

Chemistry

Forensic Biology

Physical Evidence

Toxicology

Forensic Training

Quality Assurance

Research

DIVISION OF TECHNICAL SERVICES UPDATE

Theresa Staropoli, Director of Technical Services
Presented to the Scientific Advisory Committee
October 6, 2026





CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**Virginia Department of Forensic Science
Central Laboratory**
8850 Times Dispatch Boulevard, Suite 100, Mechanicsville
Virginia 23116 USA

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:2025

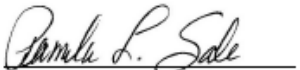
FBI Quality Assurance Standards for DNA Databasing Laboratories:2025

In the field of

Forensic Testing

This certificate is valid only when accompanied by a current scope of accreditation document.

The current scope of accreditation can be verified at www.anab.org.


Pamela L. Sale, Vice President, Forensics

Expiry Date: 31 January 2030
Certificate Number: FT-0051



Accreditation

- Certificates and Scopes are available on the DFS website: <https://dfs.virginia.gov/about-dfs/accreditation/>
- Current cycle expires January 31, 2030
- New Central Laboratory location was evaluated successfully in May – updated certificate and scope documents were issued
- July – 15 DFS became Technical Assessors
- Surveillance Assessment without Witnessing – week of September 14

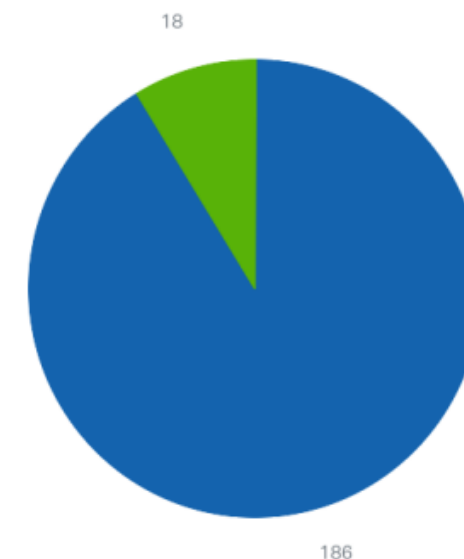


Assessment Result

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.

Summary of Objective Evidence



Forensic Training



- Forensic Science Academy - 117th Session graduated June 12



Forensic Training



- 118th FSA Session began September 21, 2026
 - Graduation – November 20
- Short Courses since April 2026
 - Virtual Laboratory Capabilities and Update
 - Evidence Submission at Western Laboratory
 - Planning for DNA Collection Training in Southwest Virginia
 - ALS, BLUESTAR & Impression Evidence
 - Basic Crime Scene Photography x 5
 - Annual Retraining Seminar



DFS Representatives on OSAC

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



Chemistry Research Staffing

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



Chemistry Research Projects

Controlled Substances

- Evaluation of the use of high resolution mass spectrometry for the screening seized drugs
- Semi-quantitative analysis of mitragynine and mitragynine alkaloids

Toxicology

- Headspace ethanol analysis
- Analytical workflow for the analysis of psychedelics
- Miscellaneous basic drug extraction removal of methylene chloride, addition of compounds, carryover mitigation
- 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

Chemistry Program Update

Robyn Weimer

Chemistry Program Manager



Trainee Update – Trace Evidence

Central Laboratory:

- One (1) trainee completed training in Primer Residue – August 2026
- One (1) trainee completed training in Glass – July 2026
- One (1) trainee in Explosives, expected completion Q1 of 2027
- One (1) trainee in Fibers, expected completion Q3 of 2027



Training – Trace Evidence

- Statewide Section Meeting
 - September 1 – 3, 2026 at the Central Laboratory
- Two manufacturing tours
 - Insurance Institute for Highway Safety (IIHS)
 - A blown film manufacturing facility
- Team building exercises
- Discussions on OSAC Updates, a professional meeting teach back, a Path 4K Camera Demonstration, and several instrument updates

In Progress in TE

- μ XRF
 - Validation addendum
 - Revising draft SOP
 - Examiner competency
 - Mock case
 - Scope extension
- SEM-EDS
 - Verification for Primer Residue
 - Verification for Instrument Support





Trainee Update – Controlled Substances

Central Laboratory:

- One (1) trainee completed training July 2026
- One (1) trainee expected to complete training Q1 2027*

Western Laboratory:

- One (1) trainee expected to complete training February 2027

Northern Laboratory:

- Two (2) trainees expected to complete training July 2027

Eastern Laboratory:

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



Training – Controlled Substances

- United Nations Office on Drugs and Crime (UNODC) Symposium
 - September 15 – 17
 - Three (3) thematic sessions: polysubstance analysis; analytical challenges of clandestine drug manufacture and camouflaging; and workflow optimization, automation, and emerging technologies
- Statewide Section Meeting
 - October 20 – 22
 - Isomers, research project updates, safety training, team building exercises, professional meeting teach backs, OSAC and SWGDRUG updates, building tour, and speakers from the Virginia State Police, Board of Pharmacy, and Department of Corrections.

Board of Pharmacy Expedited Scheduling



DFS recommended seven (7) compounds in July 2026. The compounds were considered at the Board's September 15th meeting and are pending final approval.

Synthetic Opioid:

- N-pyrrolidino ethylene protonitazene

Hallucinogenic Properties:

- N-sec butyl butylone
- 4-acetoxy-MPT
- 4-acetoxy-MiPT

Depressant Properties:

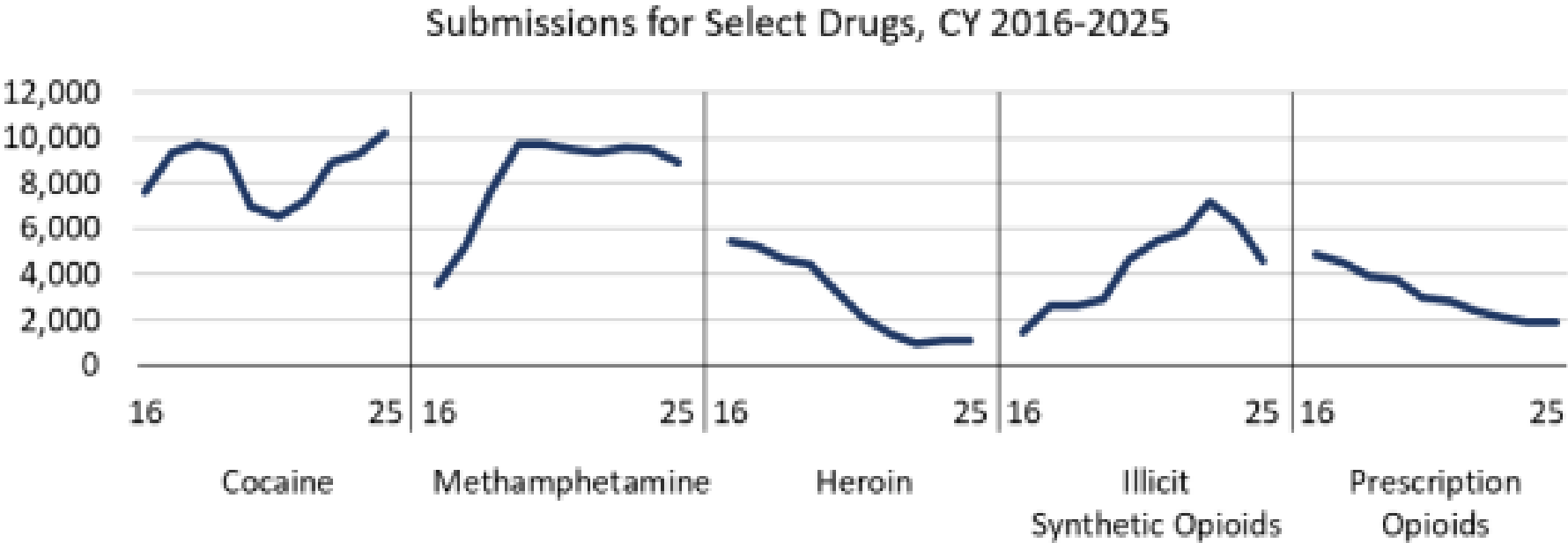
- N-ethyl Nitrazolam
- Ethylflualprazolam

Cannabimimetic Agent:

- MDMB-5'Br-4en-PINACA



Drugs Submitted to DFS in 2025



Top Ten

The ten most common substances identified in 2025 were:

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

*Marijuana and naloxone are not included in the report



In Progress in DX

Incorporating UV-Vis for Meth Quantitation

- Training "operators" and examiners
- Update SOP

Implementation of Pre-check Macro

- Optional quality check prior to Technical and Administrative Review
- Gathering data to evaluate efficacy

Alternative Extraction for Mushroom Food Products

- Psilocyn, psilocybin, and related tryptamine extraction from food products (gummies and chocolate)

Quantitative Sampling

- Considering UNODC and DEA guidance
- Assurance of particle size, matrix-based sampling amount, etc.

Forensic Evidence Program Update

Ellen Spain

Forensic Evidence Program Manager



Evidence Receiving - Staffing

- In recruit:
 - 1 in Central
 - 1 in Western
- In training:
 - 1 in Northern
- Forensic Evidence Specialist (FES) II
 - 2 staff members in Eastern are working toward meeting the requirements for a FES II (career development)



Evidence Receiving

- Engaging with agency submitters to increase understanding of submission guidelines and policies - 22 agencies have participated to date
- Hosted the International Association for Property and Evidence, Inc. (IAPE), 2 Day Evidence Management Training course and the 1 Day Advanced Concepts in Evidence Management Course September 23-25, 2026, at the Central Laboratory
 - Three Evidence Receiving staff members attended
- Actively engaging with the Metro Richmond, Central Virginia and the Tri-Rivers Evidence Management groups



Evidence Receiving

- Provided Evidence Submission training for thirty (30) representatives from law enforcement agencies at the Western Laboratory (July)
- Provided Evidence Submission training for thirty (29) representatives from law enforcement agencies at the Eastern Laboratory (September)
- Hosting the Virginia Association for Property and Evidence Professionals (VAPEP) at the Central Laboratory October 13, 2026
- Evidence Supervisors have attended the webinar "Supervising a Property and Evidence Unit". The session focused on hiring, audits, inventories and corrective action



Evidence Receiving

- The Central Evidence Receiving Section flooded following a storm in July
 - Conference rooms were used as temporary workspaces to continue assisting agencies



Forensic Biology Program

Elizabeth Ballard

Forensic Biology Program Manager



Examiner/Biologist Staffing Update

Central Laboratory:

- Data Bank
 - Fully Staffed
- DTS
 - Fully Staffed
- Casework
 - 4 in training
 - 3 in recruit

Western Laboratory:

- 1 in Training
- 2 in Recruit

Eastern Laboratory:

- 1 in Training
- 1 in Recruit

Northern Laboratory:

- 1 in Training
- 1 in Recruit



Staff Internal Training Projects

- Relationship Stats Training – ongoing
 - 1 Central, 2 Eastern
- STRmix training - ongoing
 - Additional trainees scheduled to begin Oct 2026



Validation Update

- New Robotics Biomek i5
 - Validation continues
- New Next-Generation Sequencing Instrument – MiSeq FGX
 - Validation scheduled to begin Nov 2026
 - DFS has agreed to work with vendor to submit the whole mtDNA genome sequencing kit for NDIS acceptance approval
- New Thermal Cyclers (ProFlex for mtDNA Section)
 - ProFlex validation in DFS review



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 ThermoFisher)
- DFS has purchased the ANDE Rapid Instrument
 - Vendor installation complete – Sept 2026
 - Training for four staff members to be scheduled within the next few months
 - Non-CODIS Investigative Lead Program to support Virginia State Police
- DFS intends to eventually purchase the ThermoFisher instrument to support other agencies in the same manner as well



Outsourcing Backlogged Cases

- Contract awarded and continues
- Approximately 600 property crime, possession, robbery cases sent to contract lab in 2025
 - Private laboratory has issued reports on all 2025 cases
- Approximately 400 property crime, possession, robbery cases will be sent to contract lab in 2026
- Ownership reviews and CODIS uploads by DFS will continue



Current Hot Topic – DNA Testimony

- Activity Level Testimony
 - Transfer, Prevalence, Persistence and Recovery (TPPR) of DNA
 - Guidance with regard to TPPR testimony to be added to Forensic Biology Quality Assurance Procedures Manual
 - SAC Sub-Committee – Oct 2026
 - Potomac Regional Symposium agenda includes several speakers on this topic as well as a panel discussion



Current Hot Topic – Peak Morphology

- ASCLD Notification
 - Provided a notice for awareness – September 30, 2026
 - Recommended documenting observations and contacting ThermoFisher with examples
 - DFS is collating examples to provide
- ThermoFisher
 - Provided a Customer Notification and a new Technical Note
 - Dated September 29, 2026 – provided shortly after ASCLD's notification

Statewide Forensic Biology Continuing Education Meeting



2026 Potomac Regional Symposium on Forensic DNA Analysis



Staunton, VA - November 4-6, 2026

Physical Evidence Program Update

Samantha M. Glass

Physical Evidence Program Manager

Latent Prints & Impressions Staffing



- Northern – 2 examiner trainee positions filled, training began 8/25/26.
- Newest examiner in Western completed training in June 2026.
- All positions are currently filled.

Firearms & Toolmarks Staffing



- In recruit:
 - 3 in Eastern (Examiner, FS NIBIN, FLS)
 - 1 in Northern (Examiner)
- In training:
 - 3 in Central (Examiners)
 - 1 in Eastern (Examiner)

*1 Examiner in Eastern completed training in August 2026

*1 FS NIBIN in Eastern completed training in September 2026



Firearms & Toolmarks

National Integrated Ballistic Information Network (NIBIN)

As of September 24, 2026, there have been 252 new NIBIN potential associations:

- Western - 21
- Northern - 30
- Eastern - 46
- Central – 155

8 hits have been confirmed thus far this year.

3,962 since this system was received in April 2002.

Firearms & Toolmarks Emerging Technology



- Quantum 3D technologies for virtual comparison microscopy have been purchased and installed at the 3 comparison laboratories.
- Portions of the staff at the Northern, Central, and Eastern laboratories were trained by the vendor. Additional staff will be trained in-house as the validation process continues.



Western Firearms Review

- Firearms comparisons were halted in April 2025
- Firearms comparisons are not on the Scope of Accreditation for the Western Laboratory
- Corrective Action resulting from proficiency test
- Case reviews by external provider are ongoing
- Giglio notices, with appropriate case lists, have been issued

Digital & Multimedia Evidence Staffing Update



- Fully Staffed (Examiners), 1 newest examiner is continuing their sub-discipline training:
 - 1-Video/Image Examination, expected to complete by year's end
 - As of January 28, 2026, the wage FLS position was filled and is being trained
- 1 examiner completed their sub-discipline training in computer/digital storage device analysis in April



Digital & Multimedia Evidence

- Added a new Apple iOS device to increase acquisition capability. Currently undergoing performance verification testing.
- The vendor for Cellebrite Guardian has completed the COVRamp process with VITA, which will enable us to move forward with the purchase of this web based platform, enabling our users to view end results without need for higher-end computer processing and data storage requirements that are needed now.

Toxicology Program Update

James W. Hutchings, Ph.D.

Toxicology Program Manager



Toxicology

- Methodology – Implementation or Validation
 - Novel Stimulants (Novel Psychoactive Substances)
 - ABC to BAC
 - Amphetamines - internal standard, circulating bath
 - Nitazenes



Staffing

Vacancies

- Toxicology
 - Four vacancies
 - W – 1 Forensic Laboratory Specialist (FLS)
 - E – 2 Forensic Scientists (FS)
 - N – 1 FLS
- Breath Alcohol
 - Fully staffed
- DTS

Trainees

- Toxicology
 - C – 1 Forensic Toxicologist (FT), 1 FLS
 - W – 1 FT, 1 FS
 - E – None
 - N – None
- Breath Alcohol
 - No trainees
- DTS
 - Starting next week: 1 FLS (Impaired Driving ELISA Screening)



Grants

Awarded FY 2027: DMV Highway Safety Office Grants

- **Breath Alcohol - \$455,043 (including 25% state match)**
 - To continue to offer licensing and training and to retain one Forensic Scientist
 - Maintain mobile access and electronic processes
- **Toxicology - \$725,491 (including 25% state match)**
 - Retain two FLS II (part time)
 - Retain/hire six FLS II/III



DUI Drug Screening Report to DMV

- Deidentified and tested after eligible for destruction
- First FLS moved to Toxicology
- Hired FLS starting in early October
- Training with Toxicology Section on ELISA usage



Toxicology Statistics

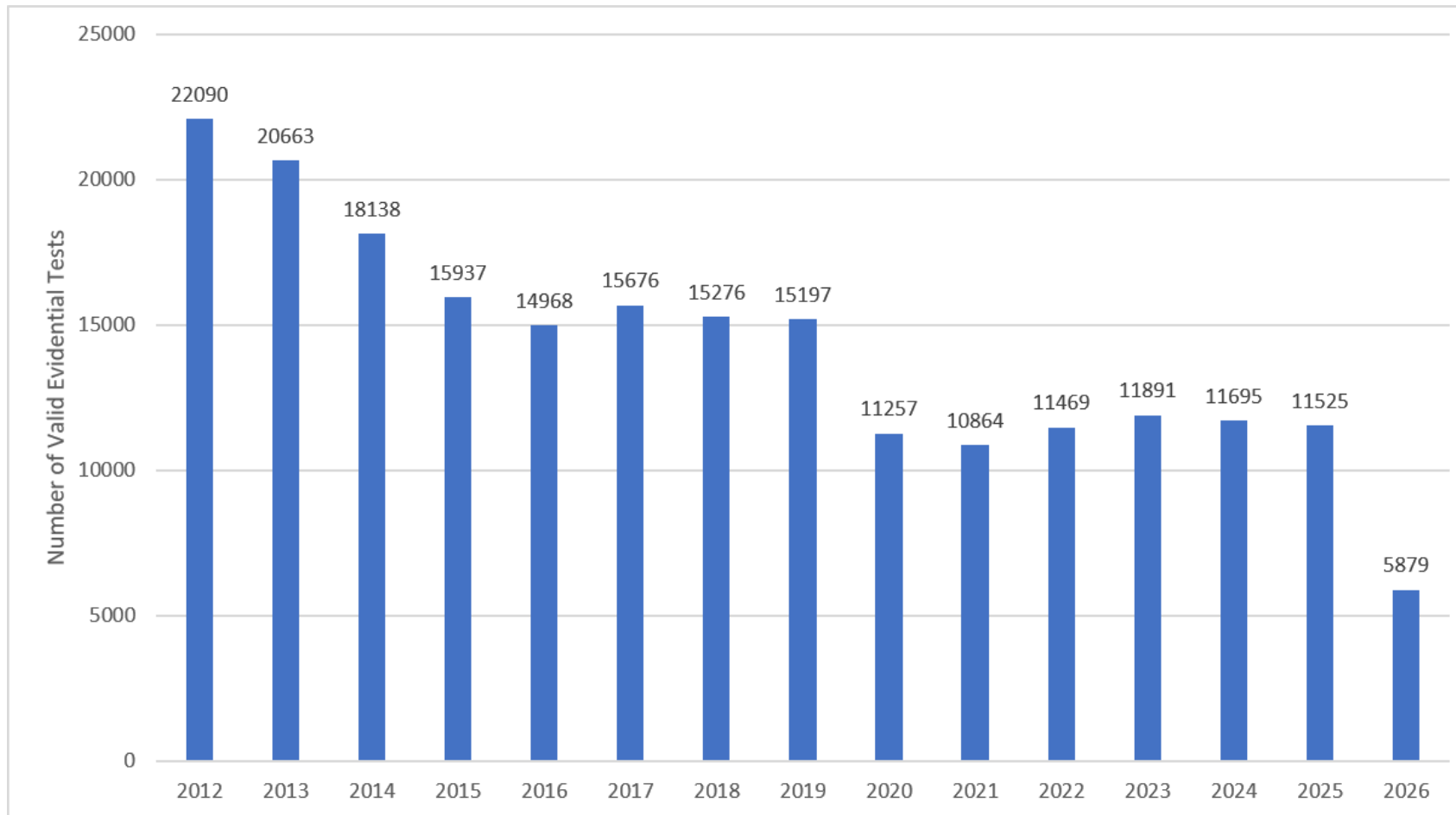
- Cases submitted by examination type

	2023	2024	2025	First Half 2026
OCME*	5,386	4,976	4,043	1,786
DUID	2,825	2,316	2,633	1,313
DUI	28	-	-	-
DUI+THC	2,584	2,326	2,673	1,571
Tox-Other	673	682	629	325

*Outsourcing of OCME cases began in late 2023, ending in August 2026



Breath Alcohol Statistics



*January - June 2026



Breath Alcohol Updates

- Draeger Alcotest 9510
 - Software received and tested
- Pending updates to Forensic Advantage Breath Alcohol Database (FA BrAD)
 - Allow for communication with field instruments
 - Test Database updated and testing in progress
- All breath test operators will need to be trained and licensed on the new instrument
- Exhibited at the VACA Summer Conference
 - Will develop and offer training opportunities for judges and attorneys



Image from: https://www.draeger.com/en-us_us/Products/Alcotest-9510



Thank you!