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This section specific Standard Operating Procedures contains policies and procedures that are supplemental to the Division Standard Operating Procedures Manual.

1 FORENSIC TOXICOLOGY

1.1 Scope of Operations

The Forensic Toxicology (FT) Section will follow the guidelines set forth in the Forensic Science Bureau SOP. Supplemental requirements specific to the Toxicology section are contained within the Forensic Toxicology Standard Operating Procedural Manual, the Blood Alcohol Technical Manual, and the Blood Alcohol Training Manual. These manuals combined represent guidelines for the Quality System within the Forensic Toxicology Section. (ISO 4.2.5)

This document specifies procedures for the routine examination and analyses of bodily fluid, such as blood, for the determination of alcohol concentration.

1.2 History of the Forensic Toxicology Section

No Supplemental Requirements

1.3 Mission Statement

No Supplemental Requirements

1.4 Goals and Objectives

No Supplemental Requirements

1.5 Code of Ethics

No Supplemental Requirements

1.6 Organization and Staffing

No Supplemental Requirements

1.7 Organization Chart

No Supplemental Requirements

1.8 Section Description and Responsibilities

No Supplemental Requirements

1.9 Hours of Operation

No Supplemental Requirements

1.10 Manuals

No Supplemental Requirements

1.11 Customer Service

No Supplemental Requirements

1.12 Management System

No Supplemental Requirements

1.13 Planning and Development

1.13.1 Scope

In order to address customer needs and optimize the section's ability to meet those needs, the section utilizes a priority system based on the type of analysis required, the requesting customer, and required deadlines. These codes are used by staff in determining priority of case assignments.

1.13.2 Practices

Priority Codes
All assignments received by the section are given a priority code (See Appendix 03 for priority codes). These priority codes are also used by section management to distribute staffing according to current caseload.

An assignment's priority or due date may be changed by the supervisor, analyst, or administrative staff dependent on the requestor and criminal jurisdiction of the case. Due dates are approximate and subject to change dependent on staffing. (ISO 4.1.5.b)

Exam Counting Guidelines
Exam counting allows the section to determine the actual number of items analyzed for a specific request. This also allows for the tracking of the number of samples per item being processed, which provides accountability for the amount of time an analyst spends on a request.

- Blood alcohol cases are one item per sample analyzed.

1.14 Purchasing Supplies and Services
No Supplemental Requirements

1.15 Management Review System
No Supplemental Requirements

1.16 Equipment and Supply Inventory
No Supplemental Requirements

2 FACILITY DESIGN AND SECURITY

2.1 Physical Plant/Space and Design

No Supplemental Requirements

2.2 Section Security

2.2.1 General Security

Evidence Storage Areas (ASCLD/LAB 5.3.4.1, ASCLD/LAB 5.8.4.2 AND ISO 5.3.4.1a)

Evidence Storage Locations:

- Toxicology Refrigerator for storage of blood samples.
    - A bulk capacity refrigerator is located in the toxicology lab. It is used for the storage of blood alcohol cases pending analysis and in process of analysis. The refrigerator has a key lock for securing evidence.
    - Cases pending transfer to outside labs for additional testing are also stored in this refrigerator.
    - In the event of a malfunction by the refrigerator, the supervisor or designee shall transfer all items in this location to an alternate refrigerated location for temporary storage.
    - These locations may include but are not limited to:
        - Toxicology standards and controls refrigerator.
        - The APD Central Evidence main storage facility.

In Process Evidence

- Each blood alcohol analyst is assigned a keyed lockbox for refrigerated items in process.
- Analysts within the Forensic Toxicology Section shall not retain in process evidence for a period exceeding 6 months from the original date of receipt by the analyst.

Storage of Reference Standard and Reference Material Collections (5.6.3.2.1)

- Blood alcohol reference materials are stored in a locked refrigerator in the toxicology lab.

Storage and Tracking of Toxicology Section Keys

- A key log containing the location of all section keys is located in the Toxicology Supervisor's office.
- Keys shall be audited annually by the section supervisor and audits will also be stored electronically or within the physical key log.
    - Storage areas such as filing cabinets and cubicle drawers located in the toxicology office areas are not controlled and will not be subject to this audit.
- Unused or duplicate copies of section keys will be maintained by the supervisor and secured in the supervisor's office.

Records

- Key log binder

3 QUALITY ASSURANCE

3.1 Proficiency testing

The Blood Alcohol Proficiency cycle consists of each analyst participating in one proficiency test per year.

3.2 Court Testimony Monitoring

No Supplemental Requirements

3.3 Case Review

3.3.1 Practices

- If possible the Technical and Administrative Review should be conducted by the same reviewer. (ASCLD/LAB 5.9.4 and 5.9.5)
- If corrections are indicated, the reviewer is responsible for changing the status of the assignment to "2" to prevent another reviewer from reviewing the case while corrective measures are being addressed.
- All corrected documents will be attached to the assignment and the assignment will be rerouted to the reviewer.
- Blood alcohol affidavits and certified lab reports do not require a second analyst to review since they are reviewed and approved at the same time as the initial report.

3.4 Laboratory Audits

No Supplemental Requirements

3.5 Validation

Completed validations will include a signed FT Validation or Modification of Procedure Form.

3.6 Instruments and Equipment

General Requirements for Analytical Instrumentation (ISO 5.5)

- Instrument logbooks will be kept for the instruments in the laboratory. (ISO 5.5.5)
- Equipment and software manuals maintained within the Forensic Toxicology Section are for general reference purposes only, and shall not be controlled. (ISO 4.3.1)

Instrument and Equipment Maintenance

Routine and preventative maintenance is scheduled as needed.

- Analysts that have successfully completed training and are authorized to perform casework are also authorized to perform performance verifications on the respective instruments and equipment.
- If a performance check fails and the analyst is not able to perform the corrective measures, a contracted vendor will be called for service or item will be forwarded to vendor for service or replacement.
- The instrument/equipment will be clearly marked with an "Out of Service" card and an entry made into the instrument log book.

- Upon completion of repairs, the type of repair and the name of the person/vendor who performed the repairs will be recorded in the instrument log book.
- The instrument/equipment will remain out of service until it passes the respective performance verification process.
- A logbook documenting all maintenance and repair will be kept for the instrument/equipment.
- Recording of maintenance or repairs performed should be recorded using the FT Maintenance Log.
- Recording of the verification of the instrument after repairs and/or after re-installation of the software will be noted using the FT Instrument Verification Form.

Balances

- Balances shall be performance checked monthly, and after relocation or repairs using the QA Balance Performance Check Form.

Refrigerators and Freezers for Blood Alcohol samples and standards

- Temperatures are monitored daily.
- Temperatures are recorded using the FT Temperature Log.

Thermometers

National Institute of Standards and Technology (NIST) traceable thermometers will be used to record the temperature of blood alcohol refrigerators and to assist in the evaluation process for pipettes. These thermometers will be replaced upon expiration of the calibration. The NIST traceable certificate may be housed in a notebook with each blood alcohol refrigerator, in the blood alcohol lab, or electronically.

Pipettes

The positive displacement micro-pipette should be capable of accurately delivering 200 microliters. This pipette is located in the blood alcohol lab.

- The micro-pipette will be sent to an outside vendor for annual calibration or purchased as new.
- The micro-pipette will be inspected and tested upon return from the vendor or as newly purchased. See blood alcohol manual for testing procedure and acceptable testing limits upon purchase or return from a vendor for external calibration.
- Testing will be recorded and retained in a notebook.

Gas Chromatographs (GC)

If the GC is being used to detect volatile compounds in a sample, an appropriate test mixture is analyzed with each batch for blood alcohol determination. The purpose of the test mixture is to ensure that the column is able to separate the compounds of interest.

- If the sample is not being detected by the system, the analyst must evaluate what is causing the issue and take corrective measures to remediate. If the issue cannot be resolved, a vendor will be contacted for assistance and a possible service call. All corrective actions must be documented in the instrument logbook and the instrument will remain out of service until issue is corrected.

- The test mixtures are to be analyzed during every batch run and after repairs or maintenance.
- Repairs requiring a completed FT Instrument Verification Form and corresponding performance check include but are not limited to:
    - Capillary column replacement
    - FID replacement repair

3.7 Reagents (ASCLD/LAB 5.1.3) (ASCLD/LAB 5.1.3.1)

Practice

Procedures for the preparation, verification and schedule of quality checks for reagents is documented in the blood alcohol technical manual.

- Definitions:
    - Stock Solution: Reagent made in bulk for use by the section.
    - Working Solution: Reagent made in bulk for use by the section in casework batches.
- Analysts that are authorized to perform casework are also authorized to perform reagent quality checks in their respective categories of testing.

Records

- Reagent Preparation Logs (FT n-Propanol Internal Standard Preparation Log & FT Resolution Mixture Preparation Log) will be maintained for all stock reagents. These documents are maintained in a notebook.
- Any documentation on the quality checks for alcohol stock solutions are kept in a notebook housed in the blood alcohol lab.

3.8 Document Management

No Supplemental Requirements

3.9 Deviation from Documented Procedures

No Supplemental Requirements

3.10 Preventive and Corrective Actions

No Supplemental Requirements

3.11 Suggestions/Complaints

No Supplemental Requirements

3.12 Customer Survey

No Supplemental Requirements

3.13 Reference Standards and Materials

3.13.1 Scope

These policies serve to establish guidelines for the use of the reference alcohol standards for the establishment of standard curves in the determination of the concentration of alcohol in blood samples (ASCLD/LAB 5.6.3.2).

Reference Standards

- Before use, all new or newly calibrated mass reference materials will be verified by weight using an appropriate balance and documented.
    - All mass reference standards shall be verified annually within two weeks of calibration of toxicology section balances.
    - Analysts that are authorized to perform casework are also authorized to perform reference standard verifications.

Reference Material Practices

- Blood Alcohol
    - Reference materials are identified by vendor, identity and lot number. Since materials are purchased in 1 ml ampules, only one vial per lot is tested against an established curve to verify that the contents are within the specifications listed in the Certificate of Analysis. Certificates of Analysis for each lot purchased will be maintained (ISO 5.6.3.1, 5.6.3.2). Materials purchased from ISO Guide 34 vendors do not require verification.
    - The verifying data for the reference material will be labeled with the concentration of solution, lot number, source and initials of the analyst. This data will be maintained.
    - Analysts that are authorized to perform casework are also authorized to perform reference standard verifications.

Reference Materials Not Purchased Commercially

- In-house samples
    - Analyze and characterize any in-house samples before they are used as a reference material.
- If a substance cannot be purchased and must be made by an analyst in the laboratory or obtained from another forensic laboratory, the identity of the substance must be confirmed before it can be used as a reference.
- This reference material will be assigned a unique lot number and tracked.
- The data will be attached in the reference material verification note book and/or respective LIMS case number.
- The section Technical Leader will determine when adequate verification has been performed on any compound to be used as a reference material. Documentation of this verification is recorded on the FT Reference Material Verification Form.

Intermediate checks/ Inspections (ISO 5.6.3.3)
Blood Alcohol

- Reference materials purchased from ISO Guide 34 vendors shall be used within lot expiration dates and do not require intermediate checks or inspections.
- Reference materials created in-house will be checked annually if their expiration extends beyond one year from the preparation date.

3.14 Reference Collection
No Supplemental Requirements

3.15 Examination Verification
No Supplemental Requirements

3.16 Contamination Detection and Prevention
Laboratory Visitors

- Instrument/equipment repair technicians who will only be working in the instrument room will not be required to wear a mask or gloves.

4 LABORATORY RECORDS

4.1 Case Records

Documentation (ASCLD/LAB 4.13.2.4 and 4.13.2.5)
These policies are established as minimum requirements for case documentation and record keeping required for blood alcohol cases. All other supporting documentation not specifically noted but that should also be considered: narratives for case events, phone logs, shipping forms for evidence to outside labs and copies of reports from outside lab testing.

Required as an attachment to the case record per assignment for technical and administrative approval (ASCLD/LAB 4.13.2.5)

- Draft copy of laboratory report(s)
- Email of requestor if creating the assignment on their behalf
- Matrix Report(s)
- Data printouts
- Calculation worksheets
- Outside lab submission form

Abbreviations or symbols (ASCLD/LAB 4.13.2.13)
See Appendix 02 for list.

Selection of Report Format

- Blood Alcohol Assignments (BAC)
    - The format shall be changed to the format which matches the analyst if an affidavit is required for the assignment.
    - Assignments that generally do not require affidavits are cases where no analysis is being performed and sexual assault cases.

Item Selection for Analysis

- Items that are Prelog requested can be moved to prior or new assignment at the discretion of the analyst to meet customer's needs.
- If no analysis is to be performed on a requested item, reason should be noted in the matrix.
- Item(s) that have previously been reported may be removed from assignment or assignment may be administratively closed.

Dates of Examination

- For blood alcohol analysis, the start date is defined by the initial description entry in LIMS. (ISO 4.13.2.2.1 and ASCLD/LAB 4.13.2.2).

Data
The following data must be documented within the case record (ASCLD 5.10.2 and ISO 4.13.2.5.2):

- Instrumental operating parameters are recorded with the data from each analysis.(ASCLD/LAB 4.13.2.5.2) The data storage location will be identified as below:

  - Raw instrumental data will be retained until the associated assignment is administratively reviewed.
  - All instrumentation data is maintained in the case assignment as the official record.
- Spreadsheets and forms not previously verified for use in casework that include calculations and data transfers will be checked by the technical reviewer. (ISO 5.4.7.1, ASCLD/LAB 5.4.7.1)

Disposition of evidence:
All hazardous lab samples will be disposed of by a contracted hazardous disposal company or by the evidence room upon authorization for disposal.

4.2 Laboratory Reports

Blood Alcohol Reports

- The report should document a general description of the item and at minimum the inner most packaging of the item reported if present. Any subbasement layers should be noted in the matrix. Subsequent layers may be reported at the discretion of the analyst. (ISO 5.10.2.f)
- If the item is electronically containerized with other items, the container identification reported should be the same as reflected in LIMS.

Reporting Guidelines for Blood Alcohol Cases

- Ethanol content will be reported as grams of ethyl alcohol per 100 milliliters of blood. It is reported as the average of at least four data points, truncated to 3 decimal places along with the expanded uncertainty truncated to 3 decimal places.
  - Example of Reported Blood Alcohol Concentration:
    0.136 ± 0.009 grams of ethyl alcohol per 100 milliliters of blood
- Any result that is less than the limit of quantitation will be reported as “below the limit of quantitation”.
- Any result below the limit of detection will be reported as “No ethyl alcohol detected”.
- If the quantity of sample is insufficient for analysis, the report will read “No Analysis, quantity not sufficient for analysis”.
- If the sample is degraded and unsuitable for analysis, the report will read “No Analysis, sample unsuitable for analysis”.
- If a sample is forwarded to an outside laboratory for analysis, a footnote will be added to the report detailing where the sample was sent.

The section will not compile reports for the conversion of serum alcohol to whole blood alcohol.
THE UNCERTAINTY OF MEASUREMENT (UOM) (ISO 5.1.2, 5.4.6, ASCLD/LAB 5.4.6)

Uncertainty of Measurement is used to indicate the degree of variability, at a specified level of confidence that can be expected for that particular measurement or method.

A measurement of uncertainty should take into consideration the potential variables that contribute to the measured results. Some sources that contribute to the uncertainty include, but are not limited to, materials and equipment used, environmental condition, the analyst performing the test and the properties or condition of the item being tested. All components that may contribute to the measured uncertainty will be taken into consideration in the Uncertainty Budget. (ISO 5.4.6.2)

For quantitative measurements, such as alcohol concentration, the measurement of uncertainty associated with these quantifications will be determined.

A qualitative procedure such as identifying the presence of a controlled substance does not require a measurement of uncertainty.

The following test procedures have been identified as requiring an estimation of uncertainty. The uncertainty estimate can be found in the Technical Manual for each discipline below: (ISO 5.4.6.1)

- Blood Alcohol Concentration

The confidence level for the reported quantitative results is 99.7%. This is addressed as a footnote on all lab reports and does not have to be addressed per item. Any deviation to this confidence level will be reported as a footnote per that item.

4.3 Release of Records Information

4.3.1 Discovery Court Order

- Discovery court orders are assigned to section “BACO” for blood alcohol cases.
  - An assigned analyst is responsible for complying within the due date in the court order if possible.
  - Upon completion of the court order, the assignment will be administratively closed.
- Completion of the order via email may include the court representative and the requestor.
- Completion of the order via CD containing requested documentation should also include a copy of the order. One CD should be created.
- Release of the CD will be to the court representative for dissemination to the defense.
- Discovery may be provided digitally through approved and acceptable information sharing portals.

4.4 Removal of Records for Court

No Supplemental Requirements

4.5 Archiving Laboratory Case Files

No Supplemental Requirements

4.6 Expunctions

The section has several locations for information requested for expunction. See Appendix 04 for the list of locations.

4.7 Control of Laboratory Records

No Supplemental Requirements

5 EVIDENCE PROCEDURES

5.1 General Practices

No Supplemental Requirements

5.2 Observation by Outside Experts

No Supplemental Requirements

5.3 Evidence Disposal

No Supplemental Requirements

5.4 Destruction of Hazardous Substances

No Supplemental Requirements

5.5 Outsourcing

No Supplemental Requirements

6 LABORATORY SAFETY

No Supplemental Requirements

7 PERSONNEL

No Supplemental Requirements

8 COMPUTER RESOURCE MANAGEMENT

No Supplemental Requirements

APPENDIX 01 CRITICAL SUPPLIES

- Reference materials for blood alcohol
    - Reference materials for quantification (See list in Blood Alcohol Manual)

APPENDIX 02 ABBREVIATIONS

- Acceptable standard abbreviations for weight and measurements.

Word	Abbreviation	Word	Abbreviation
centimeter(s)	cm	microgram(s)	ug, mcg
deciliter(s)	dL	milliliter	mL
gallon(s)	gal	milligram(s)	mg
gram(s)	g	millimeter(s)	mm
grain(s)	gns	ounce(s)	oz
inch(s)	in, “	ounce(s), liquid	fl oz
kilogram(s)	kg	pint(s)	pt
liter(s)	L	pound(s)	lb
microliter(s)	uL	foot	ft, ‘

- Acceptable standard abbreviations for colors.

Color	Abbreviation
Black	bk
Blue	bl
Brown	br
Green	gr
Orange	or
Pink	pk
Purple	pr
Red	rd
No Change	nc

- Acceptable non-standard abbreviations.

Word/Phrase	Abbreviation
Approximately	~; approx.
Amount	amt
Blood Alcohol Concentration	BAC
Contains or Containing	→
Evidence Consumed in Analysis	ECA
From	F/
No Analysis	NA
Number (if in front of a number eg: #12)	#
Sample Insufficient for Analysis	SIA; ISA
With	W/; w/
Without	W/O; w/o
Ziplock lab provided (for repackaging)	ZLP
Extracted	EXT
Evaporated	EVAP

APPENDIX 03 TOXICOLOGY CASE MANAGEMENT PRIORITY SYSTEMS

- BAC Priority Codes

LIMS Priority Assignment Code	Title	Description and Report Due date
3	Normal	Default priority code, can be changed dependent on requestor and request.
4	Jail	Request made by Travis County DA's office to meet court date or by DPS for ALR hearings.
8	Detective Requested	Request made by Detective for blood specimen or biological specimens that require outside testing.
O	Outside testing	No in-house analysis, BAC analysis to be performed by an outside lab.
P	Proficiency	Sample that have been designated as proficiency or competency testing.
W	Williamson County	Cases requested or occurred in Williamson County.

APPENDIX 04 EXPUNCTION INFORMATION

- The Forensic Toxicology Section has several locations that need to be searched that contain information often requested for expunction such as name, date of birth, and cause numbers.
    - Forensic Toxicology Lab Number Log books are located in Admin file room
        - For Blood Alcohol: from 1984 to April 1986 contain defendant names
    - Files stored at Iron Mountain are Blood Alcohol cases from B0050000-B006574.
        - Through property module of Versadex, determine when evidence was received by lab.
    - If evidence was received by Deborah Janousek there is no lab folder, evidence was received for disposal only. All lab submission forms submitted for disposal prior to 2004 have been disposed of in accordance with retention record.
        - Use Lab Number spiral log books located in file room to find the lab number by the date evidence was submitted to the lab.
        - Use this lab number to find the transmittal number for storage box, transmittal number is used to request return of box.
    - Location of transmittal numbers to lab number: "G:\Chemistry Unit\Outside Storage\Files at outside storage.xls" under BAC folder tab.
        - Request Admin Staff to have box recalled from Iron Mountain.
        - Admin Staff will pull file from box for expunction of information
        - Verify that information has been expunged and Admin Staff will return file/box to Iron Mountain.
    - Crime Scene investigations conducted by Chemistry staff are now located in Crime Scene section of the Admin file room. The time period for these cases is 1994 through 1997.
    - Database for case from July 2003 to middle of January 2007. Located at "G:\Chemistry Unit\NFLIS\AustinTXNIMS.mdb".
        - Upon opening database do not open current Access, select “No”.
        - Select Data Entry/Case View.
        - Enter in offense number include and preceding zeros such as 2004-0010269. As you start to type in case number it will show active case for that year.
        - Delete requested information and enter “Expunge” into Last Name or update name if change of name only.
    - Chemistry Staff from 1975 to 2000

        Rudy Bohac AP0586
        Ralph Owen AP0652
        Debra Janousek AP1241
        Glenn Harbison AP1770
        Gloria Rodriguez AP2320
        Bobby Urbanovsky AP0588
        Sam Bivone AP0747
        Tony Arnold AP1758
        Mary Villarreal AP2242

APPENDIX 05 COMPRESSED GASES

All compressed gases are on contract.

- Contact APD Purchasing for current contract if supervisor is not available.
- Receipt for tanks received and picked up should be given to supervisor for budgeting purposes.

Type of cylinder tanks:

- 300 cu ft. of UHP or higher grade for Hydrogen and Helium.
- 200 cu ft. of UHP or higher grade will be acceptable if shortage of 300 cu ft. will cause section discipline to shut down. We are required to notify APD purchasing if this occurs.

Locations:
All compressed gas cylinders are received into the cylinder holding cell. All empty compressed gas cylinders are to be returned to holding cell for return to vendor.

- Cylinder holding cell (1st floor)
- Blood alcohol lab

Safety:

- All tanks should have tank cap to protect nozzle.
- All tanks should be secured to wall or cart during transport.
- Upon receipt, tanks should be labeled “Full” and date received.
- Empty Tanks should be labeled “Empty”.
- Tanks not suitable for used in lab:
    - Cylinders that appear to be defective such as stripped threads or connector nozzles should be brought to the attention of the supervisor immediately.
    - Gases that test to be contaminated should be addressed to the technical leader and the supervisor immediately.
    - These tanks should be labeled “DO NOT USE” and segregated from full tanks in the holding cell.

Replacing tanks and Inventory

- Vendor should be called to pick-up empty tanks.