Idaho State Police
Forensic Services

Volatiles Analysis Training Plan

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New Analyst Training

Ethanol and Other Volatiles – Revision 2

Analyst in Training: _____
Forensic Scientist ____

Trainer: _____
Forensic Scientist ____

Trainer: _____
Forensic Scientist ____

Issued: 10/6/14
Volatiles Analysis Training Plan -Rev 2
Issuing Authority: Quality Manager

1.0 TABLE OF CONTENTS

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1.1 TRAINING OBJECTIVES

1.1.1 Introduction

This section is intended to serve as a guide for an Idaho State Police Forensic Services (ISP-FS) analyst training to perform quantitative ethanol and qualitative "other volatiles" analysis, in both biological and non-biological samples. The analysis of these samples is described in Volatiles Analytical Methods *1.0* and *2.0*.

In addition, those training in Breath Alcohol Analysis must attain knowledge of the instrumentation used within Idaho for the collection of evidentiary breath samples, the SOP for acquiring the breath samples in the field, as well as the analytical methods associated with the laboratory calibration of the breath testing instruments.

1.1.2 Approach to Training

1.1.2.1 In order to address the training plan questions, the suggested reading cited should be consulted if the Analyst in Training is not familiar with the subject matter.

1.1.2.2 Answers to training plan questions may be provided verbally and/or in written form. This choice is at the discretion of the trainer. Both the education and work experience of the Analyst in Training will be considered; however, a verbal or written competency verification of material should be done to the satisfaction of the Trainer.

1.1.3 Training Order

Although all training does not have to proceed in the order used in this training plan, certain topics should be completed prior to others.

1.1.3.2 Sections 1.1 through 1.8 should be signed off prior to hands-on analysis of blood.

1.1.3.3 Sections 1.4 through 1.11 must be signed-off prior to competency testing.

1.1.4 Additional Training for Experienced/Signed-off Analyst

1.1.4.1 For training of an experienced analyst (Forensic Scientist II or III) in a new or updated technique or instrument, the training is to be commensurate with the magnitude of changes with consideration of the analyst's existing background. The extent of training will be agreed upon by the discipline leader and quality manager with input from the analyst.

1.1.4.2 If a separate training plan section has been created for the training topic and/or analytical method then it must be utilized, otherwise the appropriate portions of this training plan section must be used.

1.1.5 Continual Awareness of Relevant Literature

The new or experienced analyst is reminded that this training plan only addresses the core of training for volatiles analysis. After the completion of training, the analyst is

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responsible for keeping their knowledge current through continual literature review. This must include relevant journals, newsletters and text books.

1.2 EVIDENCE HANDLING ISSUES

1.2.1 Describe the procedures followed for the intake and transfer of specimens specifically submitted for alcohol and/or volatiles analysis.

1.2.2 Describe the barrier protection measures required when handling biological samples and unknown liquids.

1.2.3 Describe the types of commonly available blood collection tubes and containers.

1.2.4 Describe the IDAPA 11.03.01 requirements for blood collection, including the tube requirements.

1.2.5 Discuss why the preservative and anticoagulant required for IDAPA-compliant blood collection tubes/containers are necessary.

1.2.6 Discuss how ISP-FS kits comply with the requirements set forth in IDAPA 11.03.01.

1.2.7 Suggested Reading

1. IDAPA 11, Title 03, Chapter 01: Idaho State Forensic Laboratory Rules Governing Alcohol Testing.

1.3 SOLUTION PREPARATION

1.3.1 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 pipetters.

1.3.2 The Analyst in Training must explain the nomenclature and calculations involved in the determination of weight percent and volume percent solutions.

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

1. College Chemistry Text, chapter(s) discussing the properties of solutions.

2. Shugar, G.J., Shugar, R.A. and Bauman, L. *Grades of Purity of Chemicals* pp. 145-154, *pH Measurement*. pp. 232-234. *in:* Chemical Technicians' Ready Reference Handbook, McGraw Hill: New York, 1973.

3. Seamonds, B. and Byrne, E.A. *Basic Laboratory Principles and Techniques.* pp. 3 - 43. *in:* Clinical Chemistry: Theory, Analysis, Correlation. Mosby, 2003.

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1.4 GAS CHROMATOGRAPHY (GC) THEORY AND OPERATION

1.4.1 The Analyst in Training must possess a comprehensive background in regard to the principles of GC.

1.4.2 Provide a brief explanation of GC in terms understandable to a layperson.

1.4.3 Describe the influence carrier gas flow has on the efficiency of a GC-FID.

1.4.4 Define the following terms as they relate to GC.

- *Resolution*
- *Area Under the Curve*
- *HETP*
- *Sensitivity versus Specificity*

1.4.5 Discuss which GC parameters affect resolution. Describe how to approach a lack of resolution.

1.4.6 Discuss measures to alleviate peak tailing.

1.4.7 Describe how amount ratios and response ratios are used to construct a calibration curve.

1.4.8 Discuss the major advantages of using an internal standard method.

1.4.9 Demonstrate their ability to operate a GC equipped with a flame ionization detector (FID) through both the system software and the instrument controller.

1.4.10 Demonstrate a working knowledge of the operating software for the gas chromatograph. This must include the ability to utilize the system software to develop an analysis method, set processing parameters to optimize peak detection and integration, prepare an analysis sequence, reprocess data, and modify the analysis report format.

1.4.11 Demonstrate their ability to maintain a GC equipped with a flame ionization detector (FID). This includes inlet and detector maintenance, column installation, troubleshooting techniques and the documentation thereof.

1.4.12 <u>Suggested Reading (relevant pages from other editions of the following references may be substituted)</u>

1. Stafford, D.T., *Chromatography. in:* Principles of Forensic Toxicology, edited by Barry Levine, pp. 91 - 98, 100 - 108, 114 - 118, AACC Press, 2003 (2nd edition). or more recent edition.

2. Levine, B. and Caplan, Y.H., *Alcohol. in:* Principles of Forensic Toxicology, Second Edition, edited by Barry Levine, pp. 175 - 190, AACC Press, 2003 or more recent edition.

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3. Dawling, S., *Gas Chromatography*. pp. 425 - 438, in: Clarke's Analysis of Drugs and Poisons, Third ed., edited by Moffat, Osselton, and Widdop, PhP, 2004 or more recent edition.

1.5 HEADSPACE THEORY AND OPERATION

1.5.1 Analyst in Training must possess a working knowledge of the theory and practice of headspace analysis.

1.5.2 The Analyst in Training must describe how *the proportionality* known as *Henry's Law,* is utilized in headspace analysis.

1.5.3 The Analyst in Training must demonstrate their ability to operate Headspace Analyzer.

1.5.4 The Analyst in Training must be acquainted with how the headspace method parameters in conjunction with GC cycle time must be optimized.

1.5.5 The Analyst in Training must demonstrate their understanding of the system software as it applies to the headspace analyzer including setting up the HS analysis method.

1.5.6 The Analyst in Training must discuss the maintenance of headspace analyzer including troubleshooting techniques and the documentation thereof.

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

1. Siek, T.J., *Specimen Preparation. in:* Principles of Forensic Toxicology, edited by Barry Levine, pp. 69 - 70, AACC Press, 2003 (2nd edition).

2. Saker, E.G. Screening and Quantitation by Headspace Technique of Some of the Vapors Most Commonly Found in Forensic Toxicology. pp. 1-33, in: Current Approaches in Forensic Toxicology, Chapter 11, SOFT Meeting, 1994.

3. Goldberger, B.A., Caplan, Y.H. and Shaw, R.F., *Methods for Fluid Analysis*. pp. 255 - 268 *in:* Medical-Legal Aspects of Alcohol, Fifth ed., edited by James C. Garriott, L & J, 2008.

1.6 Autodilutor intermediate checks

1.6.1 Gravimetric Intermediate Checks

- The Analyst in Training must describe the principle, equipment and calculations involved when using the gravimetric method to perform an intermediate check of a POVA.

- The Analyst in Training must demonstrate their ability to perform an intermediate check on the syringes for the sample dilutor.

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- The Analyst in Training must convey their understanding of the gravimetric checks associated with Analytical Method 4.0
- What is the frequency of checks associated with the Autodilutor?
- Why are periodic gravimetric checks not necessary?
- When are gravimetric checks required for the Autodilutor?

1.6.1.2 Suggested Reading

1. Analytical Method for Volatiles 4.0, Gravimetric Pipette Intermediate Check

1.7 SAMPLE DILUTOR OPERATION

1.7.1 The Analyst in Training must have a working knowledge of the Hamilton MICROLAB® dilutor.

1.7.2 The Analyst in Training must demonstrate the operation of the Hamilton MICROLAB® dilutor.

1.7.3 The Analyst in Training must describe the routine maintenance performed on the Hamilton MICROLAB® dilutor.

1.7.4 The analyst must be familiar with the use and calculations involved when the autodilutor is used to serial dilute a concentrated sample. How would this practice affect the UM for the process? Explain and include a sample calculation.

1.7.5 Suggested Reading

1. Hamilton MICROLAB® User's Manual.
2. Current UM calculations uncertainty budget for volatiles analysis.

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1.8 ANALYTICAL METHODS

1.8.1 Volatiles Analysis Analytical Method 1.0

1.8.1.1 The Analyst in Training must convey their understanding of the analysis protocol in Analytical Method 1.0.

1.8.1.2 Analyst in Training must describe the types of samples which qualify for analysis with Analytical Method 1.0. Describe the circumstances when a BAC would not be determined for a case that was submitted for analysis.

1.8.1.3 Analyst in Training must detail their approach in determining if a blood tube/container is compliant with IDAPA 11.03.01.

1.8.1.4 Analyst in Training must describe the proper storage of blood, urine and vitreous humor samples in the laboratory.

1.8.1.5 Analyst in Training must describe the quality assurance requirements described in Analytical Method 1.0.

1.8.1.6 Analyst in Training must describe the acceptance criteria for an analysis run.

1.8.1.7 Analyst in Training must describe how quality assurance data is monitored and where it must be stored.

1.8.1.8 Analyst in Training must describe how blood, urine and vitreous humor alcohol concentrations must be reported.

1.8.1.9 Describe the use and application of the different qualifier statements used on alcohol reporting.

1.8.1.10 The Analyst in Training must discuss the different types of alcoholic beverages and their respective alcohol content.

1.8.1.11 Analyst in Training must describe how alcohol concentrations must be reported in alcoholic beverages, simulator solutions and unknown solutions.

1.8.1.12 Analyst in Training must describe how qualitative volatiles must be reported.

1.8.1.13 The Analyst in Training must describe the intermediate check procedure for the balance(s) and autodilutors utilized for preparation of solutions for alcohol/volatiles analysis.

1.8.1.14 <u>Suggested Reading</u>

1. Volatiles Analysis Analytical Method 1.0.

2. Idaho Administration Code, IDAPA 11.03.01, Rules Governing Alcohol Testing.

3. Christmore, D.S., Kelly, R.C. and Doshier, L.A. *Improved Recovery and Stability of Ethanol in Automated Headspace Analysis,* J. Forensic Sci. 29(4): 1038-1044; 1984.

4. Restek Applications Note #59598, Dual-Column Confirmational GC Analysis of Blood Alcohols Using the Rtx®-BAC1 and Rtx®-BAC2 Columns, 1999.

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5. Stafford, D.T., *Chromatography. in:* Principles of Forensic Toxicology, Second Edition, edited by Barry Levine, pp. 91-98, 100-108, AACC Press, 2003 (or relevant pages from other editions) .

6. Levine, B., *Alcohol. in:* Principles of Forensic Toxicology, Second Edition, edited by Barry Levine, pp. 175 - 190, AACC Press, 2003 or (or relevant pages from other editions).

7. Caplan, Y.H., *The Determination of Alcohol in Blood and Breath. in:* Forensic Science Handbook, Volume I, edited by Richard Saferstein, pp. 594-648, Prentice-Hall New Jersey, 1981(or relevant pages from other editions).

8. Saker, E.G., *Screening and Quantitation by Head Space Technique of Some of the Vapors Most Commonly Found in Forensic Toxicology*, in: Current Approaches in Forensic Toxicology, Chapter 11, SOFT Meeting, 1994.

9. Klaassen, C.D., *Inhalants, in:* Principles of Forensic Toxicology, Second Edition, edited by Barry Levine, pp. 373-380, AACC Press, 2003 (or relevant pages from other editions)

1.8.2 Volatiles Analytical Method 2.0

1.8.2.1 The Analyst in Training must describe the requirements for the authentication of ethanol reference materials.

1.8.2.2 The Analyst in Training must describe the requirements for the authentication of blood matrix controls.

1.8.2.3 The Analyst in Training must describe the requirements for the authentication of qualitative reference materials that have a *Certificate of Analysis* available.

1.8.2.4 The Analyst in Training must describe the requirements for the authentication of qualitative reference materials that do not have *Certificate of Analysis* available.

1.8.2.5 Suggested Reading
In addition to reading listed under 1.10.1:

1. Volatiles Analysis Analytical Method 2.0.

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1.8.3 Volatiles Analytical Methods 3.0

1.8.3.2 The Analyst in Training must be aware of the testing guidelines for volatiles analysis set forth in Volatiles Analysis Analytical Method 3.0,.

1.8.3.3 The Analyst in Training must describe the guidelines for using a breath alcohol test to determine if additional analysis is warranted.

1.8.3.4 The Analyst in Training must describe the guidelines for using a blood alcohol concentration to determine if additional analysis is warranted.

1.8.4 Volatiles Analytical Method 5.0

1.8.4.1 The Analyst in Training must be aware of the how alcohol testing sites are approved as set forth in Volatiles Analysis Analytical Method 5.0,.

1.8.4.2 The Analyst in Training must describe the procedure for testing site approval.

1.8.4.3 The Analyst in Training must describe how proficiency tests are evaluated for IDAPA approval.

1.8.5 Volatiles Analytical Method 7.0

1.8.5.1 The Analyst in Training must be aware of the requirements for volatiles analysis competency test and proficiency tests set forth in Volatiles Analysis Analytical Method 7.0, *Volatiles Analysis Competency and Proficiency Tests*.

1.8.5.2 The Analyst in Training must describe how competency and proficiency tests are evaluated.

1.8.6 Volatiles Analytical Method 10.0 and Statistics For Analytical Data.

1.8.6.1 Reporting of Quantitative Data

The Analyst in Training must possess a working knowledge of statistics applied to analytical data.

1.8.6.2 Discuss the following terms as they relate to analytical data:

- *Population Mean versus Sample Mean*
- *Population Standard Deviation versus Sample Standard Deviation*

1.8.6.3 Discuss the following terms as they are applied to analytical data:

- *Independent Variable*
- *Linear Regression Analysis*
- *Correlation Coefficient*

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1.8.6.4 Describe how variance and standard deviation are related.

1.8.6.5 Discuss the following terms as they relate to analytical data:

- *Normal Distribution*
- *Confidence Interval*

1.8.6.6 Describe how the population mean and population standard deviation are used to define a Gaussian curve.

1.8.6.7 Define the following terms as they are applied to analytical data:

- *Accuracy*
- *Precision*

1.8.6.8 Answer the following questions:

1. Can sample data be precise but not accurate?
2. Can sample data be accurate but not precise?

1.8.6.9 Contrast Random and Systematic Error.

1.8.6.10 Discuss the concept of measurement uncertainty.

1.8.6.11 Describe how the difference between error and uncertainty would be explained to a jury and/or a judge. Develop and write a good analogy for explaining this concept.

1.8.6.12 The Analyst in Training must be aware of the requirements for uncertainty of measurement reporting set forth in Volatiles Analysis Analytical Method 10.0 *Uncertainty of Measurement for Volatiles Analysis.*

1.8.6.13 The Analyst in Training must describe the current approach to uncertainty of measurement for quantitative ethanol reporting.

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

1. Skoog, D.A., West, D.M., Holler, F.J., Errors in Chemical Analysis. *in:* Analytical Chemistry, pp. 52- 77, Saunders College Publishing, 1994 (6th edition).

2. Linnet, K. and Boyd, J.C., *Selection and Analytical Evaluation of Methods – With Statistical Techniques. in:* TIETZ Textbook of Clinical Chemistry and Molecular Diagnostics, pp. 353 – 407, Elsevier, 2006 (4th edition).

3. Kahn, S.E. and Jandreski, M.A., *Laboratory Statistics.* pp. 340 - 361. *in:* Clinical Chemistry: Theory, Analysis, Correlation, Mosby, 2003.

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4. Gullberg, R.G., *Statistical Applications in Forensic Toxicology*. pp. 458 - 499, *in:* Medical-Legal Aspects of Alcohol, Fifth ed., edited by James C. Garriott, L & J, 2008.

5. Prichard, E. and Barwick, V., Quality Assurance in Analytical Chemistry. Wiley, 2007.

1.9 CASERECORD PREPARATION

1.11.1 The Analyst in Training must describe which documents, data and completed information is required to be included in an alcohol/other volatiles analysis case record.

1.11.2 The Analyst in Training must describe the worksheets and data that are to be compiled for a centrally stored QA file for each analysis run.

1.11.3 The Analyst in Training must describe requirements for administrative and technical review of casefile and analysis report.

1.10 PHARMACOLOGY AND IMPAIRMENT DETECTION

1.10.1 The Analyst in Training must demonstrate a working knowledge of the pharmacology of alcohol and other commonly encountered volatiles. This must include an understanding of the factors affecting absorption, distribution and elimination.

1.10.2 The Analyst in Training must describe the situation when the alcohol content of arterial blood exceeds that of venous blood.

1.10.3 The Analyst in Training must be familiar with the metabolism of ethanol and other commonly encountered volatiles. This must include how metabolism relates to toxicity.

1.10.4 The Analyst in Training must describe their understanding of the effects of alcohol and other commonly encountered volatiles on the human body. This must include how it contributes to mortality and impairment observed in DUI cases.

1.10.5 The Analyst in Training must describe their understanding of postmortem changes and their effect on alcohol concentration.

1.10.6 The Analyst in Training must be comfortable with the development, performance and interpretation of Standardized Field Sobriety Tests (SFST) and a Drug Recognition Exam (DRE).

1.10.7 <u>Suggested Reading (relevant pages from other editions of the following references may be substituted)</u>

1. Levine, B., *Alcohol*. *in:* Principles of Forensic Toxicology, Second Edition, edited by Barry Levine, pp. 175 - 190, AACC Press, 2003.

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2. Kunsman, G.W., *Human Performance Testing.* pp. 15 - 30, *in:* Principles of Forensic Toxicology, Second Edition, edited by Barry Levine, AACC, 2003.

3. Caplan, Y.H., *The Determination of Alcohol in Blood and Breath.* pp. 594-648, *in:* Forensic Science Handbook, Volume I, edited by Richard Saferstein, New Jersey: Prentice-Hall, 1981.

4. Julien, R.M., *Central Nervous System Depressants: Alcohol and the Inhalants of Abuse*. pp. 64-92, *in:* Primer of Drug Action, New York: Freeman, 1998.

5. Perrine, D.M., *Depressants: Alcohol, Benzodiazepines, Barbiturates*, pp. 113-129, *in:* The Chemistry of Mind-Altering Drugs, ACS, Washington, DC, 1996.

6. Fleming, M.F., Mihic, S.J. and Harris, R.A., *Drugs Acting on the Central Nervous System - Ethanol. in:* Goodman and Gilman's The Pharmacological Basis of Therapeutics, 11th edition, 591 - 606, McGraw-Hill, 2006.

7. Garriott, J.C. and Manno, J.E., *Pharmacology and Toxicology of Ethyl Alcohol.* pp. 26-45, *in:* Medicolegal Aspects of Alcohol, Fifth edition, edited by James C. Garriott, Lawyers & Judges, 2008.

8. Jones, A.W., *Biochemical and Physiological Research on the Disposition and Fate of Ethanol in the Body.* pp. 47-156, *in:* Medicolegal Aspects of Alcohol, edited by James C. Garriott, Fifth edition, Lawyers & Judges, 2008.

9. Jones, A.W., *Biomarkers of Acute and Chronic Alcohol Ingestion.* pp. 157 - 204, *in:* Medicolegal Aspects of Alcohol, Fifth edition, edited by James C. Garriott, Lawyers & Judges, 2008.

10. Garriott, J.C., *Analysis for Alcohol in Postmortem Specimens.* pp. 217- 228, *in:* Medicolegal Aspects of Alcohol, edited by James C. Garriott, Fifth edition, Lawyers & Judges, 2008.

11. Anderson, W.H., *Collection and Storage of Specimens for Alcohol Analysis.* pp. 275 - 283, *in:* Medicolegal Aspects of Alcohol, Fifth edition, edited by James C. Garriott, Lawyers & Judges, 2008.

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1.11 PERFORMANCE OF ANALYSIS ON PRACTICE MATERIAL

To develop their expertise in using analytical methods, the Trainee will apply them to the analysis of control samples, old proficiency test samples, and/or training samples may also be obtained in the following way. A forensic scientist assigned to a case may take an additional sample from casework that the trainee may analyze for training purposes. The sample may only be taken if the reserve after removing the second sample is greater than ½ (½ meaning: ½ of the total sample of that type submitted, if two grey top blood tubes are submitted it would be half of the total blood in the two tubes, but if a purple and a grey top tube are submitted it would be the ½ of the volume of the blood in one of the tubes submitted. The Analyst in Training will be responsible for the analysis of no less than 30 samples under close supervision. The 30 samples must be divided into a minimum of at least two analysis runs. When both parties are comfortable with the trainee's proficiency and understanding of the methods, this section can be signed off. Appendix A provides general guidance for applying and evaluating this section.

1.12 COMPETENCY TESTING

Upon completion of training plan sections 1.2 through 1.14, the Analyst in Training will complete a competency test consisting of the following samples:

1. Whole blood specimens containing a wide range of appropriate alcohol concentrations and a minimum of one commonly encountered other volatile.

2. Non-biological solution(s) containing appropriate ethanol concentrations.

3. Refer to AM 6.0 for competency testing guidelines and evaluations.

1.13 IDAHO STATE POLICE FORENSIC CORE TRAINING.

The analyst must have completed the core training module prior to mock court testimony. (when an analyst that was hired prior to the core training module being implemented the discipline leader will evaluate if that analyst needs to complete any sections of the core training and will sign off on this section based on past training and experience within our lab system. Any analyst's hired after the implementation of the core training module must complete the entire module regardless of past training and experience.)

1.14 MOCK COURTROOM TESTIMONY

A mock court trial must be conducted for the Analyst in Training to provide testimony for a minimum of the following situations.

1. DUI blood alcohol analysis with pharmacology questions.

2. "Open container violation" including questions about the alcohol concentration of various types of alcoholic beverages.

1.15 COMPREHENSIVE COURSE ONALCOHOL TESTING

Within one-year of starting training in volatiles analysis, or prior to starting training, the trainee must attend and successfully complete a nationally recognized course on alcohol testing and related medico-legal matters.

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1.2 EVIDENCE HANDLING ISSUES

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.3 SOLUTION PREPARATION

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.4 GAS CHROMATOGRAPHY (GC) THEORY AND OPERATION

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.5 HEADSPACE THEORY AND OPERATION

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.6 AUTODILUTER INTERMEDIATE CHECKS

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

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1.7 SAMPLE DILUTOR OPERATION

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.8 ANALYTICAL METHODS

1.0 Quantitative Analysis for Ethanol and Qualitative Analysis for Other Volatiles in Blood, Vitreous Humor and Urine by Dual Column Headspace Gas Chromatography

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

2.0 Authentication of Referece Materials and Controls.

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.9 CASEFILE PREPARATION

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.10 PHARMACOLOGY AND IMPAIRMENT DETECTION

Competency Verified by: ❒Written Examination ❒Verbal Examination

_____ _____
Date of Completion Analyst in Training

_____
Trainer

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1.11 PERFORMANCE OF ANALYSIS ON PRACTICE MATERIAL.

Competency Verified by: ❒Examination of data and
❒Direct observation

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.12 COMPETENCY TESTING

Competency Verified by: Successful Completion

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.13 ISP CORE TRAINING COMPLETED

Competency Verified by: review of completed checklist or confirmation for Quality Manager.

_____
Trainer

1.14 MOCK COURTROOM TESTIMONY

Competency Verified by: Successful Completion

_____ _____
Date of Completion Analyst in Training

_____
Trainer

1.15 COMPETENCY TESTING

Competency Verified by: Successful Completion

_____ _____
Date of Completion Analyst in Training

_____
Trainer

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1.19 COMPREHENSIVE COURSE ON ALCOHOL TESTING

Competency Verified by: Successful Completion, Refer to Training Certificate.

_____ _____

Date of Completion Analyst in Training

_____

Trainer

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APPENDIX A

Guide for evaluating completion of practice casework

It is expected that analysts will progress at different rates based on past experience; education and that people learn and retain skills differently. The following are general guidelines for the trainer to consider when assigning, evaluating and signing off on the practice casework section of the toxicology training manual.

We anticipate the trainees will practice each analysis method on controls, old proficiency tests and aliquots taken from casework, when feasible.

The trainee will generally practice with samples to learn the analysis process and then the trainee will do practice runs that consist of multiple samples.

The trainer should observe the trainee preparing multiple runs. During this observation the trainer will confirm that the trainee is:

- Handling the samples with care and in a way that ensures the samples don't get placed in the wrong tube at any time during the examination process.
- Using appropriate techniques to prevent contamination.

The trainee and correctly labeling the container(s), and understand how to document the condition of the evidence ,how to describe it in notes, and how to store evidence during the examination process and seal it after analysis.

The trainee will demonstrate that they store and handle controls and standards appropriately.

The trainee will be able to perform the routine maintenance, and perform and evaluate the quality checks that are required for all of the instrumentation he or she is approved to use.

The trainee will demonstrate that he or she is comfortable operating the instrumentation and can do basic trouble shooting.

The trainee will demonstrate the understanding of when the officer or prosecutor should be consulted on casework decisions.

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Revision #	Issue Date	History
0	05-30-2000	Original Issue
1	12-16-2002	Updated to comply with Quality Manual
2	08-18-2004	Updated, refined, and reformatted
3	02-01-2005	Additional emphasis on IDAPA 11.03.01 requirements and QA
4	05-24-2007	Updated language, incorporated table of contents
5	02-05-2009	Added training mandates, including *hands of trainer* is not allowed for this training plan and toxicology training order requirements. Updated references. Added Statistics for Analytical Data section. Reformatting.
0	03-21-2011	Original issue for Volatiles Analysis Discipline with associated formatting changes. Added new quality requirements which require that each training plan include sections on ethics and general knowledge of "other" areas of forensic science and on the fundamental concepts of criminal justice. Formatting changes made for clarity. Updated background material references.
1	8-23-11	General grammatical changes and streamlining was performed on the document. Changes were made to the approach to the training program. "Hands of the trainer" is now allowed during training. The relationship between methods diagram was removed. The training using case materials requirements have been changed. Appendix A was added.
2	10-06-2014	Removed sections that are now covered in core training. Combined sections on statistics and uncertainty of measurement. Clarified the editions other than the ones

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	listed in suggested reading could be substituted. Streamlined process for practice samples and supervised casework.

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