the ticket has been pushed underneath the printer or is too wide. Insert ticket correctly and push **CPY**.
- C. “Invalid Sample”
1. Operator may be blowing too hard. Ask operator to exhale normally when giving sample.
  2. If this is a recurring problem, notify Technician.
- D. “Radio Interference”
1. Check to see that no operator is transmitting with their radios.
  2. Restart the test.
- E. If any of the following messages are displayed the instrument will not function. Notify a Technician.
1. Fatal System Error.
  2. Ram/CRC Error.
  3. Temperature High or Low.
  4. Blank Error.
  5. Pump Error.
  6. Not Calibrated.

7. Data Memory Battery Low.

#### **8.0.2.9 ADDITIONAL CONSIDERATIONS**

- A. Have a legible class roster completed for each operator class instructed. Rosters should be sent to the Seattle Breath Test Program, or to the local technician for entry into the training system.
- B. Basic Operator and Refresher students must obtain 80% on their exams to pass.
- C. Be sure each student conducts an acceptable practical test on the DataMaster.
- D. Operator cards are valid for 3 years. There is a 90 day grace period but let operators know that they should not count on a refresher class being available during their grace period, so do not WAIT.

#### **8.0.2.10 PRACTICAL EXPERIENCE**

- A. Review lesson plan for Basic Operator training.
- B. Review lesson plan for Refresher Operator training.
- C. Review all handouts given in a class.
- D. Review class exams in detail.
- E. Have each student provide practical suggestions on how they have effectively conducted operator classes.

#### **8.0.2.11 WRITTEN EXAMINATION**

- A. Must obtain 80% on the instructor refresher.
- B. If fails to make 80%, a review shall be conducted and the test retaken.

