

VERMONT FORENSIC LABORATORY

DMT Training Manual

Doc. No.
TOX_P302_Version 1

Approved by:
Lab Director

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1.0 Training Overview

1.1. Training Purpose and Description

1.1.1. Purpose and Goals

The purpose of this training program is to provide a uniform training process for analysts in the Toxicology Section at the Vermont Forensic Laboratory (VFL). This program is designed to ensure and document that those individuals who will be working as analysts are knowledgeable and competent to perform their technical, analytical, and legal duties.

1.1.2. Scope

This training manual should be completed in conjunction with the TOX_P300_Intro to Toxicology Training Manual. Training will concentrate on breath alcohol analysis methods and maintenance of the breath testing instruments currently in use at the VFL and will culminate in a competency test(s). This program is designed for new employees or current employees without prior breath alcohol experience. A trainee with previous experience in forensic or other alcohol analysis may not require all modules or steps. It is the responsibility of the Toxicology Section Supervisor to determine the duration and scope of the training program for a trainee with previous experience. Similarly, the module content may be tailored as applicable to anticipated job responsibilities.

The breath alcohol discipline at the VFL allows for individuals to perform a limited scope of work or specific tasks. Those individuals will have specific training modules assigned by the Toxicology Section Supervisor which will cover the breadth of anticipated job duties. Assigned training modules will culminate in a competency test(s) that covers all applicable tasks.

1.1.3. Documentation

The trainee will compile all documentation associated with completed training work. These files may include, but are not limited to, worksheets, reports, and review sheets. The trainer(s) will review these materials and document completion of required training components. Documentation of training will be maintained at the laboratory.

1.2. Trainee Responsibilities

1.2.1. Instructions for Trainee

The length of time needed to complete the training program will vary and is left to the discretion of the trainer and supervisor. The trainee will be provided access to any required or suggested

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readings and will be exposed to samples and situations expected to be encountered during routine work in the Toxicology Section. The trainee will keep records, where appropriate, of how training tasks were accomplished (e.g. who did the trainee observe testify in court, what additional papers not listed in Appendix I did the trainee reference, etc.). At the conclusion of training, the trainee will evaluate the effectiveness of the training program and suggest any improvements to the section supervisor.

1.2.2. Required Training Modules

The trainee, trainer, and section supervisor shall discuss which portions of the training manual are to be completed by the trainee based on the trainee’s anticipated job responsibilities and prior experience. This section may also be used to outline re-training requirements for current employees, if needed. Training modules may be modified or completed in segments depending on the trainee’s anticipated job duties. The requirements for the analyst trainee are outlined below:

	Required?		Completed?	
	Yes	No	Date	Trainer
1. Training Overview	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
2. Laboratory Introduction				
3. Sample and Evidence Control				
4. Fundamental Scientific Knowledge				
5. Applied Scientific Knowledge				
5.1 DMT Theory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
5.2 DMT Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
5.3 Statistics and Data Analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
6. Laboratory Analysis				
6.1 Reagent Preparation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
6.2 DMT Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
6.3 DMT Repair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
6.4 Simulator Maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
6.5 DMT User Training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
7. Reports and Notifications				
7.1 DM Host Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
7.2 Review of DMT Reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
7.3 Mock Cases/Practicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>
8. Legal Knowledge				
8.1 Expert Testimony	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>

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8.2 Document Preparation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Final Evaluation				
9.1 Competency Tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2 Mock Trial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Authorization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.3. Trainer Responsibilities

The trainer is responsible for instructing the trainee in the operations of the laboratory and the processes and procedures that will ultimately comprise the trainee’s job duties. The trainer will ensure that the trainee is exposed to all relevant topics within the training program. The trainer will provide sample sets for the trainee to analyze and/or practice scenarios regarding the maintenance and repair of DMTs and will meet with the trainee periodically to monitor progress, review work, and provide feedback. The trainer will assist the trainee in preparing for any assessments, which will include a competency test(s) and may include a mock trial. At the conclusion of training, the trainer will evaluate the effectiveness of the training program and suggest any improvements to the section supervisor.

1.4. Acknowledgement of Training Plan

The signatures of the trainee, trainer(s), and section supervisor below indicate that the expected responsibilities and required training modules have been discussed and agreed upon.

Trainee: _____ Date: _____
Trainer(s): _____ Date: _____
Trainer(s): _____ Date: _____
Section Supervisor: _____ Date: _____

2.0 Laboratory Introduction

Refer to TOX_P300_Intro to Toxicology Training Manual.

3.0 Sample and Evidence Control

Refer to TOX_P300_Intro to Toxicology Training Manual.

4.0 Fundamental Scientific Knowledge

Refer to TOX_P300_Intro to Toxicology Training Manual.

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5.0 Applied Scientific Knowledge

This training module will ensure that the trainee has received appropriate education and training to apply principles of infrared spectroscopy to the operation and maintenance of DMTs.

5.1. DMT Theory

The trainee will develop and demonstrate a working knowledge of the DMTs and simulators maintained by the VFL. The trainee should be exposed to historic breath alcohol testing methods; however, a detailed knowledge of these techniques is not required.

Task	Trainee	Trainer	Date Completed
I have reviewed instrument files showing the maintenance of the DMT.			
I have read and understand the required readings outlined for this section in Appendix I.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			

5.2. DMT Training

The trainee will complete the DMT training courses provided by VFL as well as additional training on the maintenance of the DMTs and simulators.

Task	Trainee	Trainer	Date Completed
I have read and understand the required readings outlined for this section in Appendix I.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have completed the VFL DMT operator training course.			
I have completed the VFL DMT supervisor training course.			
I have received training on the DMT from the instrument manufacturer or a qualified analyst.			
I have received training on the simulator from the simulator manufacturer or a qualified analyst.			

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5.3. Statistics and Data Analysis

The trainee will develop and demonstrate a working knowledge of the quantitative reporting, statistical calculations, and measurement uncertainty factors applied to the DMT.

Task	Trainee	Trainer	Date Completed
I have read and understand the required readings outlined for this section in Appendix I.			
I have reviewed the measurement uncertainty budgets for DMT Calibration.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			

6.0 Laboratory Analysis

The trainee will demonstrate the ability to apply knowledge of the currently validated methods and technologies to the range and type of work routinely encountered in the breath alcohol discipline.

6.1. Reagent Preparation

The trainee will develop and demonstrate a working knowledge of the procedures, skills, and techniques needed to prepare the reference materials for use with the DMT.

Task	Trainee	Trainer	Date Completed
I have read and understand the required readings outlined for this section in Appendix I.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have observed a qualified analyst using a simulator solution with the DMT, including performing a solution change.			
I have demonstrated the ability to use simulator solution with the DMT and perform a solution change under the general supervision of a qualified analyst.			

6.2. DMT Maintenance

The trainee will develop and demonstrate a working knowledge of the various procedures routinely performed on the DMT. Each task will be completed with a qualified analyst. The trainee and trainer should initial all documents generated during training.

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The trainee and trainer will document this by both initialing the boxes below. At minimum, the tasks completed during training will include the following:

Task/Procedure	Initials & Date Observed	Initials & Date Performed Under Supervision	Initials & Date Performed Independently
Adjustment			
Calibration (CAL)			
Accuracy and Precision Check (A&P)*			
Installation (INSTALL)*			
Verification Testing †			
Diagnostic Check*			
Routine Performance Check (RPC)*			
Site Evaluation*			
I am familiar with the DMT maintenance log and the information that is recorded.*			
I am familiar with DMT simulator solution use log and the information that is recorded.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have been authorized to perform in-house testing using the DMT.*			

* Minimum training requirement for limited scope duties.

† Full verification testing need not be observed directly. A culmination of the procedures associated with a verification test is sufficient.

6.3. DMT Repair

The trainee will develop and demonstrate the ability to troubleshoot mechanical issues with the DMT. Troubleshooting may include repairing or replacing a component or various parts, as well as

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the ability to reassemble a disassembled DMT. The trainee and trainer will document this by both initialing the boxes below.

DMT component/part	Initials & Date Observed	Initials & Date Performed Under Supervision	Initials & Date Performed Independently
Screen			
Breath Tube			
Five Way Valve			
IR Lamp			
Sample Chamber			
Detector Block			
Other:			
I have read and understand the required readings outlined for this section in <u>Appendix I</u> .			
I have answered the questions outlined for this section in Appendix II and received <u>feedback on my answers</u> .			
I am familiar with the DMT Technical Service Inquiry (TSI) process and what <u>information is recorded</u> .			
I have disassembled and reassembled a DMT. Instrument reassembled:			

6.4. Simulator Maintenance

The trainee will develop and demonstrate the ability to maintain the simulators used with the DMT.

Task	Trainee	Trainer	Date Completed
I have read and understand the required readings outlined for this section in Appendix I.			

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I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have observed a qualified analyst adjust the temperature calibration of a simulator.			
I have adjusted the temperature calibration of a simulator under the supervision of a qualified analyst.			
I have been authorized to adjust the temperature calibration of a simulator.			

6.5. DMT User Training

The trainee will become familiar with the DMT operator and supervisor courses and the associated training materials as an instructor. The trainee will become familiar with the Vermont Criminal Justice Training Counsel (VCJTC) training requirements for DUI certification and the role that VFL staff plays in providing that training. The trainee and trainer will document this by both initialing the boxes below.

Task/Procedure	Initials & Date Observed	Initials & Date Performed
Teaching of the DMT operator training course		
Teaching of the DMT supervisor training course		
I have received feedback from VFL staff regarding my teaching style and performance.		

7.0 Reports and Notifications

The trainee will develop and demonstrate knowledge of procedures and documentation for reporting analytical results in accordance with laboratory policy.

7.1. DM Host Use

The trainee will be familiarized with the DM Host software. The trainee will upload data from at least one DMT and generate reports. At minimum, the reports generated will include those routinely used. A list of generated reports will be attached.

Task	Trainee	Trainer	Date Completed
I have read and understand the required readings outlined for this section in Appendix I.			

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I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have observed a qualified analyst use the DM Host software.			
I have successfully navigated DM Host and demonstrated the ability to view and print DMT tickets.			
I have generated summary reports using the DM Host software.			

7.2. Review of DMT Reports

The trainee will become familiar with the policies, procedures, and documentation for review of reports generated by DMTs.

Task	Trainee	Trainer	Date Completed
I am familiar with the technical review requirements as outlined in the QA and DMT Manuals.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have observed the technical review of DMT reports by a qualified analyst.			
I have performed and documented “pre-review” technical reviews of DMT reports.			
I have observed an admin/director review of DMT reports.			

7.3. Mock Cases/Practicals

The trainer will provide at least one hands-on practical scenario for the trainee to complete. The practical scenario(s) will encompass the anticipated job duties’ of the trainee. One practical scenario may cover multiple job duties. The acceptance criteria for these scenarios will be documented by the section supervisor prior to starting. The trainee will complete the required work, prepare any reports, and compile all pertinent documentation. The trainer will review the trainee’s performance and associated documentation and provide feedback on the results as needed to meet review criteria.

Task	Trainee	Trainer	Date Completed

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I have completed a practical scenario to include a routine performance check or simulator solution change protocol.			
I have completed a practical scenario to include a site evaluation and installation of a DMT including a simulator temperature check.			
I have completed a practical scenario to include the adjustment and calibration of a DMT.			
I have completed a practical scenario to include the routine cleaning/maintenance of a DMT.			

8.0 Legal Knowledge

8.1. Expert Testimony

The trainee will develop and demonstrate knowledge of the responsibilities of expert witnesses and strategies for effective expert testimony. Training for individuals performing a limited scope of work should be sufficient so they understand their role in the judicial process, but they are not expected to testify routinely.

Task	Trainee	Trainer	Date Completed
I have read and understand the required readings outlined for this section in Appendix I.			
I have answered the questions outlined for this section in Appendix II and received feedback on my answers.			
I have observed an experienced analyst testify in court as an expert witness regarding the operation, calibration, and workings of the DMT, including the principle of infrared spectroscopy. Transcripts may be reviewed in lieu of live testimony.			
I have practiced direct and cross-examination with more than one qualified analyst and received feedback.			
I have practiced presenting a DMT ticket or other report as an exhibit.			

8.2. Document Preparation

The trainee will practice preparing documents that would be requested from an analyst preparing to appear in court.

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Task	Trainee	Trainer	Date Completed
I am familiar with the DMT discovery website and what information is routinely uploaded.			
I have reviewed at least one breath discovery response prepared by a qualified analyst.			
I have prepared a practice breath discovery response and had it reviewed by the Toxicology Section Supervisor.			

9.0 Final Evaluation

At the completion of this training program, the trainee's ability to perform their assigned duties will be assessed. The nature of the final assessment and evaluation may differ based on the trainee's experience and anticipated job responsibilities. The section supervisor is responsible for determining what assessment and evaluation is necessary and documenting this.

9.1. Competency Tests

The trainee will pass all applicable competency tests as determined and documented by the section supervisor prior to beginning work as an analyst. Competency testing may include a written exam(s), hands-on practical(s), and written reports that will undergo technical, administrative and director review. Satisfactory completion of a competency test is required for all analysts regardless of previous experience or limited scope of anticipated duties. The competency test should be sufficient to cover the anticipated spectrum of assigned duties and to evaluate the individual's ability to perform proper testing and calibration methods.

Task	Trainee	Trainer	Date Completed
I have completed all competency tests which have passed appropriate reviews. Instrument Number(s):			
I have successfully completed a written examination pertaining to breath alcohol analysis and received feedback on my answers.			

9.2. Mock Trial

The trainee will understand that all work performed has the potential to require them to testify as an expert witness. As such, the trainee will demonstrate their knowledge of breath alcohol testing

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methods and ability to testify as an expert witness by participating in a mock trial, including both direct and cross-examination. The trainee will be evaluated for aspects of performance to include testimony content, response to cross-examination, demeanor, and attire. The mock trial will take place prior to the trainee performing independent work as a qualified analyst.

The trainee will testify to a competency test case, a fabricated case, or a case which has been completed by a qualified analyst. The case selected will be agreed upon by the trainee and trainer and approved by the section supervisor.

The mock trial will include, but is not limited to, questions on qualifications, alcohol analysis methodology, calibration, measurement uncertainty, and technical aspects of the case at hand. Questioning by both the prosecutor and defense attorneys should be relevant and realistic. The atmosphere of the trial will be formal. It will be conducted in the same manner as a real courtroom. This will include conduct and protocol, and the trainee should present themselves accordingly. The outcome of the mock trial evaluation will be satisfactory or unsatisfactory. If it is determined that the trainee's performance was not satisfactory the section supervisor will determine what corrective action must be taken. The trainee will need to complete a mock trial with satisfactory performance before beginning work as a qualified analyst. Participants in the mock trial shall provide feedback for the trainee regardless of whether performance was satisfactory or unsatisfactory.

If the trainee has previous testimony experience or is expected to perform a limited scope of duties, this requirement may be modified at the discretion of the section supervisor. This modification will be documented. If a mock trial is not required, an alternate form of oral examination must be selected by the section supervisor.

Task	Trainee	Trainer	Date Completed
A case has been chosen for mock court. Case Number:			
I have offered testimony in mock court, including both direct and cross-examination covering the principles of infrared spectroscopy and the operation, calibration, and workings of the DMT.			

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10.0 Authorization

Completion of training modules will be documented in section 1.2.2. At the completion of training, the section supervisor shall provide written documentation authorizing the trainee to conduct independent work as a qualified analyst.

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Appendix I: Readings

A: Required Readings

The resources listed below are provided to give the trainee the necessary information to perform their duties. Depending on the trainee's education and experience they may not need to complete every reading in its entirety. The location of various training tools such as readings or websites are included for convenience. If file locations change or links break, alternative training materials may be used. Supplemental documents are available through the laboratory's shared drive under the training folder, but are not required unless designated as such by the section supervisor. The trainee should be familiar with the readings provided in the TOX_P300 manual in order to assist them in answering the questions in Appendix II.

5.0 Applied Scientific Knowledge

5.1. DMT Theory

- Breath testing portion of the VFL Toxicology Reference Library
- 2011 VCJTC DMT Infrared Breath Testing Manual
- 2015 VCJTC DMT Infrared Breath Testing Manual

5.2. DMT Training

- VFL DMT Manual (TOX_P200) and associated documents
- DMT Operator Manual (TOX_D200_2)
- Evidential Breath Testing Operator Training (ALCOHOL > DMT Training > VPA Current Courses and Forms)
- DMT Supervisor Manual (TOX_D200_1)
- DMT Supervisor Course (ALCOHOL > DMT Training > DMT Supervisor Training)
- Intoximeters Intox DMT Training Binder, Sept 2015 version or newer.
- Model 12V500 Alcohol Breath Test Simulator Operation, Repair, and Calibration PowerPoint
- ASB Standard 118, First Edition 2022 (draft). Standard for Breath Alcohol Instrument Specifications.
- ASB Standard 055, First Edition 2023 (draft). Standard for Breath Alcohol Measuring Instrument Calibration.
- DMT Validation Binder
- VFL Interference Detection Study

5.3. Statistics and Data Analysis

- DMT Fishbone
- DMT Uncertainty Summary Using the Simplified Gum Approach (ALCOHOL>Uncertainty> DMT MU)
- Current and historical DMT MU budgets
- DMT MU CAR 24-1
- DMT Verification Summary (TOX_F200_1)
- DMT Certificate of Calibration (TOX_F200_2)
- DMT Supervisor Spreadsheet
- DMT Electronic Log

6.0 Laboratory Analysis

6.1. Reagent Preparation

Printed copies of this manual are uncontrolled.

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- Alcohol Reagent Log
- Sim Solution Use Log

6.3. DMT Repair

- DMT Quick Troubleshooting Guide
- DMT Beta Software Testing Guide
- Intox DMT Technical Bulletins and Work Instructions
- Technical Support Inquiry (TOX_F200_3)

6.4. Simulator Maintenance

- Guth Laboratories, Inc. Model 12V500 Operator Manual
- Simulator Temperature Check Worksheet (TOX_F200_5)

7.0 Reports and Notifications

7.1. DM Host Use

- DM Host User Guide (ALCOHOL > User Guides)
- DM Host Log
- DM Host Flow Chart
- DMT Comm Log

8.0 Legal Knowledge

8.1. Expert Testimony

- Vermont DUI Laws: Title 23, Chapter 13, Sections 1201 and 1203
- Vermont Department of Public Safety Breath and Blood Alcohol Analysis Rule
- Review various sample scripts of chemist questions for DMT testimony

B: VFL Toxicology Reference Library

Analysts are expected to be familiar with the contents of the VFL Toxicology Reference Library and be alert for articles and/or references that can be added. Updated references should be added to the VFL Toxicology Reference Library during the review period, when they become available, or when new methodologies or technologies are incorporated into the laboratory protocols.

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Appendix II: Training Questions

Questions listed below are intended to be answered by analyst trainees. Trainees who will be performing a limited scope of duties may only need to complete a subset of these questions as determined by the trainer. Headings are numbered in accordance with the section numbering in the body of this manual.

5.0 Applied Scientific Knowledge

5.1. DMT Theory

1. What is a fuel cell as and how is this technology used in breath alcohol analysis?
2. What is Beer's law and how does it relate to the operation of the DMT?
3. Why is Henry's law commonly referenced in breath alcohol testing?
4. What is a partition ratio and how does it apply to breath alcohol analysis?
5. What is the significance of the g/210L reporting unit?
6. Explain the principle and operation of infrared spectroscopy.

5.2. DMT Training

1. What is the VFL's role with regard to the DMT?
2. Does an officer have to be certified in order to use a DMT?
3. What are the various DMT access levels?
4. Why are certain components of the DMT heated?
5. Which components are heated and what temperatures are they held to?
6. Describe the sample pathway on a DMT. i.e. how does a breath come into the DMT and get analyzed?
7. How is the pathway for a breath sample different than a simulator sample?
8. What is the role of the IR lamp?
9. What temperature is the simulator held at? What is the significance of this temperature?
10. What would happen to the simulator result if the simulator temperature was higher? What about lower?
11. How often is the simulator solution changed in the field?
12. How frequently is the DMT calibrated?
13. How does the DMT differentiate ethanol from some other volatile?
14. What are some common interferences that we are concerned with? How do they get in the body?
15. What is mouth alcohol and why are we concerned with it?
16. Does the DMT take any steps to try and detect mouth alcohol?
17. What are the sample acceptance parameters for a subject breath test?

5.3. Statistics and Data Analysis

Statistical Analysis

1. How is the DMT calibrated?
2. What is the difference between an adjustment and a calibration?
3. How many calibration points are required for breath alcohol instruments per the ASB guidelines?

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Excel

1. How does Excel calculate the measurement uncertainty for each concentration on the certificate of calibration?
2. What is cell grouping in excel? How is this used in DMT spreadsheets?
3. How are spreadsheets used to monitor DMT trends?
4. How does the VFL keep track of which DMTs are due for calibration/maintenance?

Measurement Uncertainty

1. How is the measurement uncertainty of the DMTs estimated? What does the measurement uncertainty for this method apply to?
2. How often is the budget updated?
3. What is the timeframe of the data used in the budget?
4. What confidence interval is applied for DMTs?
5. What contributors are evaluated?
6. Are all DMTs included in the MU budget? Which DMTs would not be included?
7. If a new DMT is put into service, how is measurement uncertainty applied?
8. What is a certified reference material?
9. What is NIST and what role does it play in the certification of simulator solutions?
10. How does the uncertainty of simulator solutions factor into the DMT uncertainty?
11. Does the DMT MU value automatically get updated every time the MU budget is evaluated? Why or why not?

6.0 Laboratory Analysis

6.1. Reagent Preparation

1. What information is commonly listed on simulator solution labels?
2. How long are simulator solutions able to be used for calibration?
3. What does the expiration date on a simulator solution bottle refer to?
4. What is the acceptable range for simulator solution concentration? Is this listed on the label?
5. How can you tell what solution is in a simulator and whether or not the solution is ok to use?
6. When putting a new solution into service, what type of documentation must be performed?
7. How do you know a simulator (not the solution) is ok to use?

6.2. DMT Maintenance

1. Explain the adjustment and calibration process for the DMT.
2. Explain the purpose of each of the following procedures:
 - a. Adjustment
 - b. Calibration
 - c. Installation
 - d. Routine Performance Check (RPC)
 - e. Simulator Solution Change Protocol (SSC)
 - f. Site Evaluation
3. What is the difference between an SSC and an RPC?

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4. What solutions are required for the DMT? What is the purpose of each?
5. Who is authorized to perform the various DMT procedures?

6.3. DMT Repair

1. Diagram and explain the internal components of the DMT.
2. Describe the role of the following components.
 - a. Pump
 - b. Five-way valve
 - c. Filter wheel
 - d. Sample Chamber
 - i. Why does the sample chamber have 3 sections to it?
 - e. Chopper Wheel
 - f. Detector
3. How does the DMT detect radiofrequencies? Why is this important?
4. How is a TSI initiated? Who can initiate these?
5. What maintenance requires that a DMT be recalibrated? Is there maintenance that can be performed without having to recalibrate a DMT?

6.4. Simulator Maintenance

1. How often is the simulator temperature checked?
2. What are the acceptance criteria for the simulator temperature?
3. Briefly describe the temperature adjustment process for the simulator.
4. What is the difference between the two adjustment ports on the simulator head?
5. What should be done if the simulator displays an error?
6. Can the simulator be used without a solution in it?
7. What is the role of the two cords that plug into the back of the simulator?

7.0 Reports and Notifications

7.1. DM Host Use

1. What is DM Host? How does it work?
2. What records are routinely reviewed?
3. If there is an issue that requires the DMT be removed from service, what steps must be taken?
4. Where is DMT-related communication logged?
5. What types of reports are typically generated by VFL staff?
6. What is their purpose and how frequently are they created?

7.2. Review of DMT Reports

1. List the required documents for various DMT data packages.
2. What information goes on a Certificate of Calibration?
3. Which reports need to have a separate technical and admin review?
4. Do all DMT reports go through the same levels of reviews? Why or why not?
5. Which reports require a director review?

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8.0 Legal Knowledge

8.1. Expert Testimony

1. What role does the VFL play in breath alcohol related court cases?
2. What types of quality control checks are routinely performed on the DMT?
3. How can you tell a DMT was working properly at the time of testing?
4. What are the DPS Rules and Regulations and why are they important for breath alcohol?
 - a. Explain the DPS rules and how the DMT meets each of them as you would explain to a jury.
5. Define the following terms using language you would use when speaking to a jury.
 - a. Infrared spectroscopy
 - b. Calibration, as it relates to the DMT
 - c. Quality control, as it relates to the DMT

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