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Idaho State Police Forensic Services

# BREATH ALCOHOL CALIBRATION TRAINING MANUAL

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## Revision History

Revision #	Description of Changes
1	Original version implementation into Qualtrax template
2	Added sections 13, 14 and 15 for the Calibration Technical Specialist
3	Added sections 11.2.3, 11.2.4, 11.4.4, 11.4.5, 15.2.3 and 15.2.4. Changes were made to section 14.4.6
4	No Changes
5	Complete reorganization to include Modules 1,2 and 3.
6	Changes made to sections 2.2, 2.3, 14.2.2, 14.4.1, 14.4.3. Section # references changed throughout. Section #9 added.
7	Document reformatted to fix issues with Qualtrax PDF conversion. No technical content was changed.
8	Changes made to sections 6.4.1, 7.1.5, 7.4.1, 7.4.3, 8.1.4, 8.2.3, 8.4.1, 9.4.1, 9.4.2, 10.4.1, 12.5, 12.6.2, 13.5, 13.5.1, 13.6.2, 14.4.1, 14.4.3, 18.5.1.1

## 1.0 Introduction

- 1.1 The following training plan will cover the training of individuals within the Breath Alcohol Calibration Program for the Idaho State Police Forensic Services (ISPFS). This training plan should be taken in order of succession through Analytical Technician, Calibration Scientist, and then Breath Testing Expert. The trainee may work ahead in modules throughout the program but must complete the trainee levels in order of progression. Individuals may stop at any specific level throughout this program and pick up training at a later date, if qualified to continue. Each individual progressing through the program will be assigned a lead trainer for their training (or one for each level of their training) but may be trained by multiple qualified scientists within the discipline throughout their training with ISPFS.

## 2.0 Roles and Responsibilities

### **Laboratory or Section Supervisor**

- 2.1 The Supervisor in coordination with the Technical Lead, Trainer, and the Trainee will set up a schedule outlining expectations for the trainee and will then monitor the progress of the trainee upon obtaining authorization for the trainee to begin training in the discipline.

### **Technical Lead**

- 2.2 The Technical Lead (TL) will appoint a Trainer and monitor the trainee's progress through the training program. The TL will report to the Supervisor and Quality Manager any delays to the training schedule. The TL will be available to the trainer to answer any questions. The TL will review the graded results from the exercises, competency tests and mock courts.

### **Trainer**

- 2.3 The Trainer will provide the trainee with the materials necessary to complete training. Materials include but are not limited to samples, equipment and most importantly knowledge. The trainer will administer the exercises from the training plan, proctor the tests, and oversee the administration of the competency tests of the trainee. Grading will be done in conjunction with the TL. The trainer will keep the TL up to date on the progress of the trainee.

### **Trainee**

- 2.4 In order to get the most out of this training, it is important for trainees to realize that the information provided through this manual is only a portion of what will be needed in order to not only become proficient but also to become a productive member of the team. It is incumbent on the trainee to utilize not only the information presented but also knowledge learned in school and/or from previous work experience. The use of outside sources of information is encouraged as are questions.

# Module 1 – Analytical Technician

## 3.0 Core Training

- 3.1 Background and TheoryCore training is essential for the new trainee to understand how the different disciplines work together in the analysis of a case.
  - 3.1.2 Understanding the basic functionality of the forensic lab system is good general knowledge.
- 3.2 Objectives, Principles, and Knowledge
  - 3.2.1 The objective of the core training is to attain an overall understanding of the different areas of the forensic laboratory system and how they all work in unison to process evidence through the system, provide timely results, and maintain transparency to the public and court system.
  - 3.2.2 If the Trainee has been previously trained in another discipline and has completed core training in another discipline, then this section can be signed off by the lead trainer at the beginning of the training program with the notation “previously completed” (or similar).
  - 3.2.3 The trainee will still be responsible for the health and safety requirements that are referred to by other sections of this training plan and other information contained within the core training of this training plan.
- 3.3 Health and Safety Hazards
  - 3.3.1 The Discipline requires the handling of compressed, flammable gases. These gases should be stored in areas that are not subject to extreme temperatures. The cylinders should be stored in a manner so as to protect them from rupture.
  - 3.3.2 The trainee should also follow the Health and Safety Manual when handling volatile, flammable, acidic or caustic substances as may be required within the discipline.
- 3.4 Reading and Practical Exercises
  - 3.4.1 The trainee should complete the core training as described within the quality manual during their training.
  - 3.4.2 It is not an absolute requirement that the core training be completed prior to the assumption of casework, but it is

recommended to avoid any delays in the full completion and sign off on the training plan with the discipline.

- 3.4.3 The trainee will be required to pass the ISP yearly ethical training exercise prior to assuming work within the discipline.

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## 4.0 Instrument Handling and Storage

### Background and theory

- 4.1 Evidence and instrumentation need to be handled and stored in order to preserve the integrity of the samples and prolong the instruments condition. There are several factors that can contribute to the potential degradation of a sample or an instrument's condition. Recognizing these issues, their potential for harm, and the potential detrimental effect that they could have on the evidence and instrument are paramount to understanding the handling and preservation of the evidence and instrumentation.

### Objectives, Principles, and Knowledge

- 4.2 The Trainee should, upon completion of these sections, understand the issues and hazards associated with the handling of evidence and instruments within the laboratory. This includes the potential long term storage concerns and the issues that may present themselves should the samples or instruments be subject to conditions that fall outside the prescribed guidelines.

### Health and Safety Hazards

- 4.3 This section is covered in section 3.3 of this training manual.

### 4.4 Reading and Practical Exercises

- 4.4.1 Describe the procedures followed for the intake and transfer of instruments specifically submitted for calibration.
- 4.4.2 Describe the IDAPA 11.03.01 requirements for breath alcohol testing and calibration.
- 4.4.3 List the AM requirements for the transportation of dry gas cylinders for field use, and what requirements are necessary if the gases do not meet those requirements.



## 5.0 Breath Alcohol Training Program

### 5.1 Background and theory

- 5.1.1 The breath alcohol Analytical Technician will need to be familiar with the instrumentation and the training program associated with the instruments used within The State of Idaho.
- 5.1.2 Familiarity with the online training and the training portal is needed to help officers to document the instrument maintenance, and to assist officers with navigating the training program.

### 5.2 Objectives, Principles, and Knowledge

- 5.2.1 The objective of this section is to become familiar with the training program and the online documentation of the BTS/BTO program.
- 5.2.2 Knowing the training program information will allow the trainee to provide firsthand service to individuals that require help with certification and recertification.

### 5.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 5.4 Reading and Practical Exercises

- 5.4.1 Trainee shall register, take and pass the BTS training course for each instrument in use within The State of Idaho for breath alcohol testing.
- 5.4.2 Read the Breath Alcohol SOP and know the certification requirements for officers for evidential breath testing.

## 6.0 Solution Preparation and Authentication

### 6.1 Background and Theory

6.1.1 Preparing a solution of known concentration is perhaps the most common activity in any analytical lab. The method for measuring out the solute and solvent depend on the desired concentration unit and how exact the solution's concentration needs to be known. Pipettes and volumetric flasks are used when a solution's concentration must be exact; graduated cylinders, beakers and reagent bottles suffice when concentrations need only be approximate.

### 6.2 Objectives, Principles, and Knowledge

- 6.2.1 Demonstrate an ability to prepare, and record the preparation of, solutions required in the analysis of alcohol and other volatiles. This includes how to operate the top-loading balance and pipettes.
- 6.2.2 As it pertains to the liquid simulator solutions used within the discipline, this module is not required. The simulator solution authentication is covered solely within the blood alcohol analytical method, but familiarity with the process is recommended.
- 6.2.3 Knowledge of the simulators, their maintenance and quality control procedures is also required material for the trainee.

### 6.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 6.4 Reading and Practical Exercises

- 6.4.1 Maintaining a knowledge base within the discipline is an ongoing process. There is an appendix provided with suggested reading materials that cover the discipline, with many of the treatises covering multiple topics and sections. The discipline also maintains an ongoing and continually updated technical library. This will be referenced in the appendix as well. Refer to this for citations and references to support the answers to the exercises within this training manual.
- 6.4.2 Demonstrate an ability to prepare and record the preparation of solutions required in the analysis and calibration of breath alcohol instruments.

- 6.4.3 The trainee will be familiar with the documentation and authentication process of the simulator solutions used within the discipline. This does not pertain to the actual analysis, but to the process that the laboratory goes through to acquire and authenticate the solutions, produce the approvals, and document/propagate the approval of the solutions throughout the state.
- 6.4.4 The trainee will prepare documentation for monitoring the simulator solutions and simulator temperature results during the calibration process.
- 6.4.5 The trainee shall work with another analyst to become proficient in the process of checking and adjusting the temperatures of the simulators in accordance with the analytical methods of the breath testing program.
- 6.4.6 Cleaning and sanitizing the simulators according to the manufacturer's guidelines will be necessary for the trainee to become familiar with as part of the BrAC QA/QC process within the discipline.

## 7.0 Instrument Calibration Requirements

### 7.1 Background and Theory

- 7.1.1 Calibration in measurement technology and metrology is the comparison of measurement values delivered by a device under test with those of a calibration standard of known accuracy. Such a standard could be another measurement device of known accuracy, a device generating the quantity to be measured such as a voltage, or a physical artefact, such as a meter ruler.
- 7.1.2 The outcome of the comparison can result in no significant error being noted on the device under test, a significant error being noted but no adjustment made, or an adjustment made to correct the error to an acceptable level. Strictly, the term calibration means just the act of comparison, and does not include any subsequent adjustment.
- 7.1.3 The formal definition of calibration by the International Bureau of Weights and Measures (BIPM) is the following: "Operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties (of the calibrated instrument or secondary standard) and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication."
- 7.1.4 This definition states that the calibration process is purely a comparison, but introduces the concept of measurement uncertainty (UM) in relating the accuracies of the device under test and the standard.
- 7.1.5 To improve the quality of the calibration and have the results accepted by outside organizations it is desirable for the calibration and subsequent measurements to be "traceable" to the internationally defined measurement units. Establishing traceability is accomplished by a formal comparison to a standard which is directly or indirectly related to national standards (such as NIST in the USA), international standards, or certified reference materials (CRMs). This may be done by national standards laboratories operated by the government or by private firms offering metrology services.

- 7.1.6 Instrument calibration is one of the primary processes used to maintain instrument accuracy.
- 7.2 Objectives, Principles, and Knowledge
  - 7.2.1 The Analyst in Training must have a comprehensive knowledge in the process in which the instrument obtains certification and calibration within The State of Idaho.
- 7.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.
- 7.4 Reading and Practical Exercises
  - 7.4.1 Maintaining a knowledge base within the discipline is an ongoing process. There is an appendix provided with suggested reading materials that cover the discipline, but the Analytical Technician will be responsible for the rules and regulations contained within IDAPA 11.03.01 as well as the Breath Alcohol SOP for instrument certification and maintenance.
  - 7.4.2 The trainee will work with a trained analyst to become proficient and trained to complete the maintenance tasks associated with the annual barometric pressure maintenance checks of the EasyCal gas delivery systems used with the Lifeloc instruments.
  - 7.4.3 The trainee will certify and document the completion of no less than 10 barometric pressure checks (completed as hands of the analyst casework for the EasyCal unit) prior to being signed off to perform supervised casework.

## 8.0 Analytical Technician Competency Testing and Mock Court

### 8.1 Background and Theory

- 8.1.1 Competency testing assesses the performance of an individual for performing analysis within a specific discipline and measures their competency in the application of that knowledge to effectively perform their duties.
- 8.1.2 Competency testing is the process of analyzing an unknown sample provided to the trainee and obtaining the correct results from analysis. The results are known by the trainer, who is responsible for providing the sample.
- 8.1.3 Competency is measured in a more abstract sense, in that it is a comprehensive testing of both the analytical capabilities of the analyst, but also the application of the knowledge base obtained through training to their interpretation and testimony about their analysis.
- 8.1.4 The competency test will also consist of a mock certification of an EasyCal unit.

### 8.2 Objectives, Principles, and Knowledge

- 8.2.1 This section may begin upon the completion of sections 4-7.
- 8.2.2 The analyst is expected to complete a comprehensive written competency test.
- 8.2.3 Passing is required with 100% accuracy.
  - 8.2.3.1 If the initial attempt at completing the competency test is not successful, further training and attempts may be undertaken at the discretion of the Supervisor, Technical Lead, Trainer and Trainee, or a combination of the aforementioned individuals.
- 8.2.4 Upon completion of the written competency exam, the trainee shall pass a mock court examination. This shall test the trainee's ability to understand and convey their knowledge in a court of law. This will also allow the trainee to understand the limits of their testimony as a technician and when to defer to Calibration Scientists and Breath Testing Experts.
  - 8.2.4.1 Should the trainee fail to pass the mock court, further training may be provided, and another attempt may be given at the discretion of the Supervisor, Technical Lead,

Trainer and Trainee, or a combination of the  
aforementioned individuals.

### 8.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 8.4 Reading and Practical Exercises

- 8.4.1 Maintaining a knowledge base within the discipline is an ongoing process. The Analytical Technician will be responsible for the rules contained within IDAPA 11.03.01 as well as the Breath Alcohol SOP for instrument certification and maintenance. Refer to these citations and other provided references to support the answers to the competency exam.
- 8.4.2 The Analyst in Training must describe how instrument records are maintained.
- 8.4.3 The trainee must be able to demonstrate what steps are to be taken if an instrument fails calibration and needs repair.
- 8.4.4 At the discretion of the Trainer, trainee, supervisor and technical lead, the trainee will be provided with a competency test for each instrument they are being competency tested to provide services.
- 8.4.5 Courtroom testimony training will consist of a series of mini-mock court sessions with other analysts that will cover aspects of Criminal Law, Civil Law, and all aspects of courtroom testimony.
  - 8.4.5.1 The mock court sessions should cover areas of maintenance and the technical aspects of the instrument. They should also provide the trainee with a clear picture of the limits of their testimony.
  - 8.4.5.2 The mock court shall cover areas of relevant Idaho Code §18-8002, §18-8004 and Administrative Rules 11.03.01, presentation of evidence in court, courtroom demeanor, appearance, and the role that the forensic scientist play within the criminal justice system.
- 8.4.6 Final signatures from the completed training plan for Module 1 will be reviewed by the trainee with the lead trainer and TL for thoroughness and to complete any missing components and clear up and deviations that may have been granted during training. The final report will be submitted, the trainee will be presented for approval as an Analytical Technician and authorized to

perform all duties as such within the Breath Alcohol sub-discipline of The Toxicology-Alcohol Discipline upon announcement from the Quality Manager.

8.5 Continuing Education

8.5.1 Upon completion of the training module 1, it is the responsibility of the analyst to maintain their knowledge base and keep current within the discipline. This can be accomplished through the regular reading of journal articles, through online training, or attendance at relevant conferences (IACT, SOFT, AAFS, etc.).

8.6 Retraining

8.6.1 If at any time after completion of the training plan, the analyst fails a proficiency test or part there-of, they shall, at the direction of the TL, retake the module in part or in whole. This process shall be undertaken as part of the retraining process for analysts if it is deemed necessary for this, or any other reason as part of a QAR protocol.



## 9.0 EasyCal Certification and Review training

### 9.1 Background and Theory

- 9.1.1 In order to certify an EasyCal system, any analyst must utilize the standardized Analytical Method. Upon completion of the training program and mock court, the trainee should possess all the skills to produce consistent results and analytical technique. Through the application of supervised case sample analysis, a new trainee may perfect these skills so that they increase their efficiency in sample analysis. Through repetition, the analyst will gain a standardized practice for their unique technique that they can utilize with every case.

### 9.2 Objectives, Principles, and Knowledge

- 9.2.1 Upon completion of the mock court and all applicable training, the trainer will submit all the completed training paperwork to the TL. The TL will then submit the trainee for approval and release to start supervised casework. Upon approval from the Quality Manager, the trainee (now Analytical Technician) will begin instrument calibration under the supervision of the trainer.

### 9.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 9.4 Reading and Practical Exercises

- 9.4.1 Supervised EasyCal Certifications: Instruments will be checked out by the trainee while supervised by the trainer.
- 9.4.1.1 Instruments will be certified, under supervision, in accordance with the analytical method.
- 9.4.1.2 The Trainee/Analyst will complete at least one instrument under supervision.
- 9.4.1.3 Documentation of the instruments will be kept in the trainee's electronic file by instrument serial number.
- 9.4.2 When the trainer is comfortable with the trainee's technique and skill, the trainee may be signed off for independent EasyCal certification casework.

9.4.3 When the trainee is conducting independent work, they can begin their peer-review training of completed certifications.

9.4.3.1 The trainee shall pre-review no less than 5 EasyCals (if no prior review training has been conducted).

9.4.3.2 If the trainee has prior review experience in another discipline, they only need to pre-review 2 EasyCals.

9.5 Upon the completion of all parts of this section, the Lead Trainer, in conjunction with the TL, will complete documentation of the Analytical Technicians reviewed casework. That information will be forwarded to the Quality Manager for approval and recommendation that the Analytical Technician be granted review privileges within the ILIMS system for EasyCal units.

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# Module 2 – Calibration Scientist

## 10.0 Reference Materials and Certified Reference Materials

### 10.1 Background and Theory

10.1.1 An instrument is used to measure. Depending upon its calibration, that measurement can be extremely accurate and precise, or it can be inexact and inconsistent. The process of calibrating the instrument dictates how well the instrument will perform and ultimately provides a measure of the instruments results. This is referred to as the instruments Uncertainty of Measurement (UM). During the development of the calibration process, the Uncertainty of Measurement variables are considered, calculated, and processed as part of the reported UM. The UM is given in the same units as the reporting instrument and is expressed as an unbiased (+/-) number regardless of the calculated bias of the actual variable entered into the equation.

### 10.2 Objectives, Principles, and Knowledge

10.2.1 Knowledge of the Analytical method and certification process of the reference materials with the volatiles analysis discipline.

10.2.2 Understanding of the 17034 guidelines for producing certified reference standards and knowledge of the Uncertainty of measurements associated with the reference standards used for calibration of instruments.

10.2.3 The trainee shall understand the process of equilibration of the dry gas standards and the physical properties of the gases as it pertains to changes in barometric pressure, temperature and other aspects of the ideal gas law.

10.2.4 The trainee shall understand the Beer's Lambert law, Henry's law and other applicable laws utilized within the calibration of the instruments to explain the science behind breath testing and instrumental analysis of alcohol within test samples and simulated test samples.

### 10.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

## 10.4 Reading and Practical Exercises

- 10.4.1 Maintaining a knowledge base within the discipline is an ongoing process. There is an appendix provided with suggested reading materials that cover the discipline, with many of the treatises covering multiple topics and sections. The discipline also maintains an ongoing and continually updated technical library.
- 10.4.2 Blood Alcohol Analytical Method #1 and #2
- 10.4.3 Questions provided by the lead trainer.
- 10.4.4 Simulator Manuals for Guth 12v500 model, Model 2100, and other models in use with the ISPFS lab system.
- 10.4.5 Understanding of Statistics and UM calculations as well as the associated uncertainties of the variables with the overall uncertainty calculation and bias of each variable.
- 10.4.6 Prepare the following solutions below (in the presence of a trainer) and document the appropriate lot/bottle numbers and expiration dates. Also explain how each solution meets the technical requirement for use in breath instrument calibration (or certification?).
  - Ethanol wet bath solution (0.080 w/v)
  - Methanol wet bath solution (0.100 v/v)
  - Ethanol dry gas solution (0.160 cylinder)
- 10.4.7 Maintaining current knowledge with legal holdings from Idaho District, Appellate and I.S.S.C. rulings as they pertain to the breath testing, breath testing instruments, and uncertainty of measurement within The State of Idaho. (eg. State v Longhofer, State v Nichols, State v Elias Cruz, State v Tomlinson, etc.)
- 10.4.8 Attend Instrument Factory training (when available)
  - 10.4.8.1 These criteria are not necessary for completion of Module 2 but is highly desirable to attend when first available whenever possible for the trainee.

## 11.0 Case Record Preparation

### 11.1 Background and Theory

- 11.1.1 Documentation is one of the pillars of the scientific community as well as the forensic world.
- 11.1.2 The documentation requirements set forth in this discipline are derived from the international ISO 17025 standards, as well as the ISPFS quality manual.

### 11.2 Objectives, Principles, and Knowledge

- 11.2.1 The analyst must know that standards of documentation for case records as it pertains to all aspects of the discipline. From technical records, administrative records, authentication data, and batch analytical records, the analyst must understand the requirements and importance of each, as well as the potential for changes in their retention policies.
- 11.2.2 The analyst must be familiar with the electronic LIMS used within the laboratory and the methods of preserving the records within the discipline.

### 11.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 11.4 Reading and Practical Exercises

The trainee will be required to compete all of the following as part of this section:

- 11.4.1 Describe which documents, data and completed information is required to be included in an instrument calibration case record.
- 11.4.2 Describe the worksheets and data that are to be compiled for a centrally stored QA file for each instrument calibration.
- 11.4.3 Describe requirements for administrative and technical review of calibration certificates.
- 11.4.4 The Analyst in Training should work closely with the trainer and witness review duties while in training in order to familiarize themselves with the administrative and technical review documentation and review process.
- 11.4.5 Administrative and Technical review competency testing will be covered in a future section, and the sign off for 'technical review of casework' will occur later.

## 12.0 Lifeloc FC-20 Calibration Procedure

### 12.1 Background and Theory

- 12.1.1 Calibration in measurement technology and metrology is the comparison of measurement values delivered by a device under test with those of a calibration standard of known accuracy. Such a standard could be another measurement device of known accuracy, a device generating the quantity to be measured such as a voltage, or a physical artifact, such as a meter ruler.
- 12.1.2 The outcome of the comparison can result in no significant error being noted on the device under test, a significant error being noted but no adjustment made, or an adjustment made to correct the error to an acceptable level. Strictly, the term calibration means just the act of comparison, and does not include any subsequent adjustment.
- 12.1.3 The formal definition of calibration by the International Bureau of Weights and Measures (BIPM) is the following: "Operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties (of the calibrated instrument or secondary standard) and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication."
- 12.1.4 This definition states that the calibration process is purely a comparison but introduces the concept of measurement uncertainty (UM) in relating the accuracies of the device under test and the standard.
- 12.1.5 To improve the quality of the calibration and have the results accepted by outside organizations it is desirable for the calibration and subsequent measurements to be "traceable" to the internationally defined measurement units. Establishing traceability is accomplished by a formal comparison to a standard which is directly or indirectly related to national standards (such as NIST in the USA), international standards, or certified reference materials. This may be done by national standards laboratories operated by the government or by private firms offering metrology services.
- 12.1.6 Instrument calibration is one of the primary processes used to maintain instrument accuracy.

## 12.2 Objectives, Principles, and Knowledge

- 12.2.1 The Analyst in Training must have knowledge in regard to the principles of instrument calibration.
- 12.2.2 Full understanding of the instrument, its underlying technology, its software, the evidential testing sequence, and the safeguards in place for sample selection and sample consistency.
- 12.2.3 At the completion of this section the trainee should be fully competent in the calibration of the portable instrument, the dry gas delivery systems, all other underlying instrumentation, and systems utilized in the calibration process and explaining the overall process of calibration in general as well as the specific process utilized by ISPFS in the calibration of the portable evidential breath testing units.

## 12.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

## 12.4 Reading and Practical Exercises

**Lifeloc FC20:** The trainee shall complete all the following exercises during their training program unless otherwise noted by their lead trainer.

- 12.4.1 Must be familiar with the documentation provided on the ISP website, where to find manuals, manufacturer's manuals, and reference guides available to the public, as well as where to locate records for the FC20 instrument calibrations.
- 12.4.2 Possess a working knowledge of the theory and inner workings of the Lifeloc FC20.
- 12.4.3 Must know and understand BRALC AM 2.0.
- 12.4.4 The Analyst in Training must demonstrate their ability to calibrate the Lifeloc FC20 series of instruments.
- 12.4.5 Demonstrate their ability to utilize the EASYCAL® dry gas system for calibration of Lifeloc FC20 series of instruments.
- 12.4.6 The Analyst in Training must demonstrate their ability to perform software updates and modifications to the FC20 software and programming parameters utilizing vendor provided software and tools.
- 12.4.7 Suggested Reading (relevant pages from other editions of the following references may be substituted)

- 1. Lifeloc FC20 reference manual
- 2. EASYCAL® users guide and reference manual.

12.5 Hands of the Analyst Calibrations:

The trainee shall engage in hands of the analyst (HOA) training for instrument calibration.

12.5.1 This shall be documented via serial numbers of the instruments calibrated, and the number of instruments is at the discretion of the trainer but cannot be less than 15 Lifeloc FC20's.

12.5.2 The trainer should thoroughly explain the steps that are necessary and/or required during the process.

12.5.3 The trainee's participation in any of the calibrations will be noted on the instrument Certificate.

12.6 Competency test:

12.6.1 The trainee shall be provided with a written and practical exam (calibration instrument) from their lead trainer.

12.6.2 The test will be a written examination and a score of 100% or greater will be required to pass. The test is open book and open note and shall cover all portions of module 2-section 12.

12.6.3 The instrument shall be an instrument that is out of calibration and its current state of calibration (as received values) are known to the lead trainer.

12.6.4 The trainee will be provided with the instrument and will be responsible for calibration of the instrument to within ISPFs AM specifications.

12.6.5 The trainee is expected to complete the test without errors in reporting on the certificate and with the correct UM reported.

12.7 Mock Court

12.7.1 The trainee shall engage in a formal mock court about instrument calibration.

12.7.2 Roles and Responsibilities:

12.7.2.1 The lead trainer will be the prosecutor

12.7.2.2 The Technical Lead will be the judge (unless the TL was the lead trainer), then the Quality manager will maintain the role of the judge.

12.7.2.3 Other qualified members of ISPFs that are familiar with breath testing testimony may volunteer as defense council and may solicit questions from other analysts at their discretion.



- 12.7.3 The mock court should test the trainee's knowledge on the calibration process, UM, and some fundamentals of the breath testing process.
- 12.7.4 The mock court should also place a strong focus on the line between calibration scientist and breath testing expert.
- 12.7.4.1 The mock court shall cover areas of relevant Idaho Code §18-8002, §18-8004 and Administrative Rules 11.03.01, presentation of evidence in court, courtroom demeanor, appearance, and the role that the forensic scientist play within the criminal justice system.
- 12.7.5 Upon completion of the mock court process, all parties involved in the training of the trainee will provide their positive feedback to the trainee. No criticism, critiques, or scoring will be provided at this time.
- 12.7.6 The Lead Trainer and other named evaluators (provided by the lead trainer) will provide their feedback and the lead trainer will make the decision along with the Technical Lead as to whether the trainee has passed the final mock trial process and will be signed off for supervised casework.
- 12.7.7 Final signatures from the completed training plan for Module 2 – FC20 will be reviewed by the trainee with the lead trainer and TL for thoroughness and to complete any missing components and clear up any deviations that may have been granted during training. The final report will be submitted, the trainee will be presented for approval as a Calibration Scientist–FC20 and authorized to perform all duties as such within the Breath Alcohol sub-discipline of The Toxicology-Alcohol Discipline upon announcement from the Quality Manager.
- 12.7.7.1 Completion of Section 12.7.7 will only allow the Calibration Scientist to perform supervised casework, until the completion of Section 14 of this training module.

## 13.0 Dräger Alcotest 9510 Calibration Procedure

### 13.1 Background and Theory

- 13.1.1 Calibration in measurement technology and metrology is the comparison of measurement values delivered by a device under test with those of a calibration standard of known accuracy. Such a standard could be another measurement device of known accuracy, a device generating the quantity to be measured such as a voltage, or a physical artifact, such as a meter ruler.
- 13.1.2 The outcome of the comparison can result in no significant error being noted on the device under test, a significant error being noted but no adjustment made, or an adjustment made to correct the error to an acceptable level. Strictly, the term calibration means just the act of comparison, and does not include any subsequent adjustment.
- 13.1.3 The formal definition of calibration by the International Bureau of Weights and Measures (BIPM) is the following: "Operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties (of the calibrated instrument or secondary standard) and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication."
- 13.1.4 This definition states that the calibration process is purely a comparison but introduces the concept of measurement uncertainty (UM) in relating the accuracies of the device under test and the standard.
- 13.1.5 To improve the quality of the calibration and have the results accepted by outside organizations it is desirable for the calibration and subsequent measurements to be "traceable" to the internationally defined measurement units. Establishing traceability is accomplished by a formal comparison to a standard which is directly or indirectly related to national standards (such as NIST in the USA), international standards, or certified reference materials. This may be done by national standards laboratories operated by the government or by private firms offering metrology services
- 13.1.6 Instrument calibration is one of the primary processes used to maintain instrument accuracy.

### 13.2 Objectives, Principles, and Knowledge

- 13.2.1 The Analyst in Training must have knowledge in regard to the principles of instrument calibration.
- 13.2.2 Full understanding of the instrument its underlying technology, its software, the evidential testing sequence, and the safeguards in place for sample selection and sample consistency.
- 13.2.3 At the completion of this section the trainee should be fully competent in the calibration of the benchtop instrument, all other underlying instrumentation and systems utilized in the calibration process and explaining the overall process of calibration in general as well as the specific process utilized by ISPFS in the calibration of the benchtop evidential breath testing units.

### 13.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 13.4 Reading and Practical Exercises

**Dräger 9510:** The trainee shall complete all the following exercises during their training program unless otherwise noted by their lead trainer.

- 13.4.1 Possess a working knowledge of the theory and inner workings of the Dräger 9510.
- 13.4.2 Be familiar with BRALC AM 5.0.
- 13.4.3 Demonstrate their ability to calibrate the Dräger 9510 series of instruments.

- 13.4.3.1 This shall include the setup and implementation of instruments when units are replaced in the field.

- 13.4.4 Suggested Reading (relevant pages from other editions of the following references may be substituted)

- 13.4.4.1 Dräger 9510 technical reference manual
  - 13.4.4.2 Dräger 9510 Users guide

### 13.5 Hands of the Analyst calibrations:

- 13.5.1 During training for each instrument, the trainee shall engage in hands of the analyst (HOA) training for calibration.
- 13.5.2 This shall be documented via serial numbers of the instruments calibrated, and the number of instruments is at the discretion of the trainer but cannot be less than 3 Dräger 9510

- 13.5.3 The trainer should thoroughly explain the steps that are necessary and/or required during the process.
- 13.5.4 The trainee's participation in any of the calibrations will be noted on the instrument Certificate.
- 13.6 Competency test:
  - 13.6.1 The trainee shall be provided with a written and practical exam (calibration instrument) from their lead trainer.
  - 13.6.2 The test will be a written examination and a score of 100% or greater will be required to pass. The test is open book and open note and shall cover all portions of module 2-section 13.
  - 13.6.3 The instrument shall be an instrument that is out of calibration and its current state of calibration (as received values) are known to the lead trainer.
  - 13.6.4 The trainee will be provided with the instrument and will be responsible for calibration of the instrument to within ISPFS AM specifications.
  - 13.6.5 The trainee is expected to complete the test without errors in reporting on the certificate and with the correct UM reported.
- 13.7 Mock Court
  - 13.7.1 The trainee shall engage in a formal mock court on the subject of instrument calibration.
  - 13.7.2 Roles and Responsibilities:
    - 13.7.2.1 The lead trainer will be the prosecutor
    - 13.7.2.2 The Technical Lead will be the judge (unless the TL was the lead trainer), then the Quality manager will maintain the role of the judge.
    - 13.7.2.3 Other qualified members of ISPFS that are familiar with breath testing testimony may volunteer as defense council and may solicit questions from other analysts at their discretion.
  - 13.7.3 The mock court should test the trainee's knowledge on the calibration process, UM, and some fundamentals of the breath testing process.
  - 13.7.4 The mock court should also place a strong focus on the line between calibration scientist and breath testing expert.
  - 13.7.5 Upon completion of the mock court process, all parties involved in the training of the trainee will provide their positive feedback to

the trainee. No criticism, critiques, or scoring will be provided at this time.

13.7.6 The Lead Trainer and other named evaluators (provided by the lead trainer) will provide their feedback and the lead trainer will make the decision along with the Technical Lead as to whether the trainee has passed the final mock trial process and will be signed off for supervised casework.

13.7.7 Final signatures from the completed training plan for Module 2- Dräger 9510 will be reviewed by the trainee with the lead trainer and TL for thoroughness and to complete any missing components and clear up and deviations that may have been granted during training. The final report will be submitted, the trainee will be presented for approval as a Calibration Scientist- Dräger 9510 and authorized to perform all duties as such within the Breath Alcohol sub-discipline of The Toxicology-Alcohol Discipline upon announcement from the Quality Manager.

13.7.7.1 Section 13.7.7 will allow the Calibration Scientist only to perform supervised casework and technical reviews, until the completion of section 14 of this training module.

## 14.0 Supervised Casework, Tech review training and sign off.

### 14.1 Background and Theory

- 14.1.1 Upon completion of competency training in an instrument platform, the trainee will enter a period of supervised casework and then tech review training.
- 14.1.2 The trainee needs to understand and work through a period of supervised casework prior to being signed off for full independent calibration casework.
- 14.1.3 Knowledge and experience in the certificate writing process is sometimes needed and required to see issues in the process itself.

### 14.2 Objectives, Principles, and Knowledge

- 14.2.1 The analyst will be required to perform casework that is reviewed by another competent calibration scientist.
- 14.2.2 Upon completion of the supervised casework, the calibration scientist will then enter a period in which they will perform technical review training, on an independent and reviewed basis.

### 14.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 14.4 Reading and Practical Exercises

- 14.4.1 Completion of no less than 5 supervised instrument calibrations for the portable instruments and 1 of the benchtop instruments will be required.
- 14.4.2 Documentation of the instruments will be kept in the trainee's electronic file by instrument serial number.
- 14.4.3 Technical review of certificates will be no less than 15 instrument certificates. The lead trainer (or TL) shall try to have a variety of instruments reviewed.
- 14.4.4 Retain a copy of the case numbers within this section.
- 14.4.5 Authorization for each instrument will be documented separately upon the completion of the corresponding training plan section within Module 2-(Lifeloc and Dräger 9510) and will be reviewed by the trainee with the lead trainer and TL for thoroughness. Any missing components or deviations that may have been granted during training will be cleared up or addressed at that time. The final report will be submitted, the trainee will be presented for

approval as a Calibration Scientist and authorized to perform all duties as such within the Breath Alcohol sub-discipline of The Toxicology-Alcohol Discipline upon announcement from the Quality Manager.

14.5 Continuing Education

14.5.1 Upon completion of the training module 2, it is the responsibility of the analyst to maintain their knowledge base and keep current within the discipline. This can be accomplished through the regular reading of journal articles, through online training, or attendance at relevant conferences (IACT, SOFT, AAFS, etc.).

14.6 Retraining

14.6.1 If at any time after completion of the training plan, the analyst fails a proficiency test or part there-of, they shall, at the direction of the TL, retake the module in part or in whole. This process shall be undertaken as part of the retraining process for analysts if it is deemed necessary for this, or any other reason as part of a QAR protocol.

14.7 Upon the completion of all parts of this section, the Lead Trainer, in conjunction with the TL, will complete documentation of the Calibration Scientist's reviewed casework. That information will be forwarded to the Quality Manager for approval and recommendation that the Calibration Scientist be granted review privileges within the ILIMS system for Evidential Breath Testing Instruments.

# Module 3 – Breath Alcohol Testing Expert

## 15.0 Comprehensive Course on Alcohol Testing

### 15.1 Background and Theory

- 15.1.1 The volatiles analysis discipline is much like many of the other discipline within forensics, in that it is highly technical, and specialized.
- 15.1.2 The discipline is also historically one of the most litigious and contentious in court.
- 15.1.3 The ever-changing environment as it pertains to the testing of volatile impairing substances requires the discipline to remain diligent in its acquisition of current and applicable knowledge and not stagnate.
- 15.1.4 By sending all new trainees to a national comprehensive course on alcohol testing, the acquisition of new knowledge pertinent to the discipline can be assured.

### 15.2 Objectives, Principles, and Knowledge

- 15.2.1 The trainee should attend and pass a nationally recognized comprehensive course on alcohol testing.
- 15.2.2 Upon return from the course, it is the trainee's responsibility to disseminate any newly acquired knowledge or novel concepts throughout the discipline.
- 15.2.3 Through this regular practice, the trainee and the discipline in general can remain current in the knowledge of any new trends that may be occurring outside the borders of our state, but still of importance to our state.

### 15.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 15.4 Reading and Practical Exercise

- 15.4.1 Upon being approved in Breath Alcohol Calibration Training, the Trainee's Supervisor, along with the Lead Trainer and Technical Lead, will coordinate and schedule the trainee's registration and attendance at a nationally recognized comprehensive course on Alcohol Testing and Breath Alcohol Analysis.



- 15.4.2 During the training, the Lead Trainer, Trainee's Supervisor, and Technical Lead will also coordinate scheduling the trainee to attend the POST Academy DUI training and SFSTs (classroom portions), POST DRE Academy (Classroom), and Factory Training for the breath testing instruments. These trainings are not an absolute requirement for completion of Module 3 but recommended as continuing education within the Breath Testing Expert section.
- 15.4.3 Should the trainee come from a discipline with cross training in alcohol physiology and instrumental analysis, it is at the discretion of the Technical Lead as to what additional courses the trainee will be required to attend, in lieu of the requirements from section 15.4.1
- 15.4.4 Should the trainee already have attended a nationally recognized course on Alcohol Testing and Breath Alcohol Analysis, the trainee may be signed off on this section by their lead trainer upon confirmation of passing the course and documentation within their training records.

## 16.0 Breath Alcohol Analysis Standard Operating Procedure

### 16.1 Background and Theory

- 16.1.1 A standard operating procedure, or SOP, is a set of step-by-step instructions compiled by an organization to help workers carry out routine operations. SOPs aim to achieve efficiency, quality output and uniformity of performance, while reducing miscommunication and failure to comply with industry regulations.
- 16.1.2 The standardization of procedures is not a new or novel concept to the breath alcohol world, and dates back centuries. The National Safety Council has been issuing recommendations for the standardization of breath testing programs, and much of today's modern programs can trace their standard to these offerings.

### 16.2 Objectives, Principles, and Knowledge

- 16.2.1 The thorough understanding of the procedure and what each part of the SOP is for is crucial.
- 16.2.2 Violations of the SOP will necessitate interpretation of the scientific validity of the results.
- 16.2.3 Understanding every aspect of the procedure, and how they work in harmony with each other to produce reliable results is crucial to the discipline.
- 16.2.4 At the completion of this section the Calibration Scientist should be capable of teaching POST academy breath testing operator and specialist classes, providing proficiency testing for BTO and BTS applicants, and updating certification dates for officers within the ISP training program.
  - 16.2.4.1 BTO/BTS Proficiency Testing Criteria: When providing proficiency testing for a BTS, the Breath Testing Expert shall challenge the BTO/BTS' knowledge of the instrument, its function, and the application of the SOP utilizing a single DUI scenario or multiple DUI scenarios.
  - 16.2.4.2 The breath testing expert shall cover areas of instrument performance verification troubleshooting, different defense challenges, and importance of the SOP methodology.

- 16.2.4.3 Any important updates to the SOP and/or IDAPA made within the last year should also be covered with the BTS/BTO.
- 16.2.4.4 Passing is achieved if the breath testing expert is satisfied that the BTS/BTO has answered the questions correctly after the training session.

### 16.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 16.4 Reading and Practical Exercises

- 16.4.1 The Analyst in Training must convey their understanding of the analysis protocol in the current Breath Alcohol SOP as well as the rules in IDAPA 11.03.01.
- 16.4.2 Analyst in Training must describe how operators and specialist obtain and maintain certification.
- 16.4.3 Analyst in Training must detail their approach in determining if a testing protocol is compliant with IDAPA 11.03.01.
- 16.4.4 Analyst in Training must describe the proper storage and transportation of instruments and standards.
- 16.4.5 Analyst in Training must describe the acceptance criteria for a performance verification and calibration.
- 16.4.6 Analyst in Training must describe how quality assurance data is monitored and where it must be stored.
- 16.4.7 Analyst in Training must describe how breath alcohol concentrations must be reported.
- 16.4.8 The Analyst in Training must discuss the different types of alcoholic beverages and their respective alcohol content.
- 16.4.9 The Analyst in Training must describe the intermediate check procedure for the instruments.
- 16.4.10 Suggested Reading
  - 1. Idaho State Police Breath Testing Standard Operating Procedure.
  - 2. Idaho Administration Code, IDAPA 11.03.01, Rules Governing Alcohol Testing.
  - 3. National Safety Council – Historical Document
  - 4. Kurt M. Dubowski, Quality Assurance in Breath-Alcohol Analysis, Journal of Analytical Toxicology, Oct 1994.

## 17.0 Courtroom Preparation

### 17.1 Background and Theory

- 17.1.1 Navigating the courtroom and the necessary rules and regulations is a crucial part of the forensic system.
- 17.1.2 Responding to the discovery process and understanding the rules of evidence for court is sometimes required as well.
- 17.1.3 Being able to know and anticipate potential issues with documentation, prior to court can sometimes prevent a loss in the evidential integrity of the evidence.
- 17.1.4 Being well prepared for courtroom testimony is also necessary for the forensic scientist to prevent potential negative court rulings based on a lack of knowledge that could have been preventable.

### 17.2 Objectives, Principles, and Knowledge

- 17.2.1 The analyst must know that standards of documentation for care records as it pertains to all aspects of the discipline. From technical records, administrative records, authentication data, and batch analytical records, the analyst must understand the requirements and importance of each, as well as the potential for changes in their retention policies.
- 17.2.2 This is especially important when it comes to the discovery process and responding to official court inquiries.

### 17.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 17.4 Reading and Practical Exercises

- 17.4.1 Trainee should prepare their CV.
- 17.4.2 Know and understand the applicable Idaho Rules of Evidence that apply to Experts and Expert testimony.
  - 17.4.2.1 Rule 702. [Testimony by Expert Witnesses.](#)
  - 17.4.2.2 Rule 703. [Bases of an Expert's Opinion Testimony.](#)
  - 17.4.2.3 Rule 705. [Disclosing the Facts or Data Underlying an Expert's Opinion.](#)
- 17.4.3 Demonstrate a functional knowledge of the case preparation worksheets and spreadsheets within the discipline for calculating individual specific Widmark Rho factors.

- 17.4.4 Know and understand the basis for which the 'Widmark Calculator' is based and which study/studies it is based upon.
- 17.4.5 Know and demonstrate a functional knowledge of the Widmark spreadsheets used to calculate both the retrograde extrapolation values for BrAC at the time of driving, number of drinks for a given BrAC, etc.
- 17.4.6 Work through a series of mock scenarios with other trained analysts within the discipline to hone the trainee's skills with quickly calculating 'On-The-Fly' estimations of Widmark calculations to quickly answer questions for courtroom testimony.
- 17.4.7 Develop personalized analogies for use during courtroom testimony that would help the jury understand complex breath alcohol concepts in an easily understandable way.
- 17.4.8 Develop 'canned-statements' to commonly asked questions so that you can answer those questions accurately and consistently throughout your career.

## 18.0 Expert Opinion Composition

### 18.1 Background and Theory

- 18.1.1 Composing your expert opinion in written form for the court is possible in many forms. The ISPFS Breath Alcohol Expert can provide an Expert Opinion Report upon request from any state agency.
- 18.1.2 Developing the expert opinion report is based upon the facts that are presented to the expert in the case by the requesting party can lead to issues depending upon the quality of those facts.
- 18.1.3 Expert opinions should always be delivered in such a way as to convey that they are the sole opinion of the provider, based on their knowledge, skills and abilities, subject to the facts that were presented to them.

### 18.2 Objectives, Principles, and Knowledge

- 18.2.1 Upon completion of this section the Breath Alcohol Expert trainee should be confident in their ability to submit their opinion on cases in which they were not present for the breath test that was delivered to the instrument.
- 18.2.2 The trainee should be confident in their ability to defend or expose the flaws in a breath test, should they be present, based on their evaluation of the facts presented to them and their knowledge of the instrument used, alcohol physiology and the standard operating procedure.
- 18.2.3 They should also be confident in their ability to assess and interpret other expert opinions supplied to the court and offer rebuttal opinion to those, if necessary.

### 18.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 18.4 Reading and Practical Exercises

- 18.4.1 Demonstrate a working knowledge of the pharmacology of alcohol and the breath testing procedure. This must include an understanding of the factors affecting absorption, distribution, and elimination.
- 18.4.2 A thorough working knowledge of commonly used and referred to scientific articles should be known to the trainee upon completion

of this section. Each common defense challenge should have at least one common counter-reference committed to memory.

18.5 Competency test:

18.5.1 The analyst is expected to complete a comprehensive written competency test.

18.5.1.1 Passing is required with 100% accuracy.

18.5.1.2 If the initial attempt at completing the competency test is not successful, further training and attempts may be undertaken at the discretion of the Supervisor, Technical Lead, Trainer and Trainee, or a combination of the aforementioned individuals.

18.5.2 The trainee shall be provided with two expert opinion requests to complete:

18.5.2.1 Scenario 1 shall deal with SOP adherence and deviations from the procedure.

18.5.2.2 Scenario 2 shall deal with the submission of a defense expert opinion, in which the trainee will be required to produce a rebuttal opinion

18.5.3 Scenario 1 shall have no more than 1-2 deviations from the SOP and the ultimate result MAY be fatal to the overall breath test results.

18.5.4 Scenario 2 shall have no more than 1-2 procedural defects as well as 2-3 theoretical issues presented in the expert opinion as well. The ultimate result MAY NOT be fatal to the overall breath test results.

18.5.5 The trainee will defend both reports in an 'oral-board' format discussion with all available members of the discipline. Written comments and review will be provided and documented in the trainee's file.

## 19.0 Breath Alcohol Testimony

### 19.1 Background and Theory

- 19.1.1 The ultimate job of the forensic scientist is to convey and interpret complex scientific concepts to a court of law in such a way that they can be easily understood and applied to the laws, as written, and interpreted by the courts.
- 19.1.2 This requires an adept and sophisticated knowledge of language from both the scientific realm as well as the legal realm, and a historical perspective of where those have intersected.
- 19.1.3 Knowledge of the intersection of science and the law and how one applies to the other is ultimately the role of the forensic scientist when they testify in a courtroom setting. Being able to explain complex scientific concepts in an easily understandable way is paramount for effective communication by the forensic scientist.

### 19.2 Objectives, Principles, and Knowledge

- 19.2.1 The goal of this section is to hone the skills of the forensic expert trainee's testimony skills in communication.
- 19.2.2 This communication shall be addressed in both verbal and non-verbal training exercises and methodologies.

### 19.3 Health and Safety Hazards

This section is covered in section 3.3 of this training manual.

### 19.4 Reading and Practical Exercises

- 19.4.1 Demonstrate an understanding and ability to explain all aspects of the breath testing program in scientific terminology, if necessary.
- 19.4.2 Demonstrate an understanding and ability to explain all aspects of the breath testing program in lay-terminology, if necessary.
- 19.4.3 Participate in a series of mini-mock trials with multiple qualified analysts within the discipline, on all possible topics within the discipline.
- 19.4.4 Practice the delivery of canned statements so as to not stumble with wording.
- 19.4.5 Work on providing "court" answers to all questions.

### 19.5 Mock Court

The trainee shall engage in a formal mock court in Breath Alcohol Expert Testimony.



#### 19.5.1 Roles and Responsibilities:

- 19.5.1.1 The lead trainer will be the prosecutor
- 19.5.1.2 The Technical Lead will be the judge (unless the TL was the lead trainer), then the Quality manager will maintain the role of the judge.
- 19.5.1.3 Other qualified members of ISPFS that are familiar with breath testing testimony may volunteer as defense council and may solicit questions from other analysts at their discretion.

19.5.2 Topics include, but are not limited to: Blood:Breath Ratios, 'The New Paradigm', RFI, Rising BAC, Alveolar air v. Deep lung breath, Hypo- or Hyperthermia, Breathing patterns, Belching-Burping, GERD, Dentures and other dental work, Slope detectors, Specificity and interfering substances, Widmark calculations, Uncertainty of Measurement, and Traceability.

19.5.3 Upon completion of the mock court process, all parties involved in the training of the trainee will provide their positive feedback to the trainee. No criticism, critiques, or scoring will be provided at this time.

19.5.4 The Lead Trainer and other named evaluators (provided by the lead trainer) will provide their feedback and the lead trainer will make the decision along with the Technical Lead as to whether the trainee has passed the final mock trial process and will be signed off for supervised casework.

19.5.5 Final signatures from the completed training plan will be reviewed by the trainee with the lead trainer and TL for thoroughness and to complete any missing components and clear up and deviations that may have been granted during training. The final report will be submitted, the trainee will be presented for approval as a Breath Testing Expert Authorized to perform all duties within the Breath Alcohol sub-discipline of The Toxicology-Alcohol Discipline upon announcement from the Quality Manager.

#### 19.6 Continuing Education

19.6.1 Upon completion of the training module 3, it is the responsibility of the analyst to maintain their knowledge base and keep current within the discipline. This can be accomplished through the regular reading of journal articles, through online training, or attendance at relevant conferences (IACT, SOFT, AAFS, etc.).

## 19.7 Retraining

- 19.7.1 If at any time after completion of the training plan, the analyst fails a proficiency test or part there-of, they shall, at the direction of the TL, retake the module in part or in whole. This process shall be undertaken as part of the retraining process for analysts if it is deemed necessary for this, or any other reason as part of a QAR protocol.

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# TOXICOLOGY – ALCOHOL DISCIPLINE BREATH ALCOHOL CALIBRATION TRAINING MANUAL

## Training and Signature documentation

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### 2.0 Roles and Responsibilities:

Supervisor: \_\_\_\_\_

Technical Lead: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_

Trainee: \_\_\_\_\_

Through observation and documentation during the training of the above named, the following signatures serve as authorization for the individual to perform the duties as an Analytical Technician, Calibration Scientist of the Lifeloc FC20 and/or of the Dräger 9510, and as a Breath Alcohol Testing Expert. Upon completion of each section/module, the trainee may assume the duties required of each position in order to complete their training in its entirety.

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## 21.0 Module 1 – Analytical Technician Completion Signatures

### 3.0 Core Training:

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 4.0 Instrument Handling and Storage:

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 5.0 Breath Alcohol Training Program

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 6.0 Solution Preparation and Authentication

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 7.0 Instrument Calibration Requirements

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 8.0 Analytical Technician Competency Testing and Mock Court

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

Competency Test Score: \_\_\_\_\_ Date: \_\_\_\_\_

#### Mock Court:

Volatiles Analysis Training Manual-Breath

Revision 8

Issue Date: 12/28/2022

Issuing Authority: Quality Manager

Prosecutor: \_\_\_\_\_ Trainee: \_\_\_\_\_

Defense: \_\_\_\_\_ Lead Trainer: \_\_\_\_\_

Completion date: \_\_\_\_\_

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Comments:

## 9.0 EasyCal Certification and Review Training

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

## 22.0 Module 2 – Calibration Scientist Completion Signatures

### 10.0 Reference Materials and Certified Reference Materials

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 11.0 Case Record Preparation

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 12.0 Lifeloc FC-20 Calibration Procedure

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

Competency Test Score: \_\_\_\_\_ Date: \_\_\_\_\_

Mock Court: \_\_\_\_\_ Date: \_\_\_\_\_

Prosecutor: \_\_\_\_\_ Trainee: \_\_\_\_\_

Defense: \_\_\_\_\_ Lead Trainer: \_\_\_\_\_

Completion date: \_\_\_\_\_

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### 13.0 Dräger Alcotest 9510 Calibration Procedure

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

Competency Test Score: \_\_\_\_\_ Date: \_\_\_\_\_

Mock Court: \_\_\_\_\_ Date: \_\_\_\_\_

Prosecutor: \_\_\_\_\_ Trainee: \_\_\_\_\_

Defense: \_\_\_\_\_ Lead Trainer: \_\_\_\_\_

Completion date: \_\_\_\_\_

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## 14.0 Supervised Casework, Tech review training and sign off

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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Comments:

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## 23.0 Module 3 – Breath Alcohol Testing Expert Completion

### Signatures

#### 15.0 Comprehensive Course on Alcohol Testing

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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#### 16.0 Breath Alcohol Analysis Standard Operating Procedure

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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#### 17.0 Courtroom Preparation

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

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#### 18.0 Expert Opinion Composition

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

Competency Test Score: \_\_\_\_\_ Date: \_\_\_\_\_

Opinion Scenario 1 Score: \_\_\_\_\_ Date: \_\_\_\_\_

Issues addressed:

Comments:

Opinion Scenario 2 Score: \_\_\_\_\_  
Volatiles Analysis Training Manual-Breath

Date: \_\_\_\_\_

Revision 8

Issue Date: 12/28/2022

Issuing Authority: Quality Manager



Issues addressed:

Comments:

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### 19.0 Breath Alcohol Testimony

Start date: \_\_\_\_\_

Lead Trainer: \_\_\_\_\_ Trainee: \_\_\_\_\_

Completion date: \_\_\_\_\_

#### Mock Court:

Date: \_\_\_\_\_

Prosecutor: \_\_\_\_\_ Trainee: \_\_\_\_\_

Defense: \_\_\_\_\_ Lead Trainer: \_\_\_\_\_

Completion date: \_\_\_\_\_

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Comments: