

Washington State Patrol

BREATH TEST PROGRAM

Training Manual

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1.0 TRAINING MANUAL

1.1 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 State Toxicologist 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 courses. 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.

1.2 SCOPE

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

1.2.1 Terminology

- A. The term breath test instrument in this manual refers to the Draeger Alcotest 9510.
- B. The Draeger Alcotest 9510 may also be referred to as the Draeger, Dräger, Alcotest 9510, or 9510.

2.0 DRAEGER ALCOTEST 9510 AND PBT OPERATOR COURSE

2.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals as Qualified Operators of the Draeger Alcotest 9510 breath test instruments, the Alco-Sensor III, and the Alco-Sensor FST PBT. Those individuals successfully completing this training course are qualified to perform evidential breath alcohol tests.

2.2 TRAINING OUTLINE

OPERATOR COURSE FOR DRAEGER ALCOTEST 9510 (Draeger) AND PBT OPERATOR

To be presented in up to 16 hours (Operator Course).

To be presented in up to 4 hours (Operator Refresher Course). The topics marked with an asterisk (*) must be covered in the Operator Refresher Course. Additional content from this outline may be incorporated as necessary.

2.2.1 INSTRUCTIONAL OBJECTIVES

- *Certify (re-certify) students in the operation of the Draeger Alcotest 9510.
- Understand the role of breath testing in Driving Under the Influence (DUI) enforcement.
- Understand basic pharmacology and physiology of ethanol relevant to DUI enforcement.
- *Understand the legal aspects of evidentiary breath testing.
- Understand the principles of operation of the Draeger Alcotest 9510.
- *Understand the purpose, principles, and operation dry gas external standard.
- *To develop the student's skill in operating the Draeger Alcotest 9510.
- *To acquaint the student with techniques that help to achieve an admissible test result.
- To familiarize the student with the DUI arrest report and its importance.
- *Basic preparation in court testimony regarding breath test instruments.
- To develop the student's skill in effective DUI report writing.
- *To provide an opportunity for hands on practice with an approved breath test instrument.

- *To test the students' knowledge of Draeger Alcotest 9510 procedures and ability to conduct an admissible breath alcohol test.
- *The student will become familiar with the history, nomenclature, theory, legal aspects and become a certified operator of the Alco-Sensor III and Alco-Sensor FST PBT.
- *Successfully complete a written and practical examination.

2.2.2 *TRAINING AIDS

- White/Black board
- Relevant breath test instruments, simulators, and mouth pieces
- Operator Manual
- Breath test forms/documents
- Blood vial kit and gloves
- Practical exercise training forms
- Alco-Sensor III / Alco-Sensor FST (PBT) with mouthpieces
- DUI Arrest Report forms

2.2.3 *EXAMINATION

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

2.2.4 GUIDANCE FOR THE INSTRUCTOR

- Have a class roster filled out.
- The Operator's Manual is a reference guide. Neither this course nor the exam is based on that manual.
- This training outline covers the approved Draeger Alcotest 9510 evidential breath test instrument 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 breath test instrument 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 breath tests and to use the PBT for 3 years.

- *Verify that students are not over 90 days past their operator permit card expiration date – no exceptions.

2.2.5 INTRODUCTION

- A. Driving by alcohol impaired persons has been a traffic safety concern since the invention of the automobile.
- B. Corroborative evidence of alcohol use is needed for court.

1. Chemical tests

- a. Urine tests were used in Scandinavia early in the twentieth century.
 - Later research has cast doubt upon the reliability of urine tests as a measure of alcohol concentration in the body.
 - 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.
 - Blood tests are an accurate and reliable method for determining impairment.
 - Blood samples can be taken only under specific conditions.
 - The results of blood test are not available immediately.
 - Blood sample collection is more intrusive than a breath sample.
 - Blood 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.
 - The results are immediately available.
 - Sample taking is minimally invasive.
 - Test instruments are suitable for field use.
 - Breath testing is an accurate and reliable method for determining impairment.

- 2. The value of breath test evidence depends upon the weight assigned to it by the law, the judge, and the circumstances of the case.

- a. *Evidentiary breath test instruments have features that reduce

uncertainties and provide accurate and reliable results. Using computerized instrumentation to measure breath alcohol samples allows the test process to be automated.

- Minimizes the need for operator involvement in the analysis procedure.
 - Minimizes operator bias.
 - Ensures adherence to the protocol, the computer always performs the test the same way.
 - It makes automatic safeguards possible for conditions that could be missed by humans.
 - Allows for data collection to evaluate program performance and DUI Enforcement effort.
- b. WAC 448-16-020 lists the currently approved evidential breath test instruments for the quantitative measurement of alcohol in a person's breath for evidentiary use in the state of Washington.
- The Draeger Alcotest 9510 uses dual technology to analyze a sample of human breath for ethanol concentration. The samples are measured using infrared and electrochemical (fuel cell) technologies.
 - Instrument is self-certifying.
 - The test procedures are controlled by a central processing unit.
 - The instrument provides a printed breath test document showing test results.
 - The instrument expresses the results as grams of alcohol per 210 liters of breath.
 - The test procedures have built in safeguards. The instruments can detect numerous potential issues affecting validity and abort the test. They are designed to give a proper test or none at all.
 - Instruments are approved for evidentiary use by the National Highway Traffic Safety Administration and are on the Conforming Products List.
 - These instruments are in use in many jurisdictions including the United States, Canada, and Europe.

2.2.6 PHYSIOLOGY OF ALCOHOL

A. *There are many types of alcohol.

1. Beverage or grain alcohol is often referred to as ethanol (preferred) or ethyl alcohol. When the term alcohol is used it refers to ethanol unless otherwise specified.
 - a. Used in alcoholic beverages.
2. Methanol, also called methyl alcohol or wood alcohol.
 - a. Very poisonous, metabolizes into formic acid.
 - b. Damage is often first to the optic nerve-resulting in blindness.
3. Isopropanol, also called isopropyl alcohol or rubbing alcohol.
 - a. Metabolizes 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 breath test instrument detection.

B. Ethanol

1. Ethanol in the non-scientific literature is generally referred to simply as alcohol.
2. *Mixes readily with water
 - a. Will be distributed throughout the body in proportion to the water content.
 - o Blood
 - o Brain
3. Impairment is caused by alcohol's effect on the brain and central nervous system.
4. Alcohol usually gets into the body by oral consumption.
 - a. Absorbing alcohol through your skin is an extremely inefficient way of introducing alcohol into the body and is very unlikely to cause intoxication.
 - b. Inhalation of alcohol is an extremely inefficient way of introducing alcohol into the body and is very unlikely to cause intoxication.

5. Once alcohol is consumed, it enters the gastrointestinal tract.
 - a. The stomach has a small surface area and is therefore not an efficient absorber. It may absorb up to 20% of the consumed alcohol.
 - b. *The small intestine has a greater surface area when compared to the stomach and is therefore an excellent absorber. It may absorb 80% or more alcohol.
 - c. *Stomach contents will affect the rate of alcohol absorption:
 - o By inhibiting absorption through the stomach walls.
 - o By slowing passage of alcohol from the stomach to small intestine.
 - d. *Alcohol is not changed chemically before being absorbed.
6. *Once absorbed, alcohol enters the circulatory system.
 - a. From the stomach and intestines, alcohol goes to the liver via the portal vein.
 - o Alcohol is metabolized in the liver, but not all at once.
 - o Most alcohol continues past the liver to the heart and is circulated to the entire body, including the lungs.
 - b. From the liver alcohol is carried to the heart and then into the rest of the body.
 - o Arteries carry the alcohol from the heart directly to the brain, where it causes impairment.
 - o The arterial system carries the alcohol to all parts of the body, in what is known as the distribution phase.
 - o The alcohol equilibrates with any water that it encounters.
 - o Some of the alcohol is metabolized (i.e. broken down into other compounds).
 - o The remaining alcohol continues back to the heart to repeat the cycle.
 - c. In the lungs some of the alcohol in the blood evaporates and enters the air that is exhaled as breath, in accordance with Henry's Law.
 - d. *When alcohol is being absorbed more quickly than it is being metabolized (burned off) its concentration in the blood increases.

- Example: A 235 lb. man will metabolize an average of one 12 fl. oz. beer per hour, whereas a 145 lb. woman will metabolize an average of one-half of a 12 fl. oz. beer per hour. This assumes beer to be 4% alcohol by volume.
- Widmark formula
 - Estimates the breath alcohol concentration (BAC) or amount of alcohol consumed. Uses weight, amount of alcohol or BAC level, sex, and time.
- e. As concentration increases, the impaired effects from the alcohol become more obvious.
 - The first effects are subtle:
 - Inhibitions fade;
 - Suppression of care;
 - Reduced ability to recognize hazards;
 - Inappropriate response to hazards.
 - Loss of efficiency in simple performance tests
 - Horizontal Gaze Nystagmus becomes apparent
 - Readily observed effects:
 - Lack of coordination;
 - Loss of balance;
 - Emotional instability.
 - At high concentrations unconsciousness and respiratory paralysis can occur.
 - Untreated respiratory paralysis results in death.
- f. The onset and magnitude of the various effects differ among individuals:
 - Native tolerance;
 - Use or consumption tolerance.
- g. 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.

- h. Long term tolerance aside, there is no known way to increase the rate of elimination of alcohol from the human body.
- i. Once consumed, there is no known way to prevent the effects of alcohol.

2.2.7 *LEGAL ASPECTS

A. Legal Context

- 1. DUI laws apply to public and private roadways open to the public. RCW 46.61.005; State v. Day (driving drunk in field not open to public not DUI).
- 2. "Vehicle" is defined by RCW 46.04.670.
- 3. Vehicles which may not be operated intoxicated do not include "mopeds" U.S. v. Dotson (1994) or "bicycles" City of Montesano v. Wells (1995).

B. DUI Statute (RCW 46.61.502)

- 1. A person is guilty of driving while under the influence of intoxicating liquor, marijuana, or any drug if the person drives a vehicle within this state:
 - a. And the person has, within two hours after driving, an ethanol 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. The person has, within two hours after driving, a THC concentration of 5.00 or higher as shown by analysis of the person's blood made under RCW 46.61.506; or
 - c. While the person is under the influence of or affected by intoxicating liquor, marijuana, or any drug; or
 - d. While the person is under the combined influence of or affected by Intoxicating liquor, marijuana, and any drug.
- 2. Penalty is a gross misdemeanor or Class B felony.
- 3. DUI Arrest with child (minor under age 16) in the vehicle.
 - a. Advise communications of the presence of minor children along with their names and dates of birth for Child Protective Service (CPS) notification. Document the presence in the narrative report. Ensure safety of children in release procedures. (Follow department established guidelines)

4. Felony DUI (RCW 46.61.502 (6)) is a class B Felony punishable under chapter 9.94A RCW, or chapter 13.40 RCW if the person is a juvenile, if:
 - a. Person has three or more prior offenses within ten years as defined in RCW 46.62.5055; or
 - b. Person has ever previously been convicted of:
 - o Vehicular homicide while under the influence;
 - o Vehicular assault while under the influence;
 - o An out-of-state offense comparable to Vehicular homicide or Vehicular assault; or
 - o Prior conviction for Felony DUI and Felony Physical Control.
5. Mandatory Booking (RCW 10.31.100(16)(a)) Except as provided in (b) of this subsection, a police officer shall arrest and keep in custody, until release by a judicial officer on bail, personal recognizance, or court order, a person without a warrant when the officer has probable cause to believe that the person has violated RCW [46.61.502](#) or [46.61.504](#) or an equivalent local ordinance and the police officer: (i) Has knowledge that the person has a prior offense as defined in RCW [46.61.5055](#) within ten years; or (ii) has knowledge, based on a review of the information available to the officer at the time of arrest, that the person is charged with or is awaiting arraignment for an offense that would qualify as a prior offense as defined in RCW [46.61.5055](#) if it were a conviction. (b) A police officer is not required to keep in custody a person under (a) of this subsection if the person requires immediate medical attention and is admitted to a hospital.
6. A prior offense is defined as a conviction of the following:
 - a. DUI (RCW 46.61.502), or an equivalent local ordinance
 - b. Physical Control (RCW 46.61.504), or an equivalent local ordinance
 - c. Driving a Commercial Motor Vehicle with THC in system (RCW 46.25.110), or an equivalent local ordinance
 - d. Operation of vessel under the influence of intoxicating liquor, marijuana, or any drug (RCW 79A.60.040(2)), or an equivalent local ordinance
 - e. Operation of a vessel in a reckless manner (RCW 79A.60.040(1)) or an equivalent local ordinance committed in a reckless manner if the conviction is the result of a charge that was originally filed as a violation of RCW 79A.60.040(2) or an equivalent local ordinance

- f. Operating aircraft under influence of intoxicants or drugs (RCW 47.68.220) or an equivalent local ordinance committed while under the influence of intoxicating liquor or any drug
- g. Operating aircraft recklessly (RCW 47.68.220) or an equivalent local ordinance committed in a careless or reckless manner if the conviction is the result of a charge that was originally filed as a violation of RCW 47.68.220 or an equivalent local ordinance while under the influence of intoxicating liquor or any drug
- h. Operating non-highway vehicle while under the influence of intoxicating liquor or a controlled substance (RCW 46.10.490(2)) or an equivalent local ordinance
- i. Vehicular Homicide (RCW 46.61.520) committed while under the influence, or a conviction for a violation of RCW 46.61.520 committed in a reckless manner or with the disregard for the safety of others if the conviction is the result of a charge that was originally filed as a violation of RCW 46.61.520 committed while under the influence of intoxicating liquor or any drug
- j. Vehicular Assault (RCW 46.61.522) committed while under the influence, or a conviction for a violation of RCW 46.61.522 committed in a reckless manner or with the disregard for the safety of others if the conviction is the result of a charge that was originally filed as a violation of RCW 46.61.522 committed while under the influence of intoxicating liquor or any drug
- k. Negligent driving first degree (RCW 46.61.5249), reckless driving (RCW 46.61.500), or reckless endangerment (RCW 9A.36.050) or an equivalent local ordinance, if the conviction is the result of a charge that was originally filed as a violation of RCW 46.61.502 or 46.61.504, or an equivalent local ordinance, or of RCW 46.61.520 or 46.61.522
- l. An out of state conviction for a violation that would have been a violation of the following Washington state statutes if committed in this state:
 - i. DUI (RCW 46.61.502)
 - ii. physical control (RCW 46.61.504),
 - iii. Vehicular Homicide (RCW 46.61.520) committed while under the influence, or a conviction for a violation of RCW 46.61.520 committed in a reckless manner or with the disregard for the safety of others if the conviction is the result of a charge that was originally filed as a violation of RCW 46.61.520 committed while under the

influence of intoxicating liquor or any drug

- iv. Vehicular Assault (RCW 46.61.522) committed while under the influence, or a conviction for a violation of RCW 46.61.522 committed in a reckless manner or with the disregard for the safety of others if the conviction is the result of a charge that was originally filed as a violation of RCW 46.61.522 committed while under the influence of intoxicating liquor or any drug
- v. Negligent driving first degree (RCW 46.61.5249), reckless driving (RCW 46.61.500), or reckless endangerment (RCW 9A.36.050) or an equivalent local ordinance, if the conviction is the result of a charge that was originally filed as a violation of RCW 46.61.502 or 46.61.504, or an equivalent local ordinance, or of RCW 46.61.520 or 46.61.522
- vi. if committed in this state.
- m. Deferred sentence or deferred prosecution under RCW 10.05 for any of the above listed violations (whether dismissed or not). A deferred prosecution under chapter 10.05 RCW granted in a prosecution for a violation of DUI (RCW 46.61.502), physical control (RCW 46.61.504), or an equivalent local ordinance
- n. A deferred prosecution under chapter 10.05 RCW granted in a prosecution for a violation of Negligent Driving (RCW 46.61.5249), or an equivalent local ordinance, if the charge under which the deferred prosecution was granted was originally filed as a violation of DUI (RCW 46.61.502) or physical control (RCW 46.61.504), or an equivalent local ordinance, or of vehicular homicide (RCW 46.61.520) or vehicular assault (RCW 46.61.522)
- o. A deferred prosecution granted in another state for a violation of driving or having physical control of a vehicle while under the influence of intoxicating liquor or any drug if the out-of-state deferred prosecution is equivalent to the deferred prosecution under chapter 10.05 RCW, including a requirement that the defendant participate in a chemical dependency treatment program.
- p. A deferred sentence imposed in a prosecution for a violation of Negligent driving first degree (RCW 46.61.5249), reckless driving (RCW 46.61.500), or reckless endangerment (RCW 9A.36.050), or an equivalent local ordinance, if the charge under which the deferred sentence was imposed was originally filed as a violation of DUI (RCW 46.61.502) or physical control (RCW 46.61.504), or an equivalent local ordinance, or a violation of vehicular homicide (RCW 46.61.520) or vehicular assault (RCW 46.61.522).

- An officer may rely upon DOL reports as accurate summaries of criminal driving history. *State v. Gaddy* (2004)
 - For confirmation, officer should review 10 year abstract of driver's record and Interstate Identification Index (III). Communications can assist with information.
7. Constitutionality of the breath test statute was affirmed by *State v. Brayman* (1988).
 8. 46.04.015 or 46.61.506 defines ethanol concentration units as:
 - a. g/210L for breath
 - b. g/100 mL for blood

C. Physical Control Statute (RCW 46.61.504)

1. A person is guilty of being in actual physical control of a motor vehicle while under the influence of intoxicating liquor or any drug if the person has actual physical control of a vehicle within this state:
 - a. And the person has, within two hours after being in actual physical control of the vehicle, an ethanol concentration of 0.08 or higher as shown by an analysis of the person's breath or blood made under RCW 46.61.506; or
 - b. The person has, within two hours after being in actual control of a vehicle, a THC concentration of 5.00 or higher as shown by analysis of the person's blood made under RCW 46.61.506; or
 - c. While the person is under the influence of or affected by intoxicating liquor or any drug; or
 - d. While the person is under the combined influence of or affected by intoxicating liquor and any drug.
2. "Safely off the roadway" defense.
 - a. This is an affirmative defense, which means it is a factual issue to be proved by the defense and decided by a trier of fact. An affirmative defense is not considered in determining probable cause to arrest. An affirmative defense may not be decided by the judge in pre-trial motions. *City of Edmonds v. Ostby* (1987).
3. Penalty is a gross misdemeanor (maximum 364 days in jail/\$5,000 fine).
4. Felony Physical Control (RCW 46.61. 504(6)).

D. Driver under twenty-one consuming alcohol or marijuana (RCW 46.61.503).

1. Notwithstanding any other provision of this title, a person is guilty of driving or in physical control of a motor vehicle after consuming alcohol or marijuana if the person operates or is in physical control of a motor vehicle within this state and the person.
 - a. Is under twenty-one years of age; and
 - b. Has within two hours after operating or being in physical control of a motor vehicle; either:
 - o An alcohol concentration of at least 0.02 but less than 0.080 or
 - o A THC concentration above 0.00 but less than the concentration specified in RCW 46.61.502.
 2. Analyses of blood or breath samples obtained more than two hours after the alleged driving or being in physical control may be used as evidence that within two hours of the alleged driving or being in physical control, a person had an alcohol or THC concentration in violation of subsection (1) of this statute.
 3. Penalty is a misdemeanor or Class C felony:
 - a. The wording "Driver under twenty-one consuming alcohol or marijuana (RCW 46.61.503)" is to be written on the citation if an officer files directly and the prosecution does not file their own complaint.
 - b. If 0.08 BAC or above write for RCW 46.61.502.
- E. Driving with alcohol or THC in system - Uniform Commercial Drivers Act (RCW 46.25.110)
1. Notwithstanding any other provision of Title 46 RCW, any person may not drive, operate, or be in physical control of a commercial motor vehicle while having alcohol or THC in their system.
 - a. Issue an out-of-service order valid for 24 hours, per CFR 392.5.
 - b. If 0.040 or more, any measurable amount of THC concentration, or refuse the test, their CDL will be disqualified.
 2. Violation of the Act, mandatory, gross misdemeanor.
- F. Persons under influence of intoxicating liquor or drug – Evidence Tests (RCW 46.61.506)
1. An alcohol concentration reading less than 0.080 or a THC concentration less than 5.00 may be considered with other evidence for determining if under the influence.

- a. Breath analysis of a person's alcohol concentration is based upon g/210 L. Blood analysis of a person's alcohol concentration is based upon g/100 mL.
 - b. Blood analysis of the person's THC concentration shall be based upon nanograms per milliliter of whole blood.
2. Breath alcohol testing methods are approved by the state toxicologist. Officers must have a valid permit issued by toxicologist.
3. Breath tests performed on instruments approved by the toxicologist are admissible at trial or administrative proceeding. Criteria for admissibility of breath tests are presented in training outline section PRINCIPLES OF OPERATION.
4. Blood samples may only be obtained by a physician (18.71 RCW), osteopathic physician (18.57 RCW), registered nurse, licensed practical nurse, or advanced nurse practitioner (18.79 RCW), physician assistant (18.71A RCW), osteopathic physician assistant (18.57A RCW), advanced emergency medical technician or paramedic (18.71 RCW), medical assistant-certified or medical assistant-phlebotomist (18.360 RCW). When the blood test is performed outside the state of Washington, the withdrawal of blood for the purpose of determining its alcohol or drug content may be performed by any person who is authorized by the out-of-state jurisdiction to perform venous blood draws. This limitation shall not apply to the taking of breath specimens. If necessary the health care professionals' certification can be found on the Department of Health's Health Care Provider site:
<https://fortress.wa.gov/doh/providercredentialsearch/>
5. A person has the right to additional tests administered by any qualified person of their choosing. Failure or inability to obtain additional tests shall not preclude the admission of evidence relating to the test taken at the directions of a law enforcement officer.

G. Implied Consent (RCW 46.20.308)

1. Any person who operates a motor vehicle within this state is deemed to have given consent, subject to the provisions of RCW 46.61.506, to a test or tests of his or her breath for the purpose of determining the alcohol concentration, in his or her breath if arrested for any offense where, at the time of the arrest, the arresting officer has reasonable grounds to believe the person had been driving or was in actual physical control of a motor vehicle while under the influence of intoxicating liquor or any drug or was in violation of RCW 46.61.503. Neither consent nor this section precludes a police officer from obtaining a search warrant for a person's breath or blood.
2. Statute applies wherever DUI applies.

3. Elements to be met:

- a. Subject was driving or in physical control of a motor vehicle within state of Washington. (RCW 46.04.320 - motor vehicle, but not trains)
- b. Officer established probable cause that subject was under the influence.
- c. A lawful arrest was made.
- d. Implied consent warnings were read to subject.
 - o Subject refuses to take breath test- license, permit, or privilege to drive will be revoked or denied
 - Refusal may be used in a criminal trial.
 - Apply for a blood search warrant or voluntary consent (for voluntary consent, follow Department and local prosecutor's recommendations).
- e. Subject takes breath test - license, permit, or privilege to drive will be revoked or denied if:
 - o Age 21 or over and test indicates alcohol concentration 0.080 or more or THC concentration of blood is 5.00 or more.
 - o Under age 21 and test indicates alcohol concentration of 0.020 or more or THC concentration of blood is above 0.00.
 - o Under age 21 and in violation of RCW 46.61.502 or 46.61.504.
- f. If a license, permit, or privilege to drive is suspended, revoked, or denied, a person may be eligible to immediately apply for an ignition interlock driver's license.
- g. A subject has a right to additional tests administered by any qualified person of their choosing.
- h. 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.
 - o An officer should consider the presence of condensation in the mouthpiece, audible tone, graphical representation of the breath flow rate and volume as well as demeanor and conduct of the subject. If in doubt about the sample acceptance of an instrument the officer can run a test on their own breath to

confirm proper functioning of the instrument. Include the breath test document with your case report.

- i. Reading the Implied Consent Warnings three times is sufficient for a suspect who claims lack of understanding. The suspect must be given the opportunity to understand. They need not actually understand. The implied consent warning to be given at the time of arrest need be the same as the wording of the implied consent statute, contained in the DUI packet. The officer need not read warnings that do not apply to this driver.
- j. Must be read in a language person understands. If the suspect does not understand due to a language barrier, ensure the Miranda rights and Implied Consent Warnings are read in the subject's native language. A recorded language line interpreter, or translator, or (if literate in Spanish) a Spanish DUI Arrest Report should be considered.
- k. If a suspect expressed confusion, documentation is necessary.
Officer should not interpret the implied consent warnings for the subject.
- l. DOL paperwork process for submitting cases to DOL and providing a 'Request for DUI Hearing' notice to the driver the officer shall do the following (applicable to all drivers including in-state, out-of-state, licensed, and unlicensed):
 - o Serve the 'Request for DUI Hearing' notice of DOL intent to revoke or deny the person's driver's license.
 - Breath Test Results at or above the following
 - 0.02 (minor);
 - 0.04 (commercial motor driver);
 - 0.08 or
 - Refusals.
 - Blood Test
 - When blood is obtained do not give 'Request for DUI Hearing'. It will be provided by DOL.
 - o Not necessary to read form to subject. Document that the form was provided to the suspect by checking the box on the Cover Page of the DUI Report.
- m. Officer's DUI Arrest Report and related paperwork

- Submit to DOL within 72 hours if a breath test result is at or above per se limit or subject refused the breath test. **Breath test refusals must be submitted within 72 hours even if blood is obtained.** Fax or email a copy of your completed sworn report, breath test document, and supplemental reports to the DOL within 72 hours. (Frank v. DOL) allows for a reasonable delay of the 72 hour rule. However, a delay can reduce the amount of days DOL has to schedule and advise the person of the hearing.
- For a blood test, submit the report to DOL when results are returned to you if the results are at or above the per se levels for alcohol or THC. Sign, date and submit the DUI report when the results are returned to the officer from the Toxicology Laboratory.
 - Per se limits:
 - 0.02 (minor);
 - 0.04 (commercial motor vehicle driver);
 - 0.08 or
 - THC 5ng
 - THC any amount for minors and commercial motor vehicle drivers
 - If breath and blood are obtained and breath test results are below the following and blood test results are at or above per se levels for alcohol or THC submit after toxicology results are returned to the officer from the Toxicology Laboratory. Per se limits:
 - 0.02 (minor);
 - 0.04 (commercial motor vehicle driver);
 - 0.08 or
 - THC 5ng
 - THC any amount for minors and commercial motor vehicle drivers
- Fax or email completed report, breath test document, and supplemental reports to:

Department of Licensing
Driver Records

SwornReports@DOL.WA.GOV

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H. RCW 46.20.750 Circumventing ignition interlock – Penalty.

1. A person who is restricted to the use of a vehicle equipped with an ignition interlock device and who tampers with the device or directs, authorizes, or requests another to tamper with the device, in order to circumvent the device by modifying, detaching, disconnecting, or otherwise disabling it, is guilty of a gross misdemeanor.
2. A person who knowingly assists another person who is restricted to the use of a vehicle equipped with an ignition interlock device to circumvent the device or to start and operate that vehicle in violation of a court order is guilty of a gross misdemeanor. The provisions of this subsection do not apply if the starting of a motor vehicle, or the request to start a motor vehicle, equipped with an ignition interlock device is done for the purpose of safety or mechanical repair of the device or the vehicle and the person subject to the court order does not operate the vehicle.

I. Legal Blood Draw

1. Blood may be obtained voluntarily, through exigency, or search warrant for impaired driving related crimes. Officers should consult their agencies' policy for direction.
 - a. Apply for a search warrant. If granted, read warrant and 'Blood Draw Pursuant to Search Warrant or Exigent Circumstances' from the DUI Arrest Report and obtain blood samples.
 - b. Unable to obtain warrant due to exigent circumstances, read the Blood Draw Pursuant to Search Warrant or Exigent Circumstances from the DUI Arrest Report and obtain blood samples.
 - o Exigent circumstances include situations requiring swift action to prevent imminent loss of evidence in a criminal case. The normal elimination of alcohol or THC is not sufficient to justify blood seizure under the exigent circumstance exception in the absence of a showing a search warrant was not reasonably possible under the circumstances. *Seattle v. Pierson* (2017)
 - o Exigency will be determined according to each particular case. The State has the burden of proving the facts justifying an exception to the warrant requirement.
 - o If blood was obtained either by exigent circumstances or consent, it is prudent the officer obtain a warrant to test the blood as soon as possible (consent or revocation to test the blood can be exercised by the subject or his attorney before

testing is complete). Officers should consult their agency policy and/or legal advisors/prosecutors regarding this matter.

- Missouri v. McNeely: (US Supreme Court)
 - Natural dissipation of alcohol in blood stream alone is insufficient to establish an exigency to justify a warrantless search for blood.

- c. A valid waiver of warrant requirement (voluntary consent) may be sought consistent with their agency policy and/or legal advisors'/prosecutors' guidance. In these cases use the Voluntary Blood Draw Consent form from the DUI Arrest Report.

2. DUI – Drug impaired driver (blood draw):

- a. No alcohol involved, or impairment inconsistent with alcohol level. Follow Department guidelines, DRE process, and seek a blood search warrant. It is strongly encouraged to use the DRE to evaluate the impaired driver.

- 3. If due to a medical reason subject is unable to provide a breath sample apply for a blood search warrant.

J. Test for alcohol or drugs – Disqualification for refusal of test or positive test. Implied Consent for Commercial Motor Vehicle (46.25.120).

- 1. A person who drives a commercial motor vehicle within this state is deemed to have given consent, subject to RCW 46.61.506, to take a test or tests of that person's blood or breath for the purpose of determining that person's alcohol concentration or the presence of other drugs.

- 2. Officer must have probable cause to believe the driver had alcohol in his or her system or while under the influence of any drug.

- 3. Officer shall warn person that a refusal to submit to a test will result in that person being disqualified from operating a commercial motor vehicle under RCW 46.25.090.

4. Marking of boxes in Implied Consent

- a. If Commercial Driver and DUI mark boxes in both sections of the form, relating to DUI and Commercial Vehicle.

- 5. An officer shall submit a sworn report to DOL if the person refuses testing, submits to a test that discloses an alcohol concentration of 0.04 or more, or has any measurable amount of THC.

K. DOL Administrative Hearings

1. Civil hearing (preponderance of the evidence standard).
2. Hearings are held primarily over the phone. If involves a hearing impaired person, the hearing is held in person and in the county of arrest.
3. The hearing is based on the officer's sworn report. An officer's attendance is not needed unless the officer is subpoenaed to be present. (Exception is for the commercial driver arrest where you will be required to attend).
 - a. The time frame is very short between when DOL requests the report and the hearing date.
4. An 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 will be in attendance. If the case is appealed to Superior Court by the driver, case will have prosecution representation from the Attorney General's Office.
6. A Hearing Officer may issue subpoenas for attendance. It is permissible for an officer to attend if you notify DOL in advance.
7. Include additional officer's sworn reports for the record. The reports help establish probable cause.
8. DOL requests that if an officer runs a breath test for another officer, a sworn narrative report indicating your involvement in the process be submitted along with the arresting officer's sworn report.

L. Miscellaneous Case Law – Breath Test Samples

1. The subject has a right to speak with an attorney before the breath test. (State v Wakenight)
2. Not unreasonable to proceed with test after reasonable attempts to contact an attorney. Driver does not have right to have attorney present during testing. Bellevue v. Ohlson (1991).
3. The subject has a limited right to a private conversation with an attorney when requested, balanced against practical concerns—including maintaining continuous observation of driver during observation period. State v. Federov (State Supreme Court 2015).
 - a. Do not jeopardize officer safety.

- b. You do not need to interrupt the 15-minute observation period for an attorney consult if direct observation is not lost. However, **if observation is lost, the 15 minute observation period must be started over.**
4. If, after testing, the subject is to be detained/booked, and has requested an independent test, provide access to a telephone and phone book or list of agencies performing such tests OR allow the suspect to contact an attorney to perform that task. Officers need not transport the suspect or make arrangements for such a test. However, they must not interfere with obtaining such a test. (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 (two 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)

2.2.8 *DUI ARREST REPORT

A. Constitutional Rights

1. Ensure Constitutional Rights have been read to arrested subject. (Read it even to a person appearing unconscious)
2. Must get translator for non-English/deaf person. Spanish DUI Arrest Report is available for use. May obtain court-approved Spanish language audio files to use in lieu of Spanish DUI Arrest Report written translation.
3. If used, officer signs on "Officer Signature" line and indicates date, time, and location. If read in the field check box and indicate time.
4. If used, have defendant sign or write subject 'refused to sign'.
5. If defendant requests an attorney indicate in specified box. Indicate if able to contact attorney and the time of contact. The attorney's name and phone number should be indicated. If unable, specify reason in provided box.

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

1. Check appropriate statute box for which the subject is under arrest.

2. Read Implied Consent Warnings for Breath to arrested subject.
3. Officer signs on "Officer's Signature" line and indicates date, time, and location.
4. Have defendant sign or indicate why not signed. (i.e. "refused to sign" or "handcuffed but said "OK").
5. Have defendant mark the YES/NO box indicating if they are willing or not to provide a sample.
6. If subject expressed confusion regarding the warnings, write an explanation on the lines provided.
7. Check box(es) indicating valid permit to operate the applicable evidentiary breath test instrument.
8. Check mouth-check related boxes.
9. If PBT was used, check box and indicate reading and time obtained.
10. Indicate after breath test processing whether the subject was booked or released. If released, indicate to whom.
11. If during a breath test, interference is detected, this circumstance 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. An officer may apply for a search warrant for blood.

C. Blood Draw Pursuant to Search Warrant or Exigent Circumstances

1. When taking blood you must have probable cause which leads to a warrant or you have exigent circumstances.
 - a. Observations at the scene.
 - b. Information from a reliable source, corroborated by the officer.
 - c. Officer with personal knowledge at the scene.
 - o Relayed through Communications
2. Officer signature required on designated line with indicated, date, and time.
3. Distribution and copy process followed for warrant documentation.

- D. Blood sample collection (State Toxicologist or approved supplier blood kit, gloves)
1. Blood samples may only be obtained by a physician (18.71 RCW), osteopathic physician (18.57 RCW), registered nurse, licensed practical nurse, or advanced nurse practitioner nursing assistant (18.88A79 RCW), physician assistant (18.71A RCW), osteopathic physician assistant (18.57A RCW), advanced emergency medical technician or paramedic (18.71 RCW), medical assistant-certified or medical assistant-phlebotomist (18.360 RCW) first responder (18.73 RCW), emergency medical technician (18.73 RCW), health care assistant (18.135 RCW), or any trained technician. 506 needs to mirror language in 46.61.506. When the blood test is performed outside the state of Washington, the withdrawal of blood for the purpose of determining its alcohol or drug content may be performed by any person who is authorized by the out-of-state jurisdiction to perform venous blood draws. This limitation shall not apply to the taking of breath specimens. If necessary the health care professionals' certification can be found on the Department of Health's Health Care Provider site:
<https://fortress.wa.gov/doh/providercredentialsearch/>
 2. Officer should try to be a witness to the drawing of the blood sample.
 - This may avoid the need for the approved health care professional to be in court.
 - Document all critical information (information on DUI Arrest Report), identify the health care professional. If necessary the health care professionals' certification can be found on the Department of Health's Health Care Provider site:
<https://fortress.wa.gov/doh/providercredentialsearch/>
 - Blood sample must be drawn and placed in a grey top tube.
 - a. Tubes available from State Toxicologist approved supplier.
 - b. Expiration date on tube indicates expectation that vacuum will function until at least expiration date. If vacuum is present, blood will be drawn into vial by vacuum. Expiration does not affect validity of test. If vacuum is compromised, blood will not be drawn into vial. Obtain blood test kit within its expiration date to complete test.
 - c. Document in your report that white powder present in tube. Should not be empty. If tube does not have white powder, do not use the vials.
 - d. Follow the use, labelling, handling and packaging of blood evidence kits in accordance with your agencies' evidence handling procedures. Do not cover the batch number of the vials.

- e. Record evidence and chain of custody information on form.
- f. Use only provided mailing kits to mail tubes to the State Toxicology Laboratory.
 - o Does not need to be refrigerated because the vials contain preservative (note: refrigeration is preferable if blood samples are not transported to the State Toxicology Laboratory for several days).
 - o To prevent transmission of disease, do not touch blood.
- g. Hospital analysis is not approved by the State Toxicologist.
 - o Use ONLY the State Toxicology Laboratory for analysis.

E. Voluntary Blood Draw Consent Form

1. Read or have subject read voluntary consent section.
2. Officer signature required along with date and time on designated line.
3. Consenter signature required along with date and time on designated line.
4. Approved health care professional title, name, signature, date, and time Indicated on designated line.
5. Upon receiving blood sample apply for a search warrant for blood to be tested in case suspect withdraws consent prior to testing.
6. Distribution and copy process followed for warrant documentation.

F. DUI Interview

1. Statements are listed in question form.
2. First and last drink times.
3. Note all responses (answers, sayings, and statements) provided by defendant.
4. Note if defendant invokes right to silence.
5. Observations should be listed in DUI report.

G. Pre-Arrest Observations

1. Indicate observations.
2. Indicate native language, understanding, and if interpreter was provided.

3. Passenger information, if obtained.

H. Sobriety Tests

1. Fill out Sobriety Test information gathered from arrested subject.

I. Narrative

1. Officers may use provided narrative page or can use department approved report form.

2. Perjury clause and officer's signature must be present.

J. Request for DOL Hearing

1. Refer to 3.2.7 G 3 I above.

2.2.9 THE DRAEGER ALCOTEST 9510 INSTRUMENT

A. The Draeger Alcotest 9510 (Draeger) breath test system includes the instrument, dry gas enclosure, dry gas cylinders, plastic mouthpieces and external printer.

a. Dimensions

- 12.9" x 9.8" and 2.2" (front height) and 7.3" (back height)
- Weighs approximately 15.3 lbs.

b. Operating Voltages

- AC power 90-260 VAC 50/60 Hz
- DC power 9 – 15.5 VDC

c. On-Off switch

- Always leave the instrument on when installed in field.
- The switch is not readily accessible to the operator. If the instrument needs to be switched off, contact a technician for instructions.

d. Display

- 4.5" x 3.5" touch screen
- Time and date
- Pressure of both gas cylinders

- Serial number of instrument
- e. Breath Tube
 - Heated and temperature controlled.
 - Does not need to be kept in the storage tray.
 - Mouthpiece should only be in breath tube when a sample is being taken.
- f. Printer
 - The instrument has two printers.
 - Internal thermal printer is not used for evidentiary tests.
 - Separate laser printer will print two copies of the evidentiary test.
 - Operator will be able to reprint an evidentiary ticket up to 90 days after the breath test.
- g. Keyboard
 - External keyboard is connected via a USB port.
- h. External Standard
 - Two dry gas cylinders located in the dry gas enclosure, attached to the rear of the instrument.
 - Checks the accuracy of the Draeger.
 - When the operating cylinder reaches a predetermined level, the instrument will automatically switch to the second cylinder, if other cylinder is empty or expired, the instrument will place itself out of service.
 - The operator does not need to perform any checks for verification of the external standard. The instrument controls this test and prints the data on the final document if the sample was within protocol of 0.072-0.088 g/210L, inclusive.
- i. Mouthpieces
 - Plastic mouthpieces with moisture baffles.
 - Use the plastic bag to handle the mouthpiece and prevent transmission of diseases.

- Open the bag carefully to leave the mouthpiece ports clear.
- Discard the mouthpiece and bag immediately after the breath sample is accepted.
- Use a new mouthpiece for each sample.

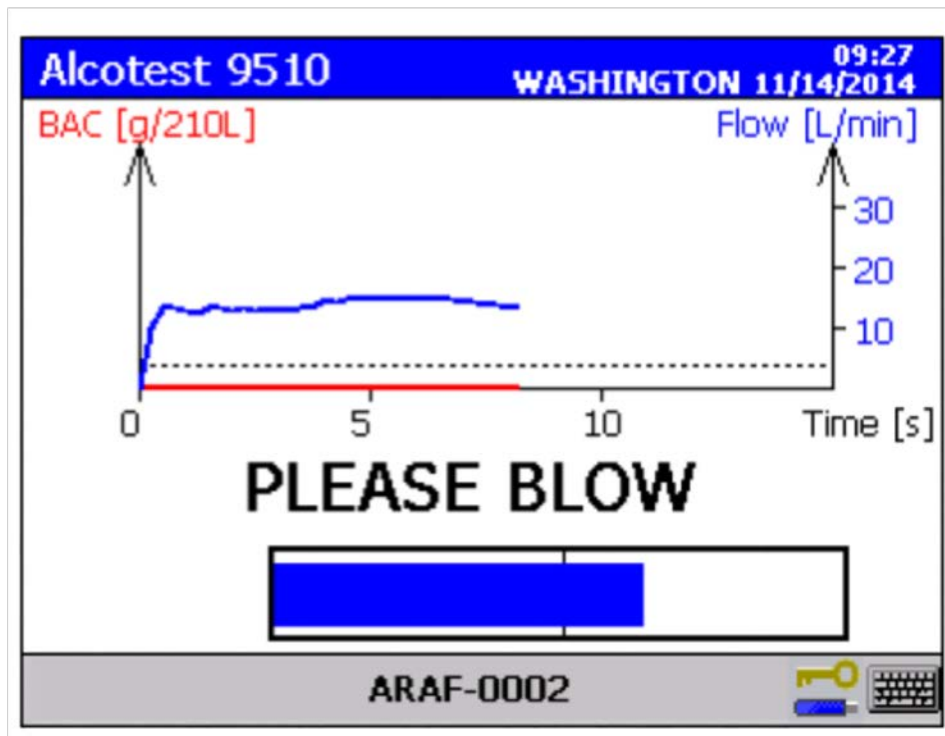
2.2.10 Principles of Operation

- A. *The Draeger uses both infrared (IR) spectroscopy and fuel cell technology. The subject will provide two samples of breath. Each sample will be tested using both technologies, producing four results. All four results will be printed out on the final breath test printed document.
1. Beers Law states that the concentration of ethanol in a sample is proportional to the IR light absorbed by the subject's breath sample.
 - a. The Draeger measures the IR light transmitted through an empty sample chamber.
 - b. The instrument then measures IR light transmitted through the breath sample.
 - c. The difference is used to calculate the concentration of ethanol in the chamber.
 2. The fuel cell uses an electrochemical process to detect ethanol. The fuel cell is specific for ethanol. Other alcohols will react in the cell, but because the chemistry is different, the rate of reaction is also different.
 - a. The fuel cell is located on top of the sample chamber and is heated by the sample chamber.
 - b. At the end of each breath sampling sequence, the sample chamber closes and a portion of the collected sample is then examined by the fuel cell.
 - c. Any alcohol collected by the fuel cell will oxidize and cause a voltage change within the cell which is calculated into a breath alcohol concentration.
 3. The combined use of a fuel cell and IR spectroscopy makes it virtually impossible for an interfering substance, such as acetone, to influence the subject's ethanol reading.
- B. *When the instrument is ready to begin a test, the screen will display "READY".
1. The instrument performs 128 diagnostic tests per second. If any of the internal functionality tests were outside of tolerance, a message will

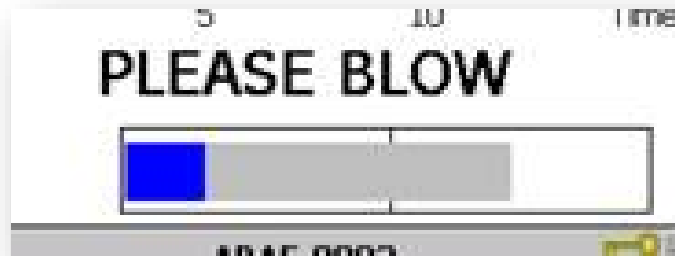
appear on the display and the Draeger will not proceed with a test. Below is an example of what may be seen if a diagnostic test does not operate as designed:

- a. Disabled – call WSP
 - b. Cal Gas Supply – call WSP
 - c. Memory Full – call WSP
- C. *Draeger checks its Infrared (IR) calibration during each test with an internal standard.
- 1. A very precise and consistent amount of the radiated IR energy from the IR Source passing through the absorption chamber is attenuated. This resembles the effect alcohol vapor has in the absorption chamber. The instrument computes the drop in IR energy to a corresponding alcohol concentration reading.
- D. *Accuracy is checked using an external standard sample from a dry gas cylinder.
- 1. Results are displayed during the external standard phase.
 - 2. Results must be 0.072 to 0.088, inclusive.
 - 3. If the results are not within the required values, the instrument will display “External Standard Out of Range” and the test will abort.
- E. *Subject Sample Control
- 1. 15 minute observation period.
 - 2. The most accurate and reliable sample is one of deep lung or alveolar air.
 - 3. An acceptable sample is a product of time and flow rate.
 - 4. A long sample with moderate flow is better than a short, hard blown sample.
 - 5. When the following sampling requirements have been met, the sample can be accepted:
 - a. At least 5 seconds of acceptable sample flow.
 - b. At least 1.5 liters breath.
 - c. Minimum slope to BrAC curve.

- d. Minimum flow rate 4 liters per minute.
- 6. *When the alcohol concentration of the sample has peaked then sharply declines during the blow, the display reads "Invalid Sample".
 - a. The test will abort.
 - b. Invalid Sample is recorded in the database.
 - c. **The operator must begin a new 15 minute observation and run the test again.**
- 7. Acceptable samples can be achieved by instructing the person, coaching during the blow and monitoring the display on the instrument.
 - a. For example, "Blow steadily into the mouthpiece for 10 to 15 seconds. I will tell you when to stop."
 - b. The flow rate of the subject blowing will be displayed on the upper half of the screen during the test. The graph will have a flow-rate indicator in the vertical axis and a blow time indicator in the horizontal axis.



- c. The volume progress bar is below the "Please Blow" prompt and displays the volume of the sample as it is provided.
 - o When subject starts to blow, a vertical line in the center of the bar will indicate the required minimum sample of 1.5 liters.
 - o When subject starts to blow on the second breath sample, the volume from the first sample will be displayed as a gray highlight in the bar. See example below:



- o When the minimum sampling parameters have been met the frame of the volume progress bar will turn bold.
- F. Blank tests are run before and after every sample that is introduced into the sample chamber. This includes both of the subject's breath samples and the external standard sample.
 - 1. Blank tests ensure that the sample chamber has been completely purged of the previous sample. If blank tests are successful the final printed document will indicate a result of .000.
 - 2. If following the blank test the instrument's IR measurement detects alcohol in the sample chamber, the display reads "Ambient Fail".
 - a. The test will abort.
 - b. Run test again (no new observation period is needed).
 - c. Some conditions exist that may prevent a complete purge of the sample chamber, for example:
 - o Solvents present (e.g. hand cleaner, fingerprint ink, etc.);
 - o Person's clothes soaked in alcohol;
 - o A mouthpiece left in the breath tube during purge;

- Poor room ventilation;
 - Person standing next to breath tube during purge;
 - Mechanical or electrical problems.
- G. The instrument analyzes the subject's samples to show that they are consistent with an admissible breath test.
- 1. The four individual breath sample results must be within $\pm 10\%$ of the mean of all four breath sample results.
 - a. The procedure for this calculation is outlined in WAC 448-16-060
 - b. If samples are outside of 10%, the instrument will display "Samples Outside 10%"
 - Test will abort.
 - Run test again (no new observation is needed).
 - Provide clear instructions on providing samples.
 - 2. Most differences in sample results are due to sampling differences, not the instrument, for example:
 - a. Breathing patterns;
 - b. Length of the sample blown;
 - c. Consistent instruction and coaching will result in smaller differences between sample results.
- H. When the test protocol has been completed, a breath test document is printed and the operator can be assured that the test results are accurate and reliable.

2.2.11 THE PRE-TEST PERIOD

- A. Check the status of the instrument by pressing the green start button.
- 1. If the display is visible and the "Ready" prompt is visible, no action is required until ready to start the test. If the screen goes dark while you are waiting to start the test, tap the screen.
 - 2. If the screen is dark, tap the screen to refresh the screen image.
 - a. If the "Ready" prompt is visible, no action is required until ready to start the breath test.

- b. If the “Standby” prompt is visible, press the green start button to initiate the instrument warm up cycle.
 - c. Check the instrument display to ensure there are no error messages and that the display indicates “Ready” or cycles between “Warming Up” and “Not Ready”.
- B. Prior to starting the breath test, check the breath tube.
 - 1. It should be warm/hot to the touch.
 - 2. If it is cold, advise WSP radio and go to a different instrument.

2.2.12 THE OBSERVATION PERIOD

- A. Read the Constitutional/Miranda Rights and Implied Consent Warnings.
- B. Check person's mouth and begin the 15 minute observation using the Draeger clock.
 - 1. The time on the instrument may be different than your watch. Record the exact time from the instrument clock. 16 minutes must pass before the test can begin; this is programmed into the software to assure a complete 15 minutes has occurred.
 - 2. 15 minute observation period. (Guideline procedures for breath test defined by WAC 448-16-040, State Toxicologist):
 - 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 substances before starting the 15 minutes, clear the person's mouth of all foreign substances except dental work and piercings, fixed or removable, 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 substances.
 - f. Vomiting may bring alcohol back up to the mouth and will require a new 15 minutes and instructions.

- g. Observe the subject until the last sample is taken and the process is completed.
- C. The time on the instrument will disappear once 'RUN' is pushed.
 - 1. You must keep the person under observation while entering data, etc.
 - 2. 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. Read the Constitutional/Miranda Rights and Implied Consent Warnings.
 - 4. Check person's mouth and begin the 15 minute observation using the Draeger clock.
 - 5. The time on the instrument may be different than your watch. Record the exact time from the instrument clock. 16 minutes must pass before the test can begin; this should be programmed into the software to assure a complete 15 minutes has occurred. It is the operator's responsibility to ensure the 15 minute observation period has been completed.
 - 6. You must keep the person under observation while entering data, etc.
 - 7. Document if the subject has odor of volatile organic compounds (e.g., paint, thinner, etc.) about his or her person or clothing. If able, determine time of last exposure.

2.2.13 INSTRUMENT OPERATION

- A. When the observation period is complete and the display prompts "Ready", press the green start button.
- B. The instrument will conduct a dry gas pressure check and complete a diagnostic check. It will then prompt for data entry.
- C. Data entry can be done using the attached keyboard, the touch screen, the attached bar code reader (license and operator permit only) or a combination of the three.
 - 1. The touch screen's virtual keyboard is only accessible if the keyboard is unplugged.
 - 2. If using the keyboard, press the enter key after each data entry or use the Tab on keyboard to move through the buttons and highlight Next, then Enter.
 - 3. When using the touch screen, tap NEXT on the screen to advance to the next question.

4. To make corrections:

- a. Using the touch screen, double click on the screen and re-enter data.
- b. Using the keyboard, use the arrows on the lower right hand side to highlight the item to be corrected, re-enter data.

D. Data Entry

1. *Observation Time

- a. Enter the time you started the 15 minute observation.
- b. Use 24 hour time.
- c. Tap "SUMMARY" on the screen or "Enter" on the keyboard.
 - o If time is correct, tap "SAVE" or "Enter" on the keyboard.
 - o If time is incorrect, double tap "Observation Start Time" and enter correct time. Tap Summary or Done, Enter.

2. *Operator Observed Subject Entire Time

- a. Yes – Enter/Next
- b. No – Enter/Next
 - o Correct – double tap "Operator Observed Subject Entire Time", Yes, Save, Next, Done
 - o If you select Save without correcting, display will show Invalid Data Entry and the test will abort.

3. *Subject Smoke, Vomit, Put Anything in Mouth

- a. Yes – Enter/Next
 - o Correct – double tap "Subject Smoke, Vomit, Put Anything in Mouth", No, Save, Next, Done
 - o If you select Save without correcting, display will show Invalid Data Entry and the test will abort.

b. No – Enter/Next

4. Citation/Case Number

- a. Enter data
- b. Any combination of letters/numbers, up to 15 characters

- c. If no citation, enter NONE.
- d. Cannot leave blank
- e. Enter/Next
- 5. County of Arrest
 - a. Enter 1st letter of county.
 - o Keyboard – use arrow keys to scroll through list, Enter
 - o Touch Screen – use drop down menu, select, Next
- 6. Crime Arrested For
 - a. Using the arrows on keyboard or drop down menu on screen, select appropriate crime.
 - b. Select Enter/Next
- 7. Collision Involved
 - a. Keyboard – Select “Y” or “N”, Enter/Next
 - b. Touch Screen – Tap “Yes” or “No”, Enter/Next
- 8. *Subject Drinking at Specific Drinking Establishment
 - a. If subject gives any answer other than a licensed drinking establishment, select “NO”, Enter/Next.
 - o Using display, scroll down to appropriate answer and touch highlighted entry, next.
 - o Using keyboard, use the arrows to move through the list and press Enter when the correct response is highlighted.
 - b. If subject provides the name of a licensed drinking location, select “Yes” or “Y” and Enter/Next.
 - o Using the display, tap “Database” on screen.
 - Enter part of drinking location and tap “Search”.
 - Select from list. Before continuing, confirm the correct location by confirming the address listed on the lower screen.
 - Tap “OK”

- Select Enter/Next
- Using the keyboard
 - Tab to Database, Enter
 - Type part of the name of the drinking location name and Enter. For example, for “The Monkey Pit,” type monkey.
 - Using arrows, scroll through list.
 - Before continuing, confirm the correct location by confirming the address listed on the lower screen.
 - When the correct location is selected, Enter/Tab to OK-Enter
 - Tab to Next/Enter

9. PBT Given?

- a. No, Enter, Summary
- b. Yes, Enter/Next
 - PBT Time
 - Use 24 hour time
 - Enter/Next
 - PBT Result
 - Type decimal and 3 digit result
 - Enter, Summary

E. *Summary

1. Must scroll through entire list before continuing with data entry.
 - a. Use touch screen or keyboard arrows.
2. This is the only opportunity to correct the data just entered.
3. To make corrections, double tap on the information that needs correcting.
4. Make correction
5. Enter/Next

6. Continue review

7. If the information is correct, tap SAVE or tab to SAVE/Enter.

F. *Scan Operator Card

1. If “Yes” Enter/Next is selected, operator will be prompted to scan their permit card. Officer’s data will be entered into the database. Use Enter/Next to go through data. If the operator’s permit card is expired, instrument will not allow the test to continue. If the card does not scan properly it will ask to re-scan.

2. If “No” is selected, enter data using touch screen or keyboard.

a. Operator last name – Enter/Next

b. Operator first name – Enter/Next

c. Operator middle initial – Enter/Next

d. Operator agency code – Enter/Next

3. Summary

a. Review, Correct, Save

G. Subject’s Ethnic Group

1. Drop down menu defaults to WHITE.

2. Touch screen, scroll to desired group, Enter/Next.

3. Keyboard, use arrow keys to highlight desired group, Enter/Next.

H. Subject’s Driver License

1. Drop down menu defaults to “Other”.

a. Touch screen, scroll to desired state, Enter/Next.

b. Keyboard, use arrows to scroll to desired state, Enter/Next.

2. If Washington is selected:

a. “Scan Subject’s WA State Driver License?”

o Yes – Prompt to scan, scan license, Summary

o No – Prompt for Subject’s information

3. If any selection other than Washington is selected, instrument will prompt for the following entries:

- a. Subject last name – Enter/Next
- b. Subject first name – Enter/Next
- c. Subject middle initial – Enter/Next
- d. Subject date of birth – Enter/Next
- e. Subject gender – Enter/Next
- f. Subject driver license number – Enter/Summary

I. Summary

- 1. Review, Correct, Save

J. *Ambient Air Check (Blank Test 0.000)

1. Air is drawn through breath tube to flush the sample chamber. If purge is successful, the final document will print at the end of the sequence with a blank test of 0.000. If the purge is unsuccessful, there are two possible messages. When either message is displayed, ensure that the ambient air is free of alcohol vapors. Error messages are:

a. Ambient Fail

- Following an Ambient Fail, the instrument will wait one minute and then prompt “Start new test with previously entered data?”
 - If “NO” is selected, instrument will go to “Ready”.
 - If “YES” is selected, instrument will continue with the test sequence.
 - If no input is provided within one minute, instrument will time out and revert to “READY”.

b. Blank Error

- Following a Blank Error, the instrument will wait one minute and then prompt “Start new test with previously entered data?”
 - If “NO” is selected, instrument will go to “Ready”.
 - If “YES” is selected, instrument will continue with the test sequence.

- If no input is provided within one minute, instrument will time out and revert to "READY".

K. *Internal Standard Check

1. If the check is satisfactory, the instrument will display "Internal Standard Verified".
2. If the check is unsuccessful, the instrument will display "Internal Standard Error".

L. *Please Blow

1. First subject breath sample. Subject has two minutes to provide a valid breath sample.
2. Place new mouthpiece in breath tube.
3. The flow rate of the subject blowing will be displayed on the upper half of the screen during the test.
4. The volume progress bar is below the "Please Blow" prompt and displays the volume of the sample as it is provided.
5. After blowing is complete:
 - a. If the sample fails to meet sampling requirements, instrument will display "Take Breath" and return to the "PLEASE BLOW" prompt.
 - b. If sample meets sampling requirements "STOP" will appear on the display followed by "REMOVE MOUTHPIECE."

M. Ambient Air Check (Blank Test 0.000, same process as above previous Ambient air check).

N. *Dry Gas Check

1. An external standard sample is taken from one of the two dry gas cylinders in the enclosure behind the instrument.
2. The results must be between 0.072-0.088, inclusive, for the test to proceed.
3. If the results of the external standard are outside of stated tolerance, the instrument will abort the test and will display "Ext. Standard Failed", and place itself out of service. A technician must be notified and the subject must be taken to another instrument for processing.

O. Ambient Air Check (Same process as previous Ambient Air Check)

P. *Please Blow

1. Second subject breath sample. Subject has two minutes to provide a valid breath sample.
2. Place new mouthpiece in breath tube.
3. The flow rate of the subject blowing will be displayed on the upper half of the screen during the test.
4. The volume progress bar is below the "Please Blow" prompt and displays the volume of the sample as it is provided.
5. After blowing is complete:
 - c. If the sample fails to meet sampling requirements, instrument will display "Take Breath" and return to the "PLEASE BLOW" prompt.
 - d. If sample meets sampling requirements "STOP" will appear on the display followed by "REMOVE MOUTHPIECE."

Q. Ambient Air Check (Same process as previous Ambient Air Check)

R. *Additional Information

1. STOP
2. Before data entry is completed you will be given two choices:
 - a. Continue – test will continue.
 - b. Cancel Test
 - o Continue – test will continue.
 - o Incomplete – Invalid Data Entry, Purging, NO breath test document will print.
3. After data entry is completed you will be given three choices:
 - a. Refusal – Please Wait - Printout
 - b. Incomplete – Please Wait - Printout
 - c. Continue

S. *Copies of prior breath tests

1. Operator can at any time in the next 90 days return to the same instrument and reprint a breath test document.

- a. Press the "REPRINT" box found in the lower right corner of the display.
 - o Use the touch screen to select "Search Text".
 - o The operator can type the case number, citation number, subject name or the officer's name in the box next to the search prompt, and then tap search box or tab, Enter. All possible sections will appear in a scroll down box. Tap the appropriate test to highlight or use the arrow keys.
 - o Save
 - o When the screen returns to Reprint Screen, tap "PRINT" or tab to Print, Enter.
 - o Press Cancel to return to Main Screen.
- T. Instrument will purge before returning to the Ready screen whenever a test is aborted.

2.2.14 *ALCO-SENSOR III and ALCO-SENSOR FST PRELIMINARY BREATH TEST (PBT) INSTRUMENT

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 Alco-Sensor III and Alco-Sensor FST PBT instruments are approved in the Washington Administrative Code. If an officer's agency uses a different PBT instrument, the agency must contact the State Toxicology Laboratory to determine its acceptability for use.

B. Alco-Sensor III Nomenclature

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

6. Mouthpieces

C. Theory of Operation

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

D. Alco-Sensor III 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 operator must determine that the subject has not consumed any alcohol in the prior fifteen minutes.
- c. If subject acknowledges alcohol consumption in the last fifteen minutes then a test should not be administered unless the subject is willing to wait fifteen minutes. This may not be practical and the decision to arrest will need to be based on other information.
 - o The purpose of the 15 minute wait is to guard against mouth alcohol.

2. Open containers visible in the vehicle may corroborate a subject's statement about drinking or not within the last 15 minutes. The observation should be noted in the narrative report.

- a. 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.
- b. Check the temperature display on the instrument; this temperature should display between 20-36° C.
- c. Push in the "Set" button on the instrument.

3. Blank test: 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. An operator may have to wait a few minutes for this to be accomplished.

4. Push in the "Set" button on the instrument.
5. Attach the mouthpiece in one of the following configurations:
 - a. Attach the mouthpiece. Next, attach the mouthpiece to the breath intake port.
 - b. Attach the 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.
6. Have subject blow at least a five second breath sample. While the subject is still blowing press and hold the "Read" button. This will obtain that last sample of breath. Keep the 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).
7. 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.
8. Record the results to three decimal places in the case report.
9. Note also in the case report the serial number or the state tag number of the PBT instrument.
10. Remove and discard the mouthpiece using the plastic bag to handle.
11. Press the "Set" button and LEAVE in this position until next use.

E. Alco-Sensor III 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 the 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 certified at least every 6 months by a certified PBT Technician. The certification and documentation is important for breath results to be admissible in a probable cause hearing. Instruments may be checked more frequently by the technician. An example would be after a significant arrest where the PBT will be critical evidence. The PBT Technician will use a gas standard to certify the PBT and will follow an approved procedure.
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 or low 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 breath sample.
10. Record the time of result, result to the third decimal for later recording on the evidential breath test instrument.

F. Alco-Sensor- FST/ PBT

1. Alco-Sensor- FST Nomenclature

a. Mouthpiece:

- | | | |
|---------------------------------|---------------------------------------|---------------------------|
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- 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.
- b. 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.
- c. The OFF button:
 - The OFF button labeled (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.
- d. Battery:
 - 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 the batteries always replace both batteries.

2. Alco-Sensor- FST Steps of Operation

- a. Attach a clean unused mouthpiece from a sealed bag.
- b. Depress the power on button and hold for 1 second. The battery strength indicator and temperature in Celsius will be displayed momentarily. To have the display's back lighting illuminate, hold the power on button for an extra second or two.
- c. 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 a test must be performed with the FST/PBT, place it in an environment that will bring it to proper operating temperature.
- d. 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.
- e. If the 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.

- f. 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.
- g. 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).
- h. To turn the instrument off manually press the OFF button for two seconds. The OFF button is the small button directly under the LED display.
- i. 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.

G. Alco-Sensor FST 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 or low sample will be drawn into the instrument for analysis and a corresponding low or zero result will occur.

4. Multiple tests

- j. An operator does not have to wait 5 minutes between tests with the FST PBT. An operator can do one test after another.

H. 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.

2.2.15 *CASE REPORTS

- A. Clear, thorough and complete case reports are very important.
1. A 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. Submit report to DOL within 72 hours.
 - a. Any question about a case that is not answered in the report leaves the defense an opportunity.

2.2.16 REVIEW

- A. Topics to be determined by instructor.
- B. *When an operator is asked in court what they were taught in Draeger and PBT Operator class, state to the effect: The Draeger and PBT Operator Course is up to sixteen hours and consists of lectures, a practice session, a written exam, and a practical exam. The course covers legal aspects of breath testing, the theories upon which the evidential and preliminary breath test instruments operate and detailed instruction in how to operate the instruments. The Refresher Course covers the same material in an abbreviated four hour course.

2.2.17 *WRITTEN AND PRACTICAL EXAM

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

C. Must pass both written and practical exams to become certified.

3.0 BREATH TEST TECHNICIAN COURSE

3.1 OBJECTIVE

The curriculum outlined in this chapter is approved for training individuals to become 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.

For technicians to maintain their certification, a renewal must be completed at least once every three years. This renewal is usually completed through regularly scheduled in-service training.

This may include:

- Review of the most current BTP manuals (Technical, Operations, Quality, Training);
- Presentations from subject matter experts;
- Legal challenges, updates;
- Training from manufacturer representatives of issued equipment;
- Other program related materials.

Training will typically be coordinated by BTP supervisors and approved by the IDS Commander.

3.2 TRAINING OUTLINE

BREATH TEST TECHNICIAN COURSE

To be presented in up to 162 hours.

3.2.1 INSTRUCTIONAL OBJECTIVES

- Understand the legal foundation for breath alcohol measurement including the relevant statutes, administrative code and the case law.
- Understand the basic mathematical foundation for the instrumentation and physiology of breath alcohol measurement and interpretation.
- Read and discuss several published articles on forensic breath alcohol analysis.
- Be able to perform computation using Widmark's equation.

- Be familiar with and able to perform computations associated with retrograde extrapolation.
- Learn the key nomenclature for the breath alcohol instruments, simulator, and dry gas components.
- Learn the program policies and procedures as outlined in the Quality and Operations Manual (QOM), Technical Manual, and Training Manual.
- Learn to apply basic statistical computations relevant to the Breath Test Program.
- Become familiar with the basic principles of organic chemistry.
- Learn the theory of the simulator and QAP solutions.
- Learn the theory of dry gas ethanol standards used in breath alcohol testing.
- Understand the theory of electrochemical measurement (fuel cell) used in breath alcohol testing.
- Understand basic infrared theory as applied in breath alcohol instruments.
- Learn basic electronics as applied in the breath alcohol instruments.
- Understand basic principles of quantitative measurement.
- Understand and be able to successfully complete the Quality Assurance Procedure.
- Receive orientation and training at the State Toxicology Laboratory.
- Learn the use of a reference barometer for the testing of breath test instruments.
- Learn important safety precautions relevant to the program.
- Learn the technical principles of the breath alcohol instruments.
- Provide hands-on experience working with, repairing and testing the instruments.
- Learn the aspects of providing expert court testimony and experience a mock trial by actually providing testimony.
- Participate in the preparation and conducting of a controlled drinking lab.
- Learn the relevant use and application of laptop computers.
- Become certified as Instructors.

- Learn the procedures for certifying PBT instruments and become certified PBT technicians.
- Successfully pass all exams and display competency in the required skills.

3.2.2 TRAINING AIDS

- White/Black board
- Draeger Alcotest 9510 breath test instruments with dry gas cylinders and enclosures
- All manuals including: Quality and Operations, Training, and the Draeger Alcotest 9510 Washington State Technical Manual
- Breath test forms/documents
- Reference thermometers
- Digital barometers
- Drinking lab forms and materials
- All training outlines
- Alco-Sensor III & Alco-Sensor FST (PBT's) with mouthpieces
- Research literature
- Calculators
- QAP solutions
- Dry gas ethanol standards
- Laptop computers
- Washington State DUI Arrest Report forms

3.2.3 EXAMINATION

- All written exams - 80%
- Practical exercises/Competency test(s) - pass/fail
- Courtroom Testimony observation – pass/fail

3.2.4 PRE - INSTRUCTION

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

3.2.5 LEGAL ASPECTS

- Statutes
- Washington Administrative Code
- Relevant case law

3.2.6 BASIC MATHEMATICAL PRINCIPLES

- Use of calculators
- Basic algebra
- Mathematical models
- Significant digits
- Rounding and reporting measurement results
- Retrograde extrapolation

3.2.7 WIDMARK'S EQUATION

- Widmark and his contributions
- Basic equations
- Uncertainty estimates
- Relevant literature
- Alcohol concentration in different beverages

3.2.8 RETROGRADE EXTRAPOLATION

- General model
- Assumptions

- Computational steps
- Limitations and relevant literature

3.2.9 BASIC STATISTICS

- Data analysis
- Measures of central tendency
- Measures of variation
- Linear regression
- Descriptive statistics
- Inferential statistics
- Reporting statistical results
- Limitations of statistics

3.2.10 PROGRAM OVERVIEW AND POLICY MANUALS

- Quality and Operations Manual
- Technical Manual
- Training Manual
- Proficiency Testing
- Measurement Uncertainty

3.2.11 NOMENCLATURE

- Instrument nomenclature
- Simulator nomenclature

3.2.12 ORGANIC CHEMISTRY

- Organic molecules and bond structure
- Molecular formulas
- Ethanol and acetone
- Relevance to infrared absorption

- Relevance to electrochemical fuel cell

3.2.13 SIMULATOR THEORY AND OPERATION

- Henry's Law
- Mathematical principles
- Solution preparation and testing

3.2.14 Detection Technologies

A. Infrared Theory

1. Infrared spectrum
2. IR spectrum for ethanol and acetone
3. Molecular structure and bonding
4. Theory of infrared absorption
5. Theory of infrared detector
6. Beer-Lambert Law and associated mathematics

B. Electrochemical (Fuel Cell) Theory

1. Fuel cell technology
2. Fuel cell components
3. Alcohol specificity
4. Interfering substance discrimination
5. Benefits in combination with infrared technology

3.2.15 TECHNICAL PRINCIPLES OF THE BREATH TEST INSTRUMENT

C. Draeger Alcotest 9510

1. System and components
2. Measuring technologies
 - a. Infrared
 - b. Fuel cell

3. Dry gas standard
4. Interfering substances
5. Technical data

3.2.16 INSTRUMENT MAINTENANCE LAB

- Instrument nomenclature and assembly
- Troubleshooting and repair remedies
- Perform Quality Assurance Procedure

3.2.17 CONTROLLED DRINKING LAB

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

3.2.18 EXPERT COURT TESTIMONY AND MOCK TRIAL

- Review principles of expert court testimony
- Predicate questions
- Challenges to expect
- Mock court testimony
- Review mock court experience
- Documented feedback from an instructor detailing the testimony provided

3.2.19 COMPUTER APPLICATIONS AND PROGRAMS

- Computer application in the program
- Database procedures
- Forms to be completed
- WebDMS applications

3.2.20 EXTERNAL STANDARD CHANGING PROCEDURES

- Equipment and supplies
- Procedure
- Paperwork to be completed

3.2.21 PBT CERTIFICATION

- Equipment necessary
- Procedure
- Paperwork to be completed

3.2.22 OPERATOR INSTRUCTOR TRAINING

- Outlines to employ
- Class structure and visual aids
- Equipment to be employed
- Paperwork to be completed
- Practical instruction experience

3.2.23 EXAMINATIONS

- Examination in key subject areas
- Final comprehensive exam – must score 80%
- Competency test(s)

3.2.24 REQUEST FOR CERTIFICATION

The supervisor will submit documentation detailing the training received by the prospective technician to the State Toxicologist. This will include the following:

- an IOC from the supervisor to the State Toxicologist requesting certification;
- Technician Training Log
- the final exam; and
- competency-related documents.

3.2.25 AUTHORIZATION TO PERFORM WORK

The IDS Commander has a responsibility to authorize permitted technicians to perform work. Consideration for this authorization will be predicated on training, experience and certification. The IDS Commander may limit the authorization to perform work to specific equipment and activities.

4.0 PRELIMINARY BREATH TEST (PBT) TECHNICIAN COURSE

4.1 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.

4.2 TRAINING OUTLINE

COURSE FOR ALCO-SENSOR III AND FST PBT TECHNICIAN

To be presented in up to 4 hours.

4.2.1 INSTRUCTIONAL OBJECTIVES

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

- 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.

4.2.2 TRAINING AIDS

- White/Black board
- PBT instruments (both Alco-Sensor III and Alco-Sensor FST PBT) with gas standard equipment.
- PBT white tube mouthpieces
- 9 volt and AA batteries
- Forms for entering PBT test record results
- Small flat head screw driver

4.2.3 EXAMINATION

- Written exam – 80% minimum score
- Practical demonstration

4.2.4 PRE-INSTRUCTION

- Have a class roster completed.
- 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.
- 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.
- The students permit card will show their status as a PBT Technician.
- The student must already be a qualified PBT operator.

4.2.5 INTRODUCTION

- The WAC allows for use of the Alco-Sensor III and Alco-Sensor FST PBT device as a screening test for probable cause.
- 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.

- 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.
- 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.

4.2.6 ALCO-SENSOR III & ALCO-SENSOR FST PRELIMINARY 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 an alternative to 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 ethanol.
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 and Alco-Sensor FST)

1. Preliminary Considerations – Reference PBT Operator Course
2. Check the temperature display – should read between 20-36° 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 to try this several times over a period of a few minutes.
5. Depress the “SET” button.
6. Attach the mouthpiece.
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.
13. 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 or higher. If several low test results (near zero) are performed in a row, then more than five tests per hour is acceptable.
14. If the PBT displays “888” this means the battery is low. Replace with 9.0 volt fresh battery. The battery can last up to 500 tests.
15. The PBT should be stored where it will not encounter extreme temperatures.
16. 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.
17. 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.
18. Generally the PBT test results alone should not be the sole basis for the decision to arrest.
19. 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.

20. 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.

21. The most common problems encountered with PBT's.

H. Steps of Operation Alco-Sensor FST PBT

1. Preliminary Considerations – Reference PBT Operator Course
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. This may result in a low alcohol reading. 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.

I. Practical Tests

J. 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.

4.2.7 GAS STANDARD EQUIPMENT NOMENCLATURE AND USE

A. Nomenclature

1. Gas cylinder
 - a. Contains a known concentration of ethanol (a #2 type of gas).
 - b. Concentrations near a nominal value of 0.08 g/210L.
 - c. Store cylinder in the upright position.

- d. Cylinders are not refilled; upon reaching the expiration date or emptying of gas you shall dispose of cylinders following local disposal or recycling regulations.
- 2. Regulator
 - a. After attaching regulator observe pressure, if below 300 psi then replace the cylinder.
 - b. Remove the regulator when transporting.
- 3. True Cal Device
 - a. An instrument that monitors barometric pressure and provides a corrected estimate of the ethanol concentration.

4.2.8 CERTIFICATION PROTOCOL (ALCO-SENSOR III PBT)

- A. Refer to Alco-Sensor III and Alco-Sensor FST PBT Certification protocol in WSP Breath Test Program Technical Manual: The steps are as follows:
 - 1. Obtain certified and a current, non-expired gas standard cylinder with a nominal concentration of 0.08 g/210L (± 0.002).
 - 2. If using a Tru-Cal device, this the device will determine the estimated concentration. This will be the value used to certify and calibrate the PBT. If not using a Tru-Cal device, refer to the altitude chart on the side of the cylinder for the correct reference value.
 - 3. Verify the PBT temperature is between 20° and 36° 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.
 - a. If the results are within ± 0.010 g/210L of the reference value for the gas standard, the PBT is properly calibrated and acceptably accurate.
 - b. 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
 - o Not all instruments will require recalibration during the certification process. If instrument does not require recalibration then skip the recalibration procedure.
10. Recalibrating the Alco-Sensor III PBT
 - a. If the result is outside $\pm 0.010\text{g}/210\text{L}$ of the reference value, first zero the instrument to 0.003 or less, then turn the calibration screw clockwise two full turns.
 - b. Re-introduce the gas standard and while holding the READ button, turn the calibration screw counter-clockwise slowly to the reference value of the gas standard. Avoid adjusting below the reference gas standard value during this procedure.
 - c. Repeat steps 1 through 10 as often as necessary to obtain results within the acceptable range.
 - d. 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 volt battery needs to be replaced.
 - a. 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.

4.2.9 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 Technical Manual. The steps are as follows:
 1. Obtain certified and non-expired gas standard cylinder with a nominal concentration of $0.08\text{ g}/210\text{L}$ (± 0.002).

2. If using a Tru-Cal device, the device will determine the estimated concentration. This will be the value that the PBT will be used to certify and calibrate the PBT. 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° 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 ± 0.010 g/210L of 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
 - a. Temperature must be between 20 and 36° C.
 - b. Attach a new mouthpiece and power the PBT on by pressing and holding both ON and OFF buttons simultaneously.
 - c. 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.
 - d. Once CAL is displayed, depress the OFF button, this will initiate the calibration sequence.
 - e. Temperature will be displayed, ensure a Blank Test result of 0.000 g/210L is displayed. A flashing CAL message will appear.

- f. While the display is flashing CAL, make an airtight connection between the delivery tube of the regulator and the open end of the mouthpiece.
- g. 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.
- h. 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 display 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.
- i. 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 digit furthest to the right 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, press the OFF button again while the entire calibration number is flashing. This will display 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.
- j. Cycle the power on the instrument OFF and ON and repeat the certification process to verify the accuracy of the PBT instrument.

4.2.10 RECORD KEEPING

- A. WSP technicians complete Alco-Sensor III and FST PBT Certification Record in Instrument Tracking.
- 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.

4.2.11 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%).

5.0 BREATH TEST INSTRUMENT INSTRUCTOR COURSE

5.1 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.

5.2 TRAINING OUTLINE

INSTRUCTOR COURSE FOR DRAEGER 9510 INSTRUMENT

To be presented in up to 16 hours. (Instructor Course).

To be presented in up to 8 hours (Instructor Refresher Course).

The topics marked with an asterisk (*) must be covered in the Instructor Refresher Course. Additional content from this outline may be incorporated as necessary.

Training in this chapter is specific to the DRAEGER 9510.

5.2.1 INSTRUCTOR REQUIREMENTS

In order to meet training demands BTP will train allied agency instructors to teach BAC classes. These allied instructors will be held to the same high standards of the WSP Breath Test Technicians/Instructors. The following requirements must be maintained by each allied instructor in order to stay certified in the program:

- Successfully complete Operator Instructor course.
- Attend instructor refresher training every 3 years in addition to any required BTP instructor classes.
- Only use the PowerPoint presentation and other training aides to teach BAC classes that have been approved by either the State Toxicologist or BTP Headquarters.
- Keep local agency protocols separate from the BTP.
- Teach a minimum of 16 classroom hours annually.
- Have one class observed annually by a BTP Sergeant or WSP BAC technician.
- Advertised all BAC classes at least 30 days prior to the class.
- Open all BAC classes to any Washington law enforcement officer.
- Use BTP roster for classes (found at http://www.wsp.wa.gov/breathtest/ids_training.php) and forward to WSP BTP headquarters within 30 days of class completion.

Those who do not meet the minimum requirements may have their certification revoked. Appeals will be considered on a case by case basis in consultation with Breath Test Program management.

BTP Sergeants will conduct an annual review of allied instructors to ensure compliance with this policy.

5.2.2 INSTRUCTIONAL OBJECTIVES:

- *The student will have a thorough understanding of the Draeger Alcotest 9510 program.
- The student will understand the basic principles of infrared spectroscopy and electrochemical technology as it relates to the Draeger 9510.
- The student will understand the basics of the Beer/Lambert Law.
- The student will understand where infrared energy fits in the whole electromagnetic spectrum.
- *The student will understand the basic relationship between infrared energy and its absorption by ethanol.
- *The student will know the basic nomenclature of the Draeger Alcotest 9510.
- *The student will be familiar with the 'Error Message' codes and what they mean.
- *The student will understand how the Draeger Alcotest 9510 evaluates the presence of acetone.
- *The student will understand how the Draeger Alcotest 9510 evaluates for the presence of mouth alcohol.
- *The student will be familiar with the data entry questions and their meaning.
- *The student will be familiar with the steps on instrument operation and its purpose.
- *The student will be able to explain the breath sampling parameters used in the instrument.
- *The student will know the importance and meaning of the external standard.
- *The student will be knowledgeable of the legal aspects of breath testing to include: Statutes, WAC's, Case Law (and current case law and Breath Test Program updates for refresher)
- *The student will be aware of common troubleshooting problems as they relate to operation.
- The student will be able to teach the entire outline used in the Operator classes.
- *The student will be thoroughly familiar with the exams given in the Operator classes and be able to discuss them.
- The student will know how to conduct an Operator class.

- The student will know how to conduct a Refresher class.
- *The student will pass an examination with 80% and be qualified as a Draeger Alcotest 9510 Instructor.

5.2.3 INTRODUCTION

- A. This unit of instruction is designed to make you a competent Infrared Breath Test Instructor by giving you a better understanding of the Draeger Alcotest 9510 instrument.
- B. Class Handouts:
 1. Operator outline/exam
 2. Operator Refresher outline/exam
 3. Data entry questions

5.2.4 *LEGAL ASPECTS

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

5.2.5 NOMENCLATURE

- A. *Heated Breath Tube
 1. Four feet long.
 2. Heated so it is warm/hot to the touch. Approximately 50° C but not a required temperature (45 ° C +/- 5).
 3. Heated to prevent condensation from forming in the tube.
 4. Loss of heat has no apparent effect on the breath test results but could cause 'Ambient Fail'.
- B Sample Chamber (Cuvette)
 1. The IR path is .3 meters (14 inches) long. IR passes through the chamber seven times using gold-plated parabolic shaped mirrors.
 2. Its heat range is 39° C – 50° C inclusive. Approximately 42 ° C +/- 5. If the temperature is outside this range the instrument will display a message.

3. The sample chamber holds 70mL. 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.

B. *Filters

1. Alcohol-specific IR filter centered at 9.5 microns. This area of the IR spectrum, the cross-sensitivity to potentially interfering compounds found in the human breath is virtually nonexistent.
2. A very precise and consistent amount of IR energy is attenuated to verify the internal standard.

C. Fuel Cell (EC)

1. Attached to top of the cuvette.
2. Alcohol specific.
3. Consists of two platinum plates attached to electrodes with a sulfuric acid membrane.

5.2.6 CHEMICAL PRINCIPLES

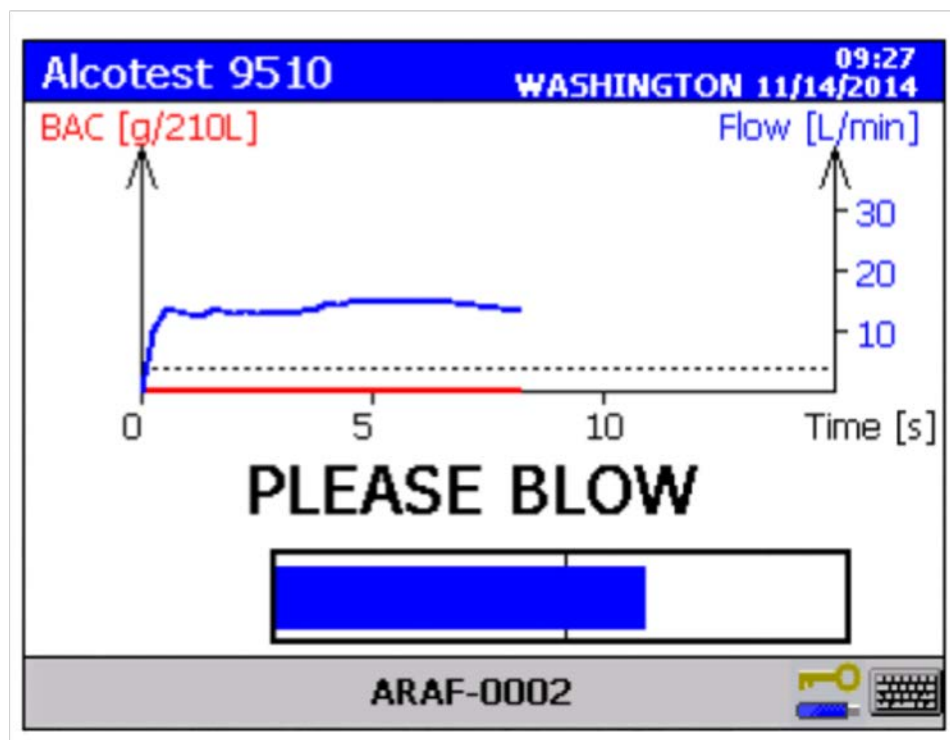
- A. The Draeger Alcotest 9510 is a forensic breath testing instrument which uses both infrared spectroscopy and fuel cell (EC) technologies to measure breath alcohol.
- B. Infrared spectroscopy is an analytical technique used to quantify the interaction between infrared light and organic molecules.
 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 atoms 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. Draeger Alcotest 9510 relates absorbance to transmittance.
- F. Fuel Cell (EC)
2. Only one platinum plate will be exposed to the breath sample. Once ethanol reaches the platinum a chemical reaction is triggered.
 3. This chemical reaction produces an electrical current between the two platinum plates.
 4. The strength of the electrical current is quantified to an alcohol concentration.
 5. Other alcohols will react in the cell but because the chemistry is different the rate of reaction is also different.

5.2.7 *STEPS OF OPERATION

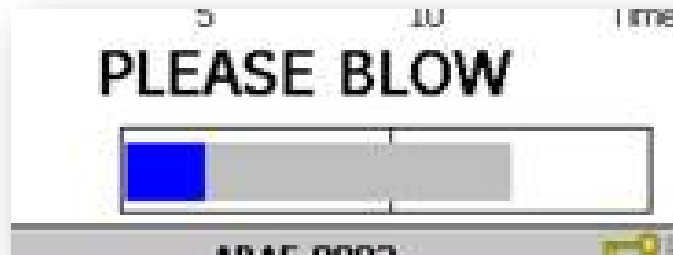
- A. *Subject Sample Control
1. 15 minute observation period.
 2. The most accurate and reliable sample is one of deep lung or alveolar air.
 3. An acceptable sample is a product of time and flow rate.
 4. A long sample with moderate flow is better than a short, hard blown sample.
 5. When the following sampling requirements have been met, the sample can be accepted:
 - a. At least 5 seconds of acceptable sample flow.
 - b. At least 1.5 liters breath.
 - c. Minimum slope to BrAC curve.
 - d. Minimum flow rate 4 liters per minute.

6. *When the alcohol concentration of the sample has peaked then sharply declines during the blow, the display reads "Invalid Sample".
 - a. The test will abort.
 - b. Invalid Sample is recorded in the database.
 - c. The operator must begin a new 15 minute observation and run the test again.
7. Acceptable samples can be achieved by instructing the person, coaching during the blow and monitoring the display on the instrument.
 - a. For example, "Blow steadily into the mouthpiece for 10 to 15 seconds. I will tell you when to stop."
 - b. The flow rate of the subject blowing will be displayed on the upper half of the screen during the test. The graph will have a flow-rate indicator in the vertical axis and a blow time indicator in the horizontal axis.



- c. The volume progress bar is below the "Please Blow" prompt and displays the volume of the sample as it is provided.

- When subject starts to blow, a vertical line in the center of the bar will indicate the required minimum sample of 1.5 liters.
- When subject starts to blow on the second breath sample, the volume from the first sample will be displayed as a gray highlight in the bar. See example below:



- When the minimum sampling parameters have been met the frame of the volume progress bar will turn bold.
- B. Blank tests are run before and after every sample that is introduced into the sample chamber. This includes both of the subject's breath samples and the external standard sample.
1. Blank tests ensure that the sample chamber has been completely purged of the previous sample. If blank tests are successful the final printed document will indicate a result of .000.
 2. If following the blank test the instrument's IR measurement detects alcohol in the sample chamber, the display reads "Ambient Fail".
 - a. The test will abort.
 - b. Run test again (no new observation period is needed).
 - c. Some conditions exist that may prevent a complete purge of the sample chamber, for example:
 - Solvents present (e.g. hand cleaner, fingerprint ink, etc.);
 - Person's clothes soaked in alcohol;
 - A mouthpiece left in the breath tube during purge;
 - Poor room ventilation;
 - Person standing next to breath tube during purge;

- Mechanical or electrical problems.
- C. The instrument analyzes the subject's samples to show that they are consistent with an admissible breath test.
 - 1. The four individual breath sample results must be within $\pm 10\%$ of the mean of all four breath sample results.
 - a. The procedure for this calculation is outlined in WAC 448-16-060
 - b. If samples are outside of 10%, the instrument will display "Samples Outside 10%"
 - Test will abort.
 - Run test again (no new observation is needed).
 - Provide clear instructions on providing samples.
 - 2. Most differences in sample results are due to sampling differences, not the instrument, for example:
 - a. Breathing patterns;
 - b. Length of the sample blown;
 - c. Consistent instruction and coaching will result in smaller differences between sample results.
- D. When the test protocol has been completed, a breath test document is printed and the operator can be assured that the test results are accurate and reliable.

5.2.8 THE PRE-TEST PERIOD

- A. Check the status of the instrument by pressing the green start button.
 - 1. If the display is visible and the "Ready" prompt is visible, no action is required until ready to start the test. If the screen goes dark while you are waiting to start the test, tap the screen.
 - 2. If the screen is dark, tap the screen to refresh the screen image.
 - a. If the "Ready" prompt is visible, no action is required until ready to start the exam.
 - b. If the "Standby" prompt is visible, press the green start button to initiate the instrument warm up cycle.
 - c. Check the instrument display to ensure there are no error messages

and that the display indicates “Ready” or cycles between “Warming Up” and “Not Ready”.

- A. Prior to starting the breath test, check the breath tube.
 - 1. It should be warm/hot to the touch.
 - 2. If it is cold, advise WSP radio and go to a different instrument.

5.2.9 THE OBSERVATION PERIOD

- A. Read the Constitutional/Miranda Rights and Implied Consent Warnings.
- B. Check person's mouth and begin the 15 minute observation using the Draeger clock.
 - 1. The time on the instrument may be different than your watch. Record the exact time from the instrument clock. 16 minutes must pass before the test can begin.
 - 2. 15 minute observation period. (Guideline procedures for breath test defined by WAC 448-16-040, State Toxicologist):
 - 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 foreign substance except dental work and piercings, 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 restarted.
 - e. The mouthpiece, piercings, dental work (fixed or removable), and the subject's own blood are not foreign objects.
 - f. Tongue Jewelry: ask the subject to remove, if unable or unwilling, continue with test.
 - g. Vomiting may bring alcohol back up to the mouth and will require a new 15 minutes and instructions.
 - h. Observe the subject until the last sample is taken and the process is completed.

- C. The time on the instrument will disappear once 'RUN' is pushed.
 - 1. You must keep the person under observation while entering data, etc.
 - 2. 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.

5.2.10 INSTRUMENT OPERATION

- A. When the observation period is complete and the display prompts "Ready", press the green start button.
- B. The instrument will conduct a dry gas pressure check and complete a diagnostic check. It will then prompt for data entry.
- C. Data entry can be done using the attached keyboard, the touch screen, the attached bar code reader (license and operator permit only) or a combination of the three.
 - 1. The touch screen's virtual keyboard is only accessible if the keyboard is unplugged.
 - 2. If using the keyboard, press the enter key after each data entry or use the Tab on keyboard to move through the buttons and highlight Next, then Enter.
 - 3. When using the touch screen, tap NEXT on the screen to advance to the next question.
 - 4. To make corrections:
 - a. Using the touch screen, double click on the screen and re-enter data.
 - b. Using the keyboard, use the arrows on the lower right hand side to highlight the item to be corrected, re-enter data.

D. Data Entry

- 1. *Observation Time
 - a. Enter the time you started the 15 minute observation.
 - b. Use 24 hour time.
 - c. Tap "SUMMARY" on the screen or "Enter" on the keyboard.
 - o If time is correct, tap "SAVE" or "Enter" on the keyboard.

- If time is incorrect, double tap "Observation Start Time" and enter correct time. Tap Summary or Done, Enter.
- 2. *Operator Observed Subject Entire Time
 - a. Yes – Enter/Next
 - b. No – Enter/Next
 - Correct – double tap "Operator Observed Subject Entire Time", Yes, Save, Next, Done
 - If you select Save without correcting, display will show Invalid Data Entry and the test will abort.
- 3. *Subject Smoke, Vomit, Put Anything in Mouth
 - a. Yes – Enter/Next
 - Correct – double tap "Subject Smoke, Vomit, Put Anything in Mouth", No, Save, Next, Done
 - If you select Save without correcting, display will show Invalid Data Entry and the test will abort.
 - b. No – Enter/Next
- 4. Citation/Case Number
 - a. Enter data
 - b. Any combination of letters/numbers, up to 15 characters
 - c. If no citation, enter NONE.
 - d. Cannot leave blank
 - e. Enter/Next
- 5. County of Arrest
 - a. Enter 1st letter of county.
 - Keyboard – use arrow keys to scroll through list, Enter
 - Touch Screen – use drop down menu, select, Next
- 6. Crime Arrested For
 - a. Using the arrows on keyboard or drop down menu on screen, select appropriate crime.

- b. Select Enter/Next
- 7. Collision Involved
 - a. Keyboard – Select “Y” or “N”, Enter/Next
 - b. Touch Screen – Tap “Yes” or “No”, Enter/Next
- 8. *Subject Drinking at Specific Drinking Establishment
 - a. If subject gives any answer other than a licensed drinking establishment, select “NO”, Enter/Next.
 - o Using display, scroll down to appropriate answer and touch highlighted entry, Next.
 - o Using keyboard, use the arrows to move through the list and press Enter when the correct response is highlighted.
 - b. If subject provides the name of a licensed drinking location, select “Yes” or “Y” and Enter/Next.
 - o Using the display, tap “Database” on screen.
 - Enter part of drinking location and tap “Search”.
 - Select from list. Before continuing, confirm the correct location by confirming the address listed on the lower screen.
 - Tap “OK”
 - Select Enter/Next
 - o Using the keyboard
 - Tab to Database, Enter
 - Type part of the name of the drinking location name and Enter. For example, for “The Monkey Pit,” type monkey.
 - Using arrows, scroll through list.
 - Before continuing, confirm the correct location by confirming the address listed on the lower screen.
 - When the correct location is selected, Enter/Tab to OK-Enter
 - Tab to Next/Enter

9. PBT Given?

- a. No, Enter, Summary
- b. Yes, Enter/Next
 - o PBT Time
 - Use 24 hour time
 - Enter/Next
 - o PBT Result
 - Type decimal and 3 digit result
 - Enter, Summary

E. *Summary

- 1. Must scroll through entire list before continuing with data entry.
 - c. Use touch screen or keyboard arrows.
- 2. This is the only opportunity to correct the data just entered.
- 3. To make corrections, double tap on the information that needs correcting.
- 4. Make correction
- 5. Enter/Next
- 6. Continue review
- 7. If the information is correct, tap SAVE or tab to SAVE/Enter.

F. *Scan Operator Card

- 1. If “Yes” Enter/Next is selected, operator will be prompted to scan their permit card. Officer’s data will be entered into the database. Use Enter/Next to go through data. If the operator’s permit card is expired, instrument will not allow the test to continue. If the card does not scan properly it will ask to rescan.
- 2. If “No” is selected, enter data using touch screen or keyboard.
 - a. Operator last name – Enter/Next
 - b. Operator first name – Enter/Next

- c. Operator middle initial – Enter/Next
- d. Operator agency code – Enter/Next

3. Summary

- a. Review, Correct, Save

G. Subject's Ethnic Group

- 1. Drop down menu defaults to WHITE.
- 2. Touch screen, scroll to desired group, Enter/Next.
- 3. Keyboard, use arrow keys to highlight desired group, Enter/Next.

H. Subject's Driver License

- 1. Drop down menu defaults to "Other".
 - a. Touch screen, scroll to desired state, Enter/Next.
 - b. Keyboard, use arrows to scroll to desired state, Enter/Next.
- 2. If Washington is selected:
 - a. "Scan Subject's WA State Driver License?"
 - o Yes – Prompt to scan, scan license, Summary
 - o No – Prompt for Subject's information
- 3. If any selection other than Washington is selected, instrument will prompt for the following entries:
 - a. Subject last name – Enter/Next
 - b. Subject first name – Enter/Next
 - c. Subject middle initial – Enter/Next
 - d. Subject date of birth – Enter/Next
 - e. Subject gender – Enter/Next
 - f. Subject driver license number – Enter/Summary

I. Summary

- 4. Review, Correct, Save

J. *Ambient Air Check (Blank Test 0.000)

1. Air is drawn through breath tube to flush the sample chamber. If purge is successful, the final document will print at the end of the sequence with a blank test of 0.000. If the purge is unsuccessful, there are two possible messages. When either message is displayed, ensure that the ambient air is free of alcohol vapors. Error messages are:

a. Ambient Fail

- Following an Ambient Fail, the instrument will wait one minute and then prompt "Start new test with previously entered data?"
 - If "NO" is selected, instrument will go to "Ready".
 - If "YES" is selected, instrument will continue with the test sequence.
 - If no input is provided within one minute, instrument will time out and revert to "READY".

b. Blank Error

- Following a Blank Error, the instrument will wait one minute and then prompt "Start new test with previously entered data?"
 - If "NO" is selected, instrument will go to "Ready".
 - If "YES" is selected, instrument will continue with the test sequence.
 - If no input is provided within one minute, instrument will time out and revert to "READY".

K. *Internal Standard Check

1. If the check is satisfactory, the instrument will display "Internal Standard Verified".
2. If the check is unsuccessful, the instrument will display "Internal Standard Error".

L. *Please Blow

1. First subject breath sample. Subject has two minutes to provide a valid breath sample.
2. Place new mouthpiece in breath tube.

3. The flow rate of the subject blowing will be displayed on the upper half of the screen during the test.
4. The volume progress bar is below the "Please Blow" prompt and displays the volume of the sample as it is provided.
5. If the sample fails to meet sampling requirements, instrument will display "Take Breath" and return to the "PLEASE BLOW" prompt.
6. If sample meets sampling requirements, the following steps will occur:
 - a. "STOP" will appear on the display.
 - b. "REMOVE MOUTHPIECE" will then be displayed.

M. Ambient Air Check (Blank Test 0.000, same process as above previous Ambient air check).

N. *Dry Gas Check

1. An external standard sample is taken from one of the two dry gas cylinders in the enclosure behind the instrument.
2. The results must be between 0.072-0.088, inclusive, for the test to proceed.
3. If the results of the external standard are outside of stated tolerance, the instrument will abort the test and will display "Ext. Standard Failed", and place itself out of service. A technician must be notified and the subject must be taken to another instrument for processing.

O. Ambient Air Check (Same process as previous Ambient Air Check)

P. *Please Blow

1. Second subject breath sample. Subject has two minutes to provide a valid breath sample.
2. Place new mouthpiece in breath tube.
3. The flow rate of the subject blowing will be displayed on the upper half of the screen during the test.
4. The volume progress bar is below the "Please Blow" prompt and displays the volume of the sample as it is provided.
5. If the sample fails to meet sampling requirements, instrument will display "Take Breath" and return to the "PLEASE BLOW" prompt.
6. If sample meets sampling requirements, the following steps will occur:

- a. "STOP" will appear on the display.
- b. "REMOVE MOUTHPIECE" will then be displayed.

Q. Ambient Air Check (Same process as previous Ambient Air Check)

R. *Additional Information

- 1. STOP
- 2. Before data entry is completed you will be given two choices:
 - a. Continue – test will continue.
 - b. Cancel Test
 - o Continue – test will continue.
 - o Incomplete – Invalid Data Entry, Purging, NO breath test document will print.
- 3. After data entry is completed you will be given three choices:
 - a. Refusal – Please Wait - Printout
 - b. Incomplete – Please Wait - Printout
 - c. Continue

S. Copies of prior breath tests

- 4. Operator can at any time in the next 90 days return to the same instrument and reprint a breath test document.
 - d. Press the "REPRINT" box found in the lower right corner of the display.
 - o Use the touch screen to select "Search Text".
 - o The operator can type the case number, citation number, subject name or the officer's name in the box next to the search prompt, and then tap search box or tab, Enter. All possible sections will appear in a scroll down box. Tap the appropriate test to highlight or use the arrow keys.
 - o Save
 - o When the screen returns to Reprint Screen, tap "PRINT" or tab to Print, Enter.
 - o Press Cancel to return to Main Screen.

- T. Instrument will purge before returning to the Ready screen whenever a test is aborted.

5.2.11 *TROUBLESHOOTING

A. Ambient Fail, System Won't Zero

1. If messages appear on the display, restart the test.
2. To avoid this problem purge the instruments between classes and blow the moisture out of the simulator tubing.
3. If there is a recurring problem contact a Technician.

B. Printer and breath test document problems.

1. If a breath test document does print check printer for paper.
2. Push "Reprint" to find your test. If you are unable to reprint call WSP Communications with your case number and name to request a technician to reprint. No printing on breath test document – the ribbon may be worn or out of its track. Printer may be out of paper, paper jammed, or out of ink. Attempt to restore printer to full function. If unable to do so, call a technician. Once printer is restored, the prior test result will be available and may be printed, even if tests have been performed on the instrument since your test.

C. Invalid Sample

1. May be a result of improper sample delivery.
2. If this is a recurring problem, advise technician.

All other errors will cause instrument to put itself out of service. Advise WSP Communications and proceed to another instrument.

5.2.12 PRACTICAL

- A. *Review appropriate Training Outline for conducting a Breath Test Instrument Operator course.
- B. *Review all handouts.
- C. *Review Operator Exams in detail.
- D. Assign each student a section of the Training Outline for conducting a course of instruction in Infrared Breath Test Refresher training to teach in front of the class. (Approximately 20 minutes each)

- E. Critique each student and allow the class to comment.

5.2.13 *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. Operator and Refresher students must obtain 80% on their exams to pass.
- C. Be sure each student conducts an acceptable practical test on the Draeger Alcotest 9510.
- 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. **During the 90 day grace period the operator cannot administer any breath tests.**

5.2.14 *WRITTEN EXAMINATION

- A. Must obtain 80% on the instructor exam.
- B. If a student fails to score at least 80%, a review shall be conducted and the test retaken.

6.0 LIST OF CHANGES

o Section & Comments	o Date Approved	o Author/Reviewer
<ul style="list-style-type: none"> Original Manual created from TLD Manual: Reformatted title page, header & footer. Removed training chapter for TLD. Included List of Changes, to track chapter revisions. Total page count now appears in footer of List of Changes. 	<ul style="list-style-type: none"> 03/15/2013 	<ul style="list-style-type: none"> Black, et al./ Couper, Sharpe
<ul style="list-style-type: none"> Revision #001: incorporates the Draeger Alcotest 9510 breath test instrument. Refresher training is merged with the Operator Training and Technician Training Chapters. Nomenclature is standardized. A chapter specific to the Draeger instrument is added. Legal information has been updated. An interim chapter for training operators during the transition to the Draeger is added, which will be deleted when the transition is complete. Header and footer have been modified. 	<ul style="list-style-type: none"> 11/18/2014 	<ul style="list-style-type: none"> Denton, et al. /
<ul style="list-style-type: none"> Revision #002: removed and references to the Datamaster instruments (all terms and courses). Included both types of PBTs used. Update Implied Consent Warnings procedures. Removed "Special Evidence Warnings. Updated Blood Draw information. Updated sections on Draeger Principles of Operation and Chemical Principles. Removed section on printing DUI packets. Removed chapter on External Standard Changer Course and Draeger Transition Training. Added section on Instructor Requirements. 	<ul style="list-style-type: none"> 11/07/2018 	<ul style="list-style-type: none"> Maier, et al. / Sharpe, Couper, Lawrence
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