

Chemistry

Forensic Biology

Physical Evidence

Toxicology

Forensic Training

Quality Assurance

Research

DIVISION OF TECHNICAL SERVICES UPDATE

Alka B. Lohmann, Director of Technical Services
Presented to the Scientific Advisory Committee
October 7, 2025





CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**Virginia Department of Forensic Science
Crime Laboratory System**

Fulfills the requirements of

ISO/IEC 17025:2017

Accreditation Requirements for Forensic Testing and Calibration (2023)

FBI Quality Assurance Standards for Forensic DNA Testing Laboratories:2020

FBI Quality Assurance Standards for DNA Databasing Laboratories:2020

In the field of

Forensic Testing & Calibration

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scopes of accreditation can be verified at www.anab.org.


Pamela L. Sale, Vice President, Forensics



Expiry Date: 30 September 2026
Certificate Numbers:
FT-0051
FT-0052
FT-0053
FT-0054
FC-0004



Accreditation

- Full Assessment – September 15 – 19, 2025
- Team of 26 Assessors
- First system for the new FBI DNA QAS
- Certificates and Scopes are available on the DFS website: <https://www.dfs.virginia.gov/about-dfs/accreditation/accreditation-documentation/>
- Current cycle expires September 30, 2026

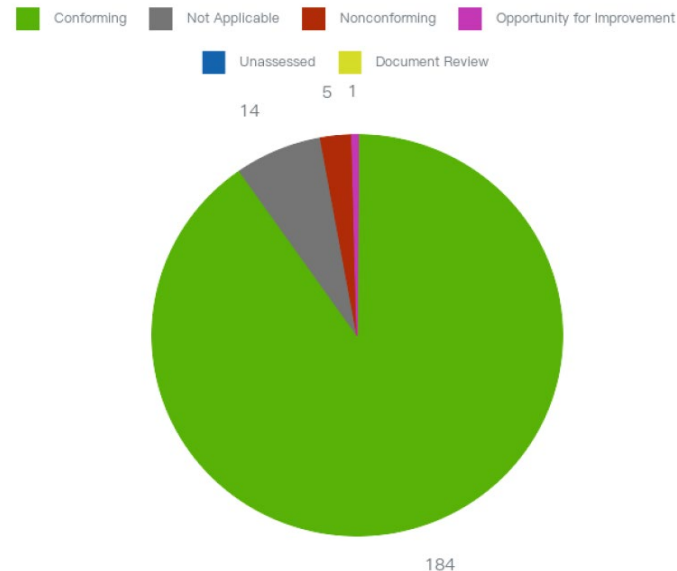


Assessment Result:

Based on the assessment techniques and a sample of the objective evidence reviewed during the assessment activity, the assessment team found that the laboratory demonstrated competence to operate a management system that fulfills all applicable accreditation requirements, including those specified within their management system.

Any opportunities for improvement or nonconformities identified during this assessment activity are noted below. All nonconformities will be resolved prior to an accreditation decision by ANAB and a summary provided in a subsequent assessment activity report.

Summary of Objective Evidence





Assessment Status Update

5.4 ISO/IEC 17025:2017

- "Are laboratory activities carried out in such a way as to meet the requirements of this document, the laboratory's customers, regulatory authorities and organizations providing recognition?... ANAB NOTE: Example of regulatory authorities are the Federal Bureau of Investigation for laboratories participating in the National DNA Index System (NDIS) and state forensic science commissions providing accreditation."



Assessment Status Update

5.5 ISO/IEC 17025:2017

c) "Does the laboratory document its procedures to the extent necessary to ensure the consistent application of its laboratory activities..."

- "The impression discipline procedures are not documented to the extent necessary to ensure consistent application of its laboratory activities. Examples include image enlargement to natural size and clarification/processing of images."



Assessment Status Update

7.5 ISO/IEC 17025:2017

- Technical records – In some instances in Controlled Substances, original observations to support the documented reported result is not maintained for Thin Layer Chromatography.

7.8.1.2 and 7.8.2 ISO/IEC 17025:2017

- Is the report clear to the customer with respect to visual observations (Biology)? Are the methods on the report clearly attributed to the item (Biology)/all listed (Toxicology)?



Quality Management System Activities

- Management Review
 - October 28-29, 2025

Request for Laboratory Examination

FS Lab # Search

Agency Information

Agency Name *
Jurisdiction of Offense

Officers

Type	Name	Phone	Fax	Email
Edit / Delete	Investigating	Smith, M. E.		
Add				

Case Information

Agency Case #
Offense Date *
Offense *
Court
Court Date
Return Method

Parties of Interest

Type	First	Middle	Last	DOB	GENDER	RACE	SID
Edit / Delete	Suspect	John		Doe		Male	
Add							

Business

Type	Name	Address
(No Businesses)		
Add		

Evidence

Agency Item #	Prelog Item #	Description	Exam	Comment
Edit / Delete	2	1 zip lock bag	Drugs	
Add				

Statement of Facts

Found suspected drugs.

[Submit](#) [Print](#) [Clear Form](#)

Prelog Update



- Currently beta testing Prelog for evidence submission
- Current RFLE form will be replaced
- § 19.2-187.01. Certificate of analysis as evidence of chain of custody of material described therein.

or of the official character of the person whose name is signed to it. The signature of the person who received the material for the laboratory on the request for laboratory examination form **or evidence submission receipt, either by hand or by electronic means,** shall be deemed prima facie evidence that the person receiving the material was an authorized agent and that such receipt constitutes proper receipt by the laboratory for purposes of this section. For purposes of this section, any laboratory that has entered into



Prelog Update

- Since Prelog creates sequential Item #s, Agency item #s will also be listed on the CoA for ease of identification

Item 1 (Agency# 33)	swab from suspect
Item 2 (Agency# 34)	swab from the victim

- Law enforcement creates the item description

Virginia Department of Forensic Science Central Laboratory

Request for Laboratory Examination

Evidence Submission Receipt

EVIDENCE TRANSFER

Investigating Agency(s): FS Lab # Sub # Submission Date:
C25-18 2 05/29/2025 03:20 PM
Richmond P D / 200 W. Grace St., Richmond

EVIDENCE SUBMITTED TO LABORATORY

			Agency	
Case #	Container #	Item # Evidence Description	Case#	Item #
C25-18	2	One (1) sealed envelope	030225-1	
	2	Envelope containing the victim's prints		2

Submission Receipt

This evidence is being submitted in connection with a criminal investigation and has not been examined by another laboratory. Tests performed utilize methods which are available on the Department website.

Return via: Hand to Hand Transfer

Submitting agency: Richmond P D / 200 W. Grace St., Richmond

Submitted by: Brereton, Dana

Received by: Brown, Lafayette



Date/Time: 05/29/2025 03:20 PM

Printed: 05/29/2025 03:20 PM

Page: 1 of 1

Virginia Department of Forensic Science Central Laboratory

Request for Laboratory Examination

Evidence Return Receipt

EVIDENCE TRANSFER

Investigating Agency(s): FS Lab # Sub # Return Date:
C25-18 2 05/29/2025 03:34 PM
Richmond P D / 200 W. Grace St., Richmond

EVIDENCE RETURNED FROM LABORATORY

Central Laboratory			Agency	
Case #	Container #	Item # Evidence Description	Case#	Item #
C25-18	2	One (1) sealed envelope	030225-1	
	2	Envelope containing the victim's prints		2

Return Receipt

RECEIPT SIGNATURE BLOCK

Returned by: Brown, Lafayette

Returned to: Richmond P D / 200 W. Grace St., Richmond
Spain, Ellen

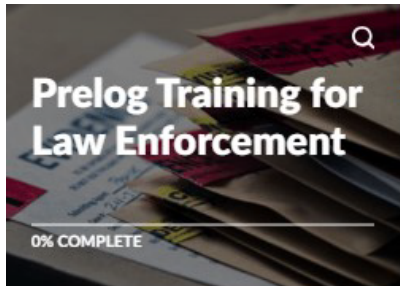


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Page: 1 of 1

Prelog Training



≡ Introduction	○
≡ Using Prelog	○
≡ Prelog RFLE Form	○
≡ Subsequent Submissions	○
≡ Case Scenario 1	○
≡ Case Scenario 2	○
≡ Conclusion	○
≡ Resources	○



Introduction

This training provides detailed instructions for utilizing the Prelog RFLE Form, DFS' new online evidence submission process. Before using Prelog to submit evidence, contact your Agency Administrator to create your profile in the Forensic Advantage Portal.

After viewing this training, you will be able to:

- Access Prelog.
- Enter items of evidence and case information.
- Submit a subsequent submission for additional evidence.

Forensic Training



- 115th FSA Session graduated June 27, 2025
- Annual Retraining September 3-5, 2025
- 116th FSA Session began September 15, 2025
 - Graduation - November 14
- 11 Short Courses since April 2025
 - Crime Scene Sketching
 - Special Techniques for Advanced Photographers
 - Impression Evidence
 - Basic Crime Scene Photography
 - Basic Crime Scene Investigation
 - Laboratory Capabilities and Updates (online)



DFS Representatives on OSAC

- Footwear & Tire Subcommittee
 - Cory Bartoe
- Human Forensic Biology Subcommittee
 - Susan Greenspoon, Ph.D.
- Ignitable Liquids, Explosives, & Gunshot Residue Subcommittee
 - Mary Keehan - Subcommittee Chair
 - Brenda Christy
- Seized Drugs Subcommittee
 - Rebecca Wagner, Ph.D. - Subcommittee Chair
 - Tom Simpson
- Video/Imaging Technology and Analysis Subcommittee
 - Patricia Mullaney - Subcommittee Vice Chair



Chemistry Research Staffing

- 8 Full-time Forensic Laboratory Specialists (FLSs) VI
 - 3 General Fund (1 in response to legislative changes)
 - 3 Overdose Data to Action in States (OD2A-S) funding with OCME
 - 2 NIJ research grant funding
- 1 Full-time FLS III (OD2A-S)



Chemistry Research Projects

Controlled Substances

- Validation of multipoint calibration curves for the quantitative analysis of methamphetamine, cocaine, and heroin
- Evaluation of beverages and syrups using semi-quantitative analysis of cannabis method

Toxicology

- Headspace ethanol analysis
- Analytical workflow for the analysis of psychedelics
- Miscellaneous basic drug extraction removal of methylene chloride, addition of compounds, carryover mitigation
- Revitalization of novel psychoactive substances qualitative analysis
- Evaluation of base screen extractions using GC-MS
- Cannabinoids SLE column pre-wash evaluation
- Quantitative analysis of mitragynine and metabolites
- Evaluation of a circulating bath for sample preparation for the quantitative analysis of amphetamines
- Quantitative analysis of antipsychotics using LC-MS/MS
- **Presumptive identification of nitazenes using qTOF (implementation phase)**

Chemistry Program Update

Robyn Weimer

Chemistry Program Manager



Trainee Update – Trace Evidence

Central Laboratory:

- One (1) trainee in Primer Residue, expected completion Q4 of 2025
- One (1) trainee in Glass, expected completion Q4 of 2025
- One (1) trainee in Explosives, expected completion Q3 of 2026
- One (1) position in recruit



Training Provided – Trace Evidence

- Fire Debris Workshop – MAFS
 - Sample Preparation and Analysis of Vegetable Oils, Fatty Acid Methyl Ester based Products, and Biofuels
 - August 26
- Gasoline Sufficiency Overview
 - Overview of the fire debris grant projects and practical tips on implementation
 - August 28 – ATF
 - October 21 – NEAFS



Trace Evidence Testing

- Continue to outsource Explosives Technical Reviews
 - MOU extended with Ohio Division of State Fire Marshal
 - Effective through July 2026
 - Technical Review proficiency test completed



Trainee Update – Controlled Substances

Central Laboratory:

- One (1) trainee expected to complete training July 2026

Northern Laboratory:

- One (1) trainee completed training: July 2025
- Two (2) trainees expected completion: October 2025 & January 2026
- One (1) position in recruit

Western Laboratory:

- Currently, no trainees or positions in recruit

Eastern Laboratory:

- One (1) position in recruit



Training – Controlled Substances

- Statewide Section Meeting
 - July 29 – 31
 - Fentanyl signature profiling, counterfeit pharmaceutical identification, internal updates, liquid chromatography training, narcotic K9 information and demos, organic chemistry nomenclature, collaboration and communication strategies, proficiency testing, and testimony.
- United Nations Office on Drugs and Crime (UNODC) Symposium
 - September 2 – 4
 - Three (3) thematic sessions: plant-based & semi-synthetic NPS; practical applications in the use of NMR, forensic sciences collaborating for early warning

Board of Pharmacy Expedited Scheduling



DFS recommended seven (7) compounds in July 2025. The compounds were considered at the Board's September 30th meeting and are pending final approval.

Synthetic Opioid:

- Despropionyl o-methylfentanyl

Depressant Properties:

- Nitrazolam

Hallucinogenic Properties:

- 4-propanoyloxy DMT
- N-isobutyl methylone
- 2-bromo-Deschloroketamine

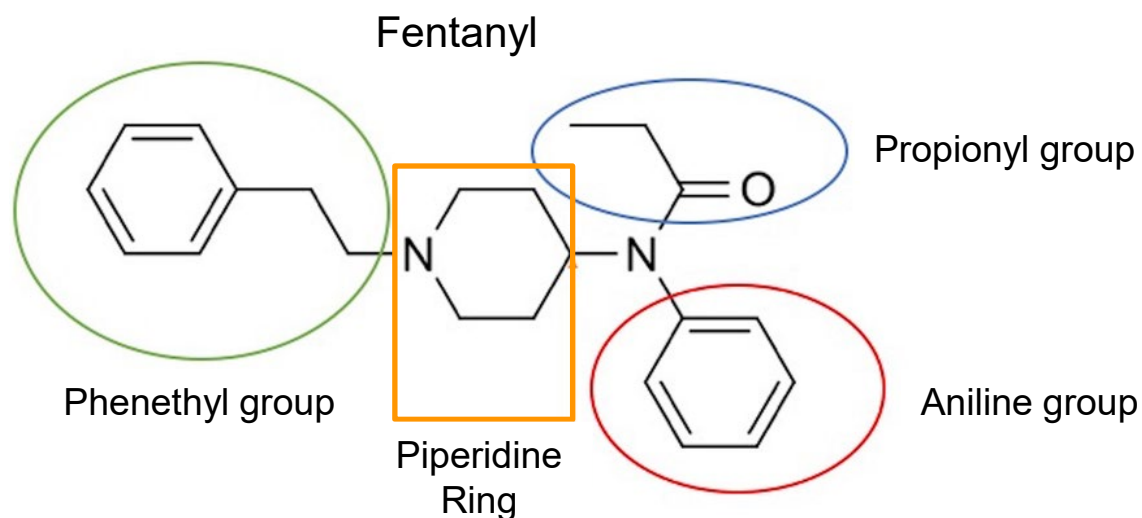
Cannabimimetic Agents:

- NMDMSB
- 5-fluoro BZO-POXIZID



Board of Pharmacy Scheduling Consistent with Federal Rule

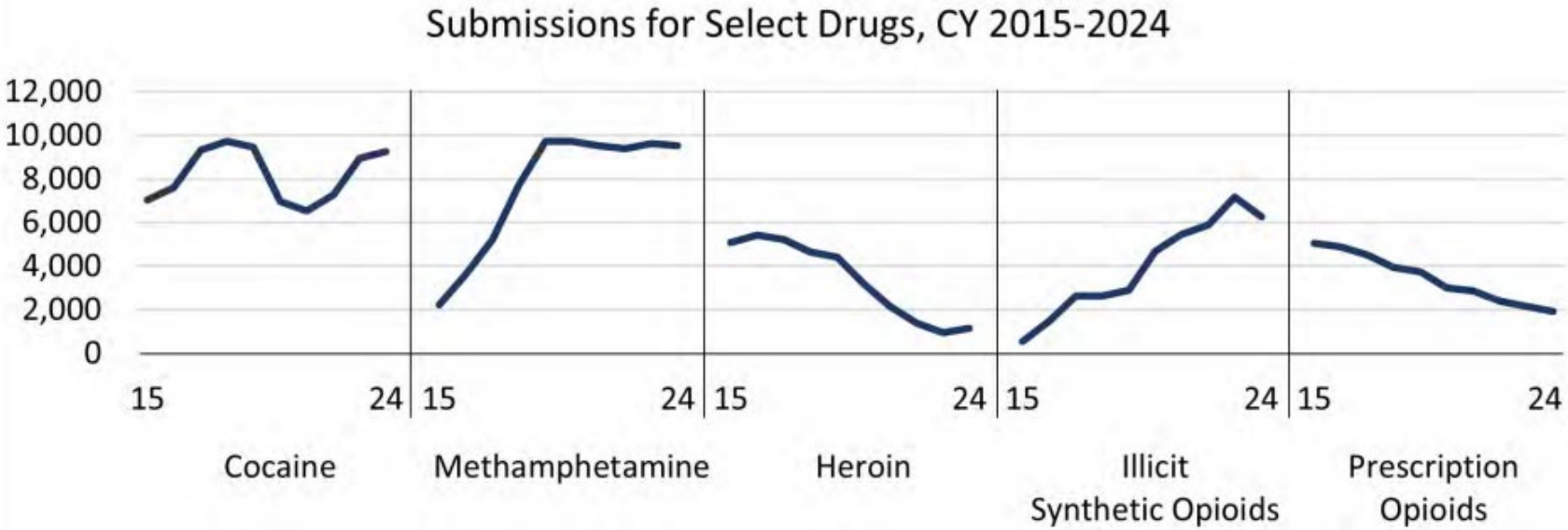
For conformance with the Federal *HALT* Act (Halt All Lethal Trafficking of Fentanyl), whereby "fentanyl-related compounds" will be scheduled based on structural modifications.



"...any material, compound, mixture, or preparation which contains any quantity of...or which contains the salts, isomers, and salts of isomers..."



Drugs Submitted to DFS in 2024



Top Ten

The ten most common substances identified in 2024 were:

1. Methamphetamine	3. Fentanyl	5. Xylazine	7. Buprenorphine	9. Naloxone*
2. Cocaine	4. Marijuana*	6. Heroin	8. N,N-dimethylpentylone	10. Psilocyn

*Marijuana and naloxone are not included in the report



In Progress in DX

Efforts to become more electronic

- Moving from paper general drug worksheet to electronic

Pre-check Macro

- Stemmed from presentation at 2025 AAFS meeting
- Word-based macro to evaluate reports prior to technical review
- Administrative statements, packaging, UoM, evidence disposition, dates of testing, methods, ... and more!

Received new request for Mobile Instrument Evaluation

Forensic Evidence Program Update

Ellen Spain

Forensic Evidence Program Manager



Evidence Receiving - Staffing

- In recruit:
 - 1 in Central
 - 1 in Eastern
 - 5 in Western
- In training:
 - 1 in Northern
- Forensic Evidence Specialist (FES) II Senior
 - 1 staff member in Central is working toward meeting requirements for a FES II Senior (career development)



Evidence Receiving

- Engaging with agency submitters to increase understanding of submission guidelines and policies. Fifteen (15) agencies have participated to date
- Hosting the International Association for Property and Evidence, Inc., Evidence Management Training course on December 4-5, 2025, at the Western Laboratory
- The General Submission of Evidence and the Forensic Biology Evidence Handling and Laboratory Capabilities Guides have been updated
- Conducted Evidence Submission training for eleven (11) evidence submitters from four (4) different agencies, with the Albemarle Police Department serving as the host agency

<https://dfs.virginia.gov/documentation-publications/evidence-handling-and-laboratory-capabilities-guide/>



Evidence Receiving

- Introduced protective tote bags for auto parts being transferring on the lockbox
- Adopted BatterySafe cases for the storage and transport evidence containing lithium batteries
- Evidence Supervisors actively monitor refrigerator and freezer temperatures using the Facilities Metasys program
- Working with HealthRFID to implement RFID technology for evidence security and toxicology sample custody



Forensic Biology Program

Brad C. Jenkins

Forensic Biology Program Manager

Examiner/Biologist Staffing Update – Forensic Biology



Central Laboratory:

- 3 in training (1 CW, 2 DB)
- 4 in recruit (4 CW)

Northern Laboratory:

- 1 in training
- 2 in recruit

Western Laboratory:

- 3 in training

Eastern Laboratory:

- 1 in recruit



Staff Internal Training Projects

- Relationship Stats Training
- STRmix training for 35 (September and October)



Validation Update

- New Robotics Biomek i5
 - Validation continues
- New Thermal Cyclers (VertiPro and Proflex)
 - Validation continues for Proflex
 - VertiPro validation in review



Outsourcing Backlogged Cases

- Contract awarded
- Approximately 600 property crime, possession, robbery cases sent to contract lab
- Private laboratory will issue report
- Ownership reviews and CODIS uploads by DFS

Statewide Forensic Biology Continuing Education Meeting



- Richmond, new lab location, fall of 2026





Developments with Rapid DNA

- Rapid DNA instruments are in place in two LE agencies: Virginia State Police and Fairfax PD
 - They each have a different instrument type (ANDE and Thermo Fisher)
- DFS will be working with VSP to implement CODIS upload/searches of Rapid generated DNA data by a partner agency
 - DFS site visit of Culpepper VSP site

Physical Evidence Program Update

Samantha M. Glass

Physical Evidence Program Manager

Latent Prints & Impressions Staffing



- In recruit: Northern – 2 examiner positions
- In training: 1 in Central for Latent Prints, completion expected in October/November; 1 in Western for Latent Prints, completion expected mid-2026

Latent Prints & Impressions Continuing Education



- All Impressions examiners attended the IAI Annual Educational Conference held in Orlando, FL, in July as their Section Meeting
- Latent Prints Section had virtual training on newly acquired software for searching: CSiPix Case AFIS in September/October
- Planning for virtual teach-backs from the various conferences examiners attended

Firearms & Toolmarks Staffing



- In recruit:
 - 3 in Central (Examiners) – Two in background
 - In training:
 - 1 in Central (Examiner)
 - 4 in Eastern (Examiners)
 - 2 FS NIBIN in Eastern began training in April and May
- *1 FS NIBIN in Central completed training in June

Firearms & Toolmarks Continuing Education



- Section Meeting to be held at the Northern Laboratory in October 2025
 - To include a DiSC assessment debrief, a full day Armorer's Course, updates from the AFTE Conference, and current topics in the field



Firearms & Toolmarks

National Integrated Ballistic Information Network (NIBIN)

As of September 11, there have been 276 new NIBIN potential associations:

- Western - 19
- Northern - 70
- Eastern - 57
- Central – 130

13 hits have been confirmed thus far this year.

3,949 since this system was received in April 2002.

Firearms & Toolmarks

NIBIN Acquisitions: as of 6/30/25



	Federal FY (since 10/1/2024)	2025 (Year to Date)	Total Acquisitions
Western	514	286	11,813
Northern	854	580	9,959
Eastern	562	339	52,412
Central	974	686	53,308



New Local Agencies with NIBIN

- From June 2025:
 - Lynchburg PD
 - Roanoke PD
- 20 sites in Virginia, 21 including the FBI Lab

Firearms & Toolmarks Emerging Technology



- Specifications for purchasing 3D technologies for virtual comparison microscopy have been worked through with Procurement
 - IFB released on September 3, 2025
 - Closes October 8, 2025

Digital & Multimedia Evidence Staffing Update



- Fully Staffed (Examiners), 2 newest examiners are in the third month of their sub-discipline training:
 - 1-Computer Device Examination
 - 1-Video/Image Examination
 - Anticipated completion is in Q1 and Q2 2026, respectively
- 34 applications were received for the wage FLS position; pending interviews



Digital & Multimedia Evidence

- Working with IT and VITA regarding cloud-based options for long-term, offsite storage of electronic case files due to concern of physical media longevity
- Uptick in mobile device examination submissions requiring more complex repair
- In process of sourcing vendor for the repair and maintenance of video cassette recorders utilized in analog video examinations based on recent consultations requesting that type of examination

Toxicology Program Update

James W. Hutchings, Ph.D.

Toxicology Program Manager



Toxicology

- Methodology - update
 - Nitazenes – Implementation of methods in each lab in progress
 - In progress
 - Miscellaneous Base Drugs – addition of more targets, automation
 - Novel Psychoactive Substances – updating method target list
 - Blood Alcohol
 - Redevelopment and validation of all parameters
 - Hallucinogens – psilocybin, LSD, DMT



Staffing

Vacancies

- Toxicology
 - C: None
 - W: 1 Forensic Scientist (FS), 1 Forensic Laboratory Specialist (FLS)
 - E: None
 - N: None

Breath Alcohol

- No vacancies

Trainees

- Toxicology
 - C – 2 Forensic Toxicologists (FTs)
 - W – 1 FT, 2 FS
 - E – 1 FS, 1 FLS
 - N – 1 FS, 1 FLS



Grants

Awarded: DMV Highway Safety Office Grants

- Breath Alcohol
 - To continue to offer licensing and training and to retain one Forensic Scientist
 - Maintain mobile access and electronic processes
- Toxicology
 - Retain two FLS II (part time)
 - Retain/hire six FLS II/III



RFID in Toxicology

- Utilizing HealthRFID products to track custody within Toxicology
 - Pilot project in Norfolk
- Current process – paper-based, in LIMS appears as Toxicology Administrative Custody
- Future process – utilize LIMS to take custody during extractions, track as personal custody



Toxicology Statistics

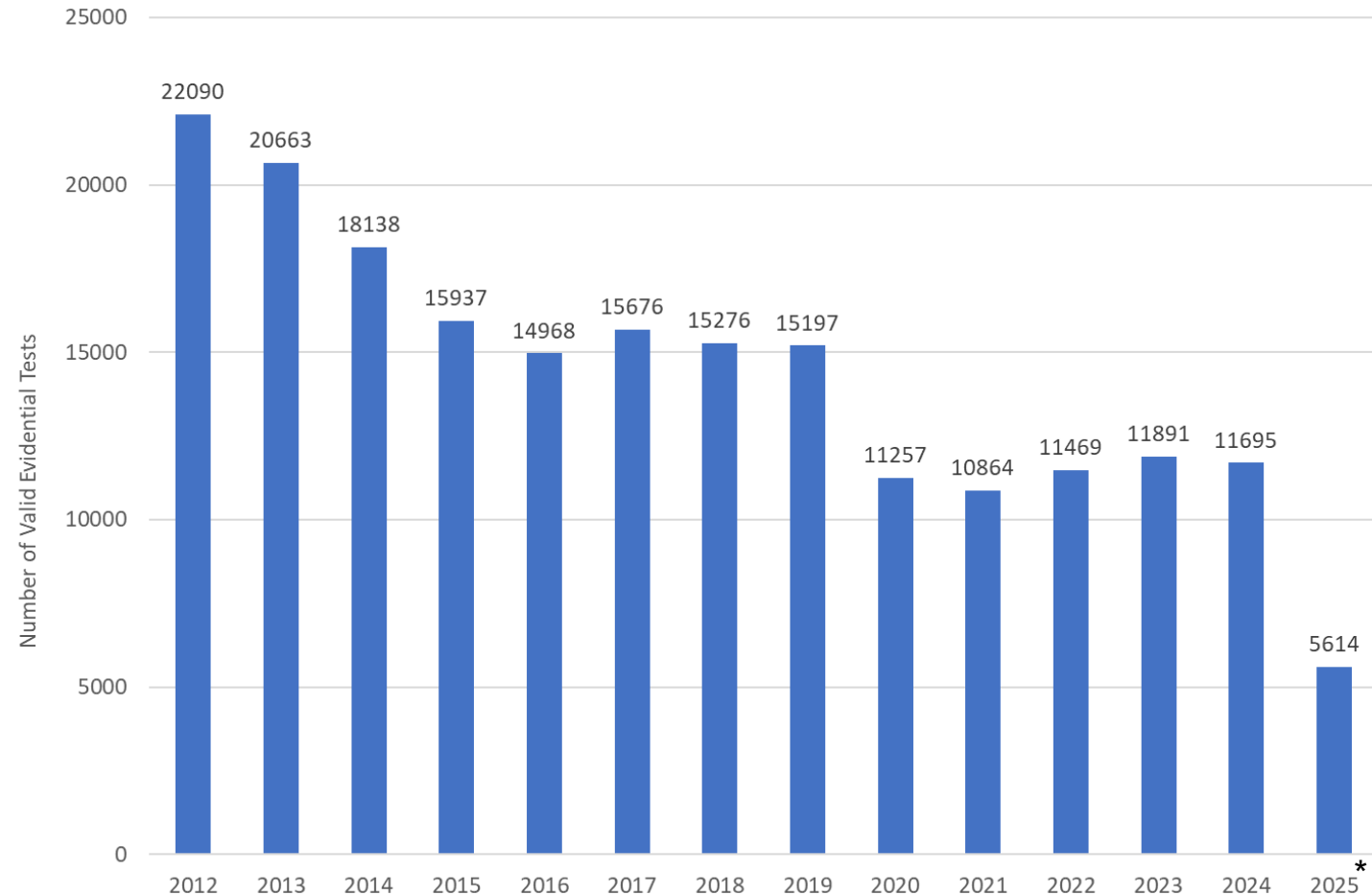
- Cases submitted by examination type

	2022	2023	2024	First Half 2025
OCME*	4,644	5,289	4,934	2,018
DUID	2,339	2,468	2,393	1,339
DUI	2,176	28	-	-
DUI+THC	-	1,871	2,216	1,394
Tox-Other	622	655	682	302

*Outsourcing of OCME cases



Breath Alcohol Statistics



*First half of 2025



Breath Alcohol Updates

- Draeger Alcotest 9510
 - Draeger, Inc.
 - Contract was executed October 3, 2025
- Training will be developed and provided to law enforcement, attorneys, and judges

Image from: <https://www.draeger.com/en-us/Products/Alcotest-9510>





Thank you!