COMMONWEALTH of VIRGINIA

FORENSIC SCIENCE BOARD

David R. Lett, Chair

November 1, 2019

The Honorable S. Chris Jones
Chair, House Committee on Appropriations
P.O. Box 5059
Suffolk, Virginia 23435

The Honorable Thomas K. Norment, Jr.
Co-Chair, Senate Committee on Finance
P.O. Box 6205
Williamsburg, Virginia 23188

The Honorable Emmett W. Hanger, Jr.
Co-Chair, Senate Committee on Finance
P.O. Box 2
Mount Solon, Virginia 22843

The Honorable Mark D. Obenshain
Chair, Virginia State Crime Commission
P.O. Box 555
Harrisonburg, Virginia 22803

Re: 2019 Annual Forensic Science Board Report

Dear Delegate Jones, Senator Norment, Senator Hanger and Senator Obenshain:

Pursuant to the provisions of Subsection B of § 9.1-1110 of the *Code of Virginia*, the Forensic Science Board shall, by November 1 of each year, review and make recommendations concerning the following matters:

1. New major programs and plans for activities of the Department of Forensic Science and elimination of programs no longer needed;
2. Policy and priorities in response to agency needs;
3. General fiscal year operational budget and any major changes in appropriated funds;
4. Actions to foster and promote coordination and cooperation between the Department of Forensic Science and the user programs which are served;

5. Rules and Regulations necessary to carry out the purposes and intent of this chapter; and
6. Any recommendations submitted to the Board or the Director by the Scientific Advisory Committee.

The 2019 Report of the Forensic Science Board concerning these matters is attached.

Please do not hesitate to contact me through the Department of Forensic Science Director's Office if you have any questions or would like additional information.

Sincerely,

David R. Lett
Chair, Forensic Science Board

Enclosure

cc: The Honorable Brian J. Moran, Secretary of Public Safety and Homeland Security
Jae K. Davenport, Deputy Secretary of Public Safety and Homeland Security
Members, Forensic Science Board
Linda C. Jackson, Director, Department of Forensic Science
Division of Legislative Automated Systems

FORENSIC SCIENCE BOARD
2019 ANNUAL REPORT

Virginia Code § 9.1-1110(B) requires the Forensic Science Board (FSB) to review and make recommendations by November 1 of each year concerning the following:

1. New major programs and plans for the activities of the Department of Forensic Science (DFS) and elimination of programs no longer needed;
2. Policy and priorities in response to agency needs;
3. General fiscal year operational budget and any major changes in appropriated funds;
4. Actions to foster and promote coordination and cooperation between DFS and the user programs which are served;
5. Rules and regulations necessary to carry out the purposes and intent of Chapter 11 of Title 9.1 of the Code of Virginia; and
6. Any recommendations submitted to the Board or the Director by the Scientific Advisory Committee.

The Forensic Science Board met at the Department of Forensic Science's Central Laboratory in Richmond on January 3, 2019, May 8, 2019, July 31, 2019, and October 3, 2019. A list of members of the Board is included as Attachment A. Pursuant to Code § 9.1-1110(B), the Board makes the following report.

1. NEW MAJOR PROGRAMS AND PLANS FOR THE ACTIVITIES OF DFS AND ELIMINATION OF PROGRAMS NO LONGER NEEDED

Post-Conviction DNA Testing Program and Notification Project

Post-Conviction DNA Testing Program

In 2001, swabs and cuttings from evidence that had been affixed to a worksheet by a DFS serologist were discovered in an old case file. Post-conviction DNA testing on the evidence found in the case file exonerated an individual who had been convicted of rape. Subsequently, two additional individuals were exonerated of rapes based on post-conviction DNA testing conducted on evidence found in their case files.

In 2004, as a result of the three individuals exonerated through post-conviction DNA testing on evidence found in old DFS case files, Governor Mark R. Warner ordered the Department to review 10% of its serology case files to identify cases where post-conviction DNA testing could provide probative evidence of the defendant's guilt or innocence. Files were reviewed for the years 1973 to 1988, the time period identified for when the practice of retaining swabs and cuttings from evidence in case files by serologists occurred. Thirty-one cases were identified where the serologist had affixed swabs and cuttings from the evidence to worksheets in the files, and the original serology test results indicated the presence of seminal fluid. Post-conviction DNA testing conducted on the evidence from

these thirty-one case files resulted in three additional defendants being exonerated of rapes.

Based on the results from the random sample of 31 cases tested, DFS recommended, and Governor Warner concurred, that a full-scale review of DFS case files be conducted, and that DNA testing be conducted when appropriate. The criteria specified by Governor Warner for the random sample case review was limited to sexual assault cases because of the requirement for the presence of seminal fluid on the evidence to be tested. These criteria were modified by the Governor for the full-scale review of files for the Post-Conviction DNA Testing Program, and testing was ordered to be conducted in any case involving a felony crime against a person where there was evidence suitable for DNA testing located in the file, and there was a named suspect who was convicted of the felony crime against a person. Ultimately, any person convicted of a violent felony offense specified in Code § 17.1-805 was included in the Post-Conviction DNA Testing Program.

Both state and federal funding have supported the Post-Conviction DNA Testing Program. From February 2007 to June 2008, DFS utilized state funds totaling $1,422,000 to pay project personnel and to have a nationally-accredited private laboratory conduct DNA testing on evidence samples from about 300 cases. In July 2008, Virginia received a grant from the National Institute of Justice (NIJ) of approximately $4.5 million to support this post-conviction DNA testing. Initially, the grant was to pay for the identification and DNA testing of evidence in old cases in which a suspect was convicted of rape, murder, or non-negligent manslaughter. In March 2011, NIJ expanded the definition of grant eligible cases to include any case involving a conviction for a "state violent felony offense." Testing in over 500 cases was completed using the grant funding. The grant funding expired at the end of 2012, and DFS conducted testing in the remaining eligible cases in-house. In 2016, DFS utilized an additional $75,000 in state funds to pay for the outsourced retesting of 33 cases with "inconclusive" results.[1]

During the full-scale review of the 1973 to 1988 case files, approximately 534,000 files were retrieved from the State Records Center and individually reviewed. Swabs and cuttings suitable for DNA testing were identified in 3,051 case files. Of the 3,051 case files containing this evidence, there were 2,204 that had at least one named suspect listed. Efforts have identified 860 cases (of the 2,204) where a named suspect was convicted of a violent felony offense. DNA testing has been conducted in all 860 cases. Since the full-scale review of old serology case files began in 2005, seven additional individuals have been exonerated of rapes through the Post-Conviction DNA Testing Program, which brings the total number of individuals exonerated through the project to thirteen.

[1] An "inconclusive" result can mean one of two things: 1) there was insufficient scientific data upon which to draw a conclusion; or 2) there were no DNA profiles obtained from the evidence. All 421 cases with inconclusive results were reviewed/screened by staff from the Mid-Atlantic Innocence Project, the Indigent Defense Commission, and the Virginia State Crime Commission, in consultation with staff from the Department's Forensic Biology Section. Thirty-three of the 421 inconclusive cases were recommended for this retesting.

Convicted Suspect Notification Project

In 2008, the General Assembly included language in the budget requiring the Forensic Science Board to "ensure that all individuals who were convicted due to criminal investigations, for which its case files for the years between 1973 and 1988 were found to contain evidence possibly suitable for DNA testing, are informed that such evidence exists and is available for testing." *Item 408 B of Chapter 879 of the 2008 Virginia Acts of Assembly.*

At its meeting in May 2008, the Board created a Notification Subcommittee to guide its efforts to fulfill the General Assembly's budget mandate. The Notification Subcommittee was chaired by the Executive Director of the Virginia State Crime Commission (VSCC), and the Superintendent of State Police and the criminal defense attorney representative serving on the Board were the members of the Subcommittee. A Commonwealth's Attorney representative from the Board was added to the Subcommittee in 2015.

Although initially the Department of Corrections and the Virginia State Police gathered address information on individuals requiring notification, the staff of the VSCC has, since the creation of the Notification Subcommittee, led the efforts to identify correct addresses for these individuals so that notification letters can be mailed. When address information for a convicted suspect requiring notification is identified, notification letters are sent to the individual via First-Class and certified mail. A pre-stamped postcard is included with each letter, and the person who receives the letter is requested to indicate on the postcard whether they are or are not the person specified in the letter, and then return the pre-stamped postcard to the Department.

In 2009, the General Assembly passed Senate Bill 1391 *(Chapter 172 of the 2009 Virginia Acts of Assembly),* which directed the Board to continue its efforts to make the notifications required by the 2008 budget language. Senate Bill 1391 also specifically granted the authority for agencies and private organizations assisting with the notification project to receive criminal history record and other information necessary to complete the notifications, and also directed the Board to utilize the services of pro bono attorneys. Since 2009, the Crime Commission has authorized staff to provide assistance to the Board with its notification efforts.

In 2009, pro bono attorneys and law student volunteers from across the state received training from the Mid-Atlantic Innocence Project on assisting with the notification efforts. Pro bono attorneys and law students were assigned to locate and provide letters to suspects requiring notifications, as well as work to confirm suspect conviction records.

During 2014, the Crime Commission staff received assistance from contract employees with the Indigent Defense Commission (IDC) who researched information on suspects for the notification project. Through the efforts of IDC contract employees, address information for multiple suspects was identified, and notification letters were mailed to these suspects. The Office of the Attorney General and the Richmond City Public Defender's Office also assisted over the course of the project in locating individuals for notification.

At its May 2015 meeting, the Board was advised that the Crime Commission had made the Post-Conviction DNA Notification Project a priority and agreed to dedicate staff to assist with completion of the project. Throughout the course of this project, VSCC staff has spent thousands of hours conducting a manual review of the 2,204 DFS case files that contained evidence, as well as any corresponding legal files, to confirm the testing and notification status of each listed suspect in each case, and then cross-validate the information.

At its October 3, 2019 meeting, the Board heard a presentation from Virginia State Crime Commission Senior Methodologist Christina Arrington, Ph.D., who provided an update on the notification portion of the project. In order to be eligible for notification under the project, there must have been evidence suitable for DNA testing discovered in the case file, and the named suspect must have been convicted of the offense for which the evidence was collected.

Dr. Arrington reviewed with the Board the many challenges to notification. The cases were 30-45 years old, and vital information necessary for identifying individuals (e.g., date of birth, social security number) was often not available. Many individuals had common names, and there were also legal name changes that occurred, as well as frequent changes of residency between Virginia and other states, and even other countries.

During their efforts to assist in completing the required notification, Crime Commission staff partnered with multiple state agencies, local government officials, associations, non-profit entities, law schools, law firms, and pro bono attorneys to locate individuals. Numerous conviction verification requests were sent to circuit courts clerks across the Commonwealth, as well as numerous visits to courthouses to attempt to obtain conviction verification information in person. The Virginia State Police and the Department of Corrections provided frequent assistance, running searches of their internal databases. Crime Commission staff also performed hundreds of searches of online sex offender registries and inmate locator resources for Virginia and other states, as well as hundreds of searches using various national people finder and public record search tools. Using any leads on addresses that were obtained, Crime Commission staff prepared certified and first-class mailings for each individual. Multiple attempts were made to notify many individuals, and in some cases as many as five separate mailings were used.

Dr. Arrington also presented information on the status of the notifications. For the 860 cases where DNA testing was conducted, there were 969 convicted individuals requiring notification. Of those 969 individuals, 436 were notified, 280 were deceased, and the remaining 253 could not be located after all leads had been exhausted. There were also an additional 1,809 suspects who were originally classified as "ineligible" due to federal grant funding being restricted to "violent felonies." Dr. Arrington was able to determine that 289 of the additional 1,809 suspects had been convicted; 122 were convicted of felonies, and 167 were convicted of misdemeanors. Of the 122 individuals convicted of

felonies, 11 were previously notified, 41 were deceased, 44 were pending notification,[2] and 26 could not be located after all leads had been exhausted. Of the 167 individuals convicted of misdemeanors, 35 were previously notified and 28 were deceased; the remaining 104 convicted misdemeanants are the final group requiring additional efforts. Crime Commission staff plans to review the DFS case files and attempt to obtain necessary information in order to be able to locate and send notification letters to these individuals.

Upon the conclusion of Dr. Arrington's presentation, the Board unanimously approved a motion, which stated that, once efforts to make the final notifications of the 104 convicted misdemeanants are completed, all due diligence and reasonable efforts would have been made to ensure that all convicted individuals deemed eligible for notification by the General Assembly have received such notification. The Department and the Board thanked Dr. Arrington for her dedication and tremendous efforts over the many years she has worked on the project to ensure its completion.

DFS Accreditation Through ANSI National Accreditation Board (ANAB)

In January 2019, the Department celebrated 30 years of continuous accreditation. DFS is currently accredited by the ANSI National Accreditation Board (ANAB) for conformance to the ISO/IEC 17025:2005 International Standard in addition to the accreditation requirements of the accrediting body. DFS initially became accredited in 1989 through the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB), which merged with ANAB in 2016. In April 2019, the Western Laboratory Scope of Accreditation expanded to include Footwear/Tire examinations. The Department's latest cycle of accreditation extends until September 30, 2022. For the next monitoring activity by ANAB in May 2020, DFS must conform to a new set of accreditation standards and that transition is currently underway. Additional information about the Department's accreditation, including Accreditation Certificates and scope documents, can be found on the DFS website at the following link:

http://www.dfs.virginia.gov/about-dfs/accreditation/accreditation-documentation/

In August 2019, DFS hosted an Assessor Training class conducted by ANAB in Richmond. Twenty-one DFS scientists successfully completed the course and will be able to serve as volunteer technical assessors for other laboratories worldwide seeking accreditation through ANAB.

DFS Facilities

Central Laboratory Facility Project

In 2014, the Department was authorized to begin space programming and schematic design work for the renovation and expansion of the Central Laboratory facility for DFS and

[2] Notification letters were sent, via First-Class and certified mail, to these 44 individuals in September 2019.

the Office of the Chief Medical Examiner (OCME), which is co-located in the Central Laboratory with the Department. This project would allow for DFS and OCME operations currently housed across the street in the Biotech 8 Building to be moved back into an expanded Central Laboratory facility. Currently, the agencies together lease approximately 25,000 square feet of space in the Biotech 8 Building.

It was determined through the schematic design process that the project could not be completed within the approved budget and that the current location would not allow for future expansion. Accordingly, in 2018, the General Assembly amended the budget language to change the scope of work for the project to allow DFS to explore building a new facility at another location.

During the 2019 General Assembly Session, Delegate Betsy B. Carr introduced House Bill 2057, on behalf of the Office of the Chief Medical Examiner. House Bill 2057 removes the requirement in the Code that the central office and facilities of the Office of the Chief Medical Examiner be located in the City of Richmond. This bill, which passed unanimously, allowed DFS to explore suitable land for the Central Laboratory project outside the City of Richmond.

A Request for Information (RFI) seeking parcels of land suitable for the project was issued, and a site in Hanover County was identified as a potential site for relocation due to its available usable acreage, proximity to interstate highways and existing infrastructure (utilities). A mutually acceptable price was negotiated, and a contract for sale was signed by DFS and the owners of the property. As of October 1, 2019, the Department of General Services, Division of Real Estate Services, and the Attorney General's Office were in the process of conducting a due diligence study to ensure that the property meets all of the Commonwealth's requirements and is free from any legal encumbrances. The completion of the property acquisition is anticipated to be completed by end of calendar year 2019.

Western Laboratory Roof

The renovation and expansion of the Western laboratory was completed in 2016. The scope of the project did not include the replacement of the roof system on the original structure, which was nearing the end of its serviceability. With assistance from DGS, the replacement of the roof began as a separate project in 2018. SFCS, the architectural firm for both the Western Renovation/Expansion and the Central Laboratory project, was selected for design and construction oversight of the replacement roof system. The construction on the Western roof project was initiated in 2018 and completed in 2019.

Arbinger Training

In October 2018, the Department held its Annual Leadership Training for Supervisors, which entailed a two-day Arbinger Institute "Developing and Implementing an Outward Mindset" Workshop. DFS also sent five staff members to the Arbinger Train the Trainer Workshop, where they became certified Arbinger facilitators. During the Outward Mindset Workshop, participants learn the difference between inward and outward

mindsets and how to apply various self-awareness, mindset change, accountability and collaboration tools to help turn their mindsets outward. In 2019, the five DFS Arbinger facilitators have been conducting Developing and Implementing an Outward Mindset Workshops for DFS staff across the state. As of October 1, 2019, almost 200 DFS employees have received this Outward Mindset training.

Service Area Activities

New Forensic Biology Methods and Collection Devices

In the summer of 2019, the Forensic Biology Section implemented an additional screening method to detect male DNA using the Casework Direct extraction kit. This allows DFS to perform a quick DNA extraction from sexual assault type samples using existing robotic platforms in place in all four DFS laboratories. The amount of male DNA is then measured in each sample. This value determines what DNA testing steps are needed next or if the case does not have any male DNA, that is then reported to the law enforcement agency. In addition to being more efficient, it is anticipated that this screening method will result in identifying more sexual assault cases where DNA testing can be performed.

The increase in sexual assault case submissions has driven the need for more specialized testing for these types of cases known as Y-STR testing. DFS is expanding its capabilities to be able to offer this testing by training additional staff in all four laboratories. Additionally, this testing is being transitioned to a different instrument, which is currently used for normal case work in all DFS laboratories. Consolidating this testing using one type of instrument will be a cost savings measure that eliminates service and maintenance costs for the other instrument type.

An additional software system called STRmix continues to be validated by DFS. The running parameters of the system have been determined and deployment to the regional laboratories is expected in the fall of 2019. Validation will continue in the regional laboratories and laboratory procedures/user instructions are in development. This software will provide statistical estimates as to the rarity of DNA mixtures. This helps determine the strength of the DNA match when a person cannot be eliminated as a possible donor to the DNA mixture.

The ability to calculate relationship type statistics has been expanded to all four DFS laboratories. These calculations are widely used in unidentified human remains submissions from the Office of the Chief Medical Examiner. This will allow for timely reporting of these cases and assist in providing the victims' families closure in these investigations.

The DNA Data Bank has transitioned to a new buccal sample collector. This new collector helps preserve the samples better during transport to the laboratory and during long term storage of the samples at the laboratory.

New Toxicology Methods and Instrumentation

In 2018, the Toxicology Section implemented a new method for the qualitative identification of 34 fentanyl derivatives. In 2019, the Toxicology Section developed a new method to quantify the amount of those 34 fentanyl derivatives. This new methodology now has the ability to detect and quantify up to 50+ fentanyl derivatives.

The Toxicology Section purchased four Agilent 6550 iFunnel QTOF LC/MS systems in 2018. These new instruments will be utilized for screening toxicology samples with the goal of reducing the analysis time from over three days down to one. The method development for this screening has been completed with the ability to identify 250+ compounds with a small sample volume, minimal extraction processes, and short instrumental analysis times. This method combines the current immunosorbent screening assay and gas chromatography screening assay into one streamlined analysis.

In early 2019, the Toxicology Section purchased four custom designed Hamilton STAR automated liquid handling systems. These systems will be utilized to automate the sample preparation process for the Opioids and Cocaine methods with the goal of reducing the time that the analyst is needed for the preparation. This saved time for the analyst can be used to reduce the backlog of the section through other activities. The Hamilton STAR will also be used for the sample preparation process for the QTOF screening method which will further streamline this screening process. Additionally, the fentanyl derivatives method implemented in 2018 is being adapted to solid phase extraction in the anticipation of the extraction being conducted on the Hamilton STAR automated liquid handling systems.

The Toxicology Section also purchased four Agilent 9000 Intuvo headspace gas chromatographs in early 2019. These instruments are utilized for blood alcohol analysis. The new instruments include a variety of new technologies utilizing microflow plates, reformatted column holders, and an overall smaller footprint.

In March 2019, the Toxicology Section implemented a new method to identify novel psychoactive substances, which include a wide variety of 43 potentially impairing substances, such as synthetic cannabinoids, hallucinogens, benzodiazepine analogs, and research chemicals (e.g. “bath salts”). This method expands the scope of testing for the Toxicology Section to be able to identify new compounds in all toxicology samples.

Grant Funded Physical Evidence Recovery Kit (PERK) Related Activities

Testing of Inventoried PERKs

In 2015, the Department and the Office of the Attorney General were awarded $1.4 million in funds from the New York County District Attorney’s Sexual Assault Kit Backlog Elimination Program (DANY) to support testing of the PERKs identified by the inventory completed by DFS. The DANY funds were intended to pay for the outsourced testing of 2,034 untested kits that were collected, but not submitted to DFS for analysis, prior to July

1, 2014. Under the DANY grant, 1,798 kits from 98 Virginia law enforcement agencies were submitted to the outsource private testing laboratory, Bode Cellmark Forensics. As of November 1, 2018, the private laboratory had provided testing results to DFS in 1,770 of those cases. Twenty-eight kits were not tested by the private laboratory either due to environmental conditions of the kits that prohibited testing, or because they were previously tested by DFS. DFS completed the review of all cases in February 2019. In 568 cases, DNA profiles obtained by the private laboratory were uploaded for searching in the DNA Data Bank by DFS. As of September 30, 2019, there have been 243 resulting Data Bank hits.

Virginia also received funds from the Sexual Assault Kit Initiative (SAKI) grant awarded to the Office of the Attorney General to support the outsourced testing of approximately 1,240 untested PERKs collected, but not submitted for analysis, between July 1, 2014 and June 30, 2016. Bode Cellmark Forensics also was awarded the contract to conduct the outsourced testing of kits under the SAKI grant. As of September 30, 2019, 919 kits from 78 Virginia law enforcement agencies have been submitted to the private testing laboratory. Twenty kits were not tested by the private laboratory because they were previously tested by DFS. The private laboratory has provided testing results to DFS in 747 of the remaining cases, and DFS has completed reviewing the results of 555 cases. In 145 cases, DNA profiles obtained by the private laboratory were uploaded for searching in the DNA Data Bank by DFS.

Physical Evidence Recovery Kit Tracking System

DFS received funds, as a sub-recipient under the SAKI grant awarded to the Attorney General's Office, to contract with its Laboratory Information Management System (LIMS) vendor to develop PERK tracking software that is integrated with the DFS LIMS. The SAKI Grant also funded a PERK Tracking System Coordinator position at DFS.

The PERK Tracking System is able to track each PERK through every step in the process, including its distribution as an uncollected kit to the collection site (e.g., hospitals) through collection, transfer to law enforcement, submission to the laboratory for analysis, and return to the law enforcement agency for storage. All agencies handling kits will be granted access in order to update the status of each kit, and victims may use the system to check the status of the analysis of their kits. Agencies do not need to purchase the system; it is web based, and any agency with internet access may use the system at no charge. By tracking the status of kits entered into the system, DFS will be able to notify stakeholders when collected kits have not been appropriately submitted for analysis. Kits will be tracked by their unique ID number or barcode; no personally identifying information will be captured in the system.

The System has been installed on premises at the Department and has been integrated with integrated with the DFS Laboratory Information Management System (LIMS) to receive PERK data regarding the receipt and analysis status of PERKs. The Department began beta testing in June 2017 with the training and registration of BETA test users at the Division of Consolidated Laboratory Services, the VCU Health System, the

Richmond Police Department, the Henrico County Police Division, and the VCU Police Department. Once this beta testing has been completed, DFS plans to roll out the PERK Tracking System statewide.

Historical (Archived) Case File Review Project

DFS obtained funding in FY16 to begin its Historical or Archived Case File Review Project. Through the project, an electronic database of archived case file information is being created that will include scanned copies of all Certificates of Analysis and additional case information, including the jurisdiction of the offense, the investigating agency, victim and suspect names, date evidence received, type of examination, and examiner names. The database of archived case files will include cases from 1973 through 1994. DFS implemented a Laboratory Information Management System (LIMS) in 1995 so DFS is already able to electronically search cases from 1995 forward using its LIMS.

Five wage employees are each working up to 29 hours per week on the project. As of October 1, 2019, over 182,000 of the estimated 1,000,000 archived case files covering the relevant period have been entered into the database. This searchable database of case information and scanned documentation ultimately will be integrated with the Department's LIMS.

Microscopic Hair Comparison Case Review

In January 2016, the Board created a Microscopic Hair Comparison Case Review Subcommittee, which developed a process for the initial screening of DFS's microscopic hair comparison cases and for the review of transcripts in cases with convictions. A Review Team, consisting of two attorneys and one DFS scientist with experience as a hair examiner, conducts reviews of the transcripts and makes recommendations to the Subcommittee regarding whether notification to the parties is appropriate in each case.

The Department has continued its work identifying microscopic hair examination cases as part of its Historical Case File Review. One of the wage employees who is assisting with the Historical Case File project reviews all identified hair cases to determine whether there were any positive, probative associations reported in each case. A DFS staff member confirms conviction information for the cases with positive, probative associations and seeks out transcripts or transcript substitutes, where appropriate, for review. The Department of Corrections assisted with the distribution of a notice to inmates regarding the Case Review in December 2018. DFS has received a number of letters from inmates seeking to learn if their cases qualified for the Review. A few of these inquiries have resulted in the acquisition of additional transcripts for review.

As a result of these efforts, an additional nine transcripts were obtained during the spring of 2019, and a Review Team Meeting was held on March 11, 2019, to review those transcripts and make recommendations regarding notifications. The Microscopic Hair Comparison Case Review Subcommittee met on May 13, 2019, to consider the Review Team's recommendations. Notifications were approved by the Subcommittee in five cases

as a result of this meeting. The Virginia State Crime Commission staff continues to provide assistance in locating defendants, or their next of kin, for notifications.

Serology Case Review

In 2016, with the Board's approval, the Department commenced a Serology Case Review. The review was initiated by DFS in response to allegations made in a petition for a writ of actual innocence filed with the Supreme Court of Virginia. DFS performed conventional serological testing from 1972 – 1974 (i.e., ABO blood typing or secretion typing). The Department ceased this type of serological testing in April 1994 when PCR DNA typing implemented.

For the Serology Case Review, a random sample of serology cases (including at least 100 reports each from the Eastern and Northern Laboratories between the years 1982 and 1992) is being reviewed to determine whether a more in depth review is needed. Fifteen post-conviction cases where DNA testing was used to exonerate a wrongly convicted individual are also part of the review. DFS also mailed letters to statewide associations for its user agencies seeking recommendations for additional cases to be considered for the review.

Each case is being reviewed separately by two scientists. DFS had four scientists who previously served as serologists conducting reviews; however, two have retired so there are now only two DFS scientists conducting the serology reviews. Jami St. Clair, a member of the Department's Scientific Advisory Committee who has experience as a serologist, is serving as an independent, external reviewer and is conducting the second review for twenty percent of the cases.

At the Board's October 3, 2019 meeting, DFS shared observations of some of the routine practices from the cases reviewed (e.g., results for known reference samples were not reported when no typing results were obtained for the evidence samples), as well as specific issues observed (e.g., a case where the controls had failed and the typing results for the evidence were not reported, but were documented in the case file). The initial review of selected cases by two scientists is nearly complete. DFS plans to have a group of three scientists (the Biology Program Manager and two DFS scientists who previously served as serologists) recommend final actions (to include notifications) in reviewed cases. The independent, external reviewer will then review the recommendations. DFS anticipates presenting a report on the Serology Case Review, including information on any notifications, to the Scientific Advisory Committee and the Board at their April 2020 meetings.

2. POLICY AND PRIORITIES IN RESPONSE TO AGENCY NEEDS

DFS Bills Passed During 2019 General Assembly Session

During the 2019 General Assembly Session, three bills were introduced on behalf of the Department. All three bills passed unanimously.

Senator J. Chapman Petersen introduced Senate Bill 1401, which creates an exemption in the Code to allow any DFS employee to possess or transfer any item or material that is unlawful to be possessed or transferred, provided such possession or transfer occurs while the employee is engaged in the performance of his/her official duties. This bill ensures that DFS employees who are possessing or transferring unlawful items while engaged in the performance of their official duties are doing so lawfully.

Delegate Michael P. Mullin introduced House Bill 2118, which removes the American Society of Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) from the three statutes that specify ASCLD/LAB as an accrediting body for independent laboratories that are permitted to conduct testing of samples for alcohol or drugs. This is a technical fix as, in April 2016, ASCLD/LAB merged into the ANSI National Accreditation Board (ANAB) so ASCLD/LAB is no longer issuing accreditations. House Bill 2118 removes ASCLD/LAB from the lists of specified accrediting and certifying bodies in the Code and replaces it with broader language describing such an accreditation body. The new language would include ANAB (ASCLD/LAB's successor), and it would also eliminate the need to revise the Code should these types of accrediting/certifying bodies merge or change names in the future.

Delegate Vivian E. Watts introduced House Bill 2080, which requires DFS to maintain a statewide electronic tracking system for physical evidence recovery kits (PERKs) and mandates that all health care providers, law enforcement agencies, the Division of Consolidated Laboratory Services, and the Office of the Chief Medical Examiner update the status and location of each kit in the Tracking System whenever such status or location changes. House Bill 2080 included two enactment clauses; the first is a delayed enactment making it effective July 1, 2020, and the second requires DFS to include information about the use of the PERK Tracking System in this Annual Report.

Improving Timeliness

Caseload Data

The caseload data reported in the table below reflects, for FY18 and FY19, the total number of cases received statewide by each DFS testing section, the total number of cases completed by each section, and the average case turnaround time (number of days from receipt of evidence in a case by DFS to the release of the Certificate of Analysis) for each section. The table also specifies the ending backlog (total number of cases on hand) in each section as of the end of the respective fiscal years.

Section	Cases Received (FY18)	Cases Received (FY19)	Cases Completed (FY18)	Cases Completed (FY19)	Average Case Turnaround Time (FY18)	Average Case Turnaround Time (FY19)	Ending Backlog 6/30/18	Ending Backlog 6/30/19
Controlled Substances	34,734	34,787	30,494	36,133	120	132	13,416	12,101
Digital & Multimedia Evidence	97	233	107	136	334	142	104	202
Firearms & Toolmarks	7,453	6,627	8,093	7,949	146	112	2,618	1,308
Forensic Biology	5,845	6,027	5,698	6,401	161	137	2,206	1,888
Latent Prints & Impressions	2,661	2,558	2,589	2,315	73	91	422	673
Toxicology	9,586	9,669	9,869	9,452	48	40	874	1,098
Trace Evidence	689	714	721	725	64	58	101	93
Total	**61,065**	**60,615**	**57,571**	**63,111**	**113**	**114**	**19,741**	**17,363**

The table below presents, for each DFS section, the ending backlog as of October 1, 2019, the average turnaround time for cases completed in September 2019, and the directional trend for the backlog.

Discipline/Section	Ending Backlog As of 10/1/19	Average TAT (in days) September 2019	Backlog Trend
Controlled Substances	12,388	137	↓[3]
Digital & Multimedia Evidence (DME)	184	293	↑
Firearms & Toolmarks	1,324	73	↓
Forensic Biology (DNA)	1,795	107	↓
Latent Prints & Impressions	705	82	↑
Toxicology	1,155	44	↔
Trace Evidence	104	51	↔

[3] The Controlled Substances backlog peaked at the end of October 2018 at 13,808 cases. As the backlog begins to decrease, average TATs may rise as older backlogged cases are completed. This is demonstrated by the higher average turnaround times for cases completed in September 2019 than for those cases completed in FY19.

Actions to Address Controlled Substances Backlog and Turnaround Times

In July 2018, with updated projections for CY2018 showing an approximate 9% increase over CY2017, DFS determined that the six additional positions included in the FY19 budget would not be sufficient to manage the growing Controlled Substances caseload and sought additional resources from the Administration. In August 2018, Governor Northam approved the Department's request for emergency funding for additional resources in order to take immediate action to address the Controlled Substances backlog, which included transferring $1,660,000 from the Department's FY20 budget to its FY19 budget for the following:

- Fill six additional vacant and unfunded positions with Controlled Substances forensic scientists;
- Create and fill four wage (P-14) positions (two evidence specialists to handle the increased Controlled Substances case receipts and two forensic administrative specialists to perform administrative tasks associated with increased case output);
- Purchase two additional scientific instruments needed to handle the increased Controlled Substances cases; and
- Outsource a portion of the Controlled Substances backlog to a commercial laboratory.

The budget approved by the 2019 General Assembly replenished the $1,660,000 transferred to FY19 and provided $1,681,000 in FY20 to continue the efforts undertaken to address the backlog and turnaround times.

Staffing

On average, it takes between ten and twelve months for new trainees to be qualified as DFS scientists in the Controlled Substances Section. A total of 15 Controlled Substances scientists have been hired since July 1, 2018. This includes the six positions initially provided in the FY19 budget, the six additional scientist positions funded in FY19 through a transfer of funds from FY20, and three positions vacated through attrition. Nine of the 15 have completed their training and are now qualified DFS forensic scientists. Two additional trainees are scheduled to complete their training in November 2019, and the remaining four are expected to be finished in the spring of 2020.

Outsourced Testing of Controlled Substances Cases

In January 2019, DFS entered into a contract with NMS Labs (NMS) of Willow Grove, Pennsylvania, for the outsourced testing of seized drug evidence. NMS is a testing laboratory, accredited to the ISO/IEC 17025:2017 International Standard, that has been performing forensic testing for over 40 years. On February 1, 2019, all law enforcement agencies and Commonwealth's Attorneys served by DFS were notified of the plan to outsource cases. Virginia Code §§ 19.2-187 and 19.2-187.01 provide for the admissibility of Certificates of Analysis and evidence of chain of custody when such analyses are performed by a laboratory authorized by DFS. Effective July 1, 2019, any laboratory that

has entered into a contract with DFS for laboratory services is deemed authorized to conduct such analyses.[4]

The Department is outsourcing one and two item cases where the charge noted on the Request for Laboratory Examination form is simple possession of a controlled substance. DFS is sending approximately 75 cases per week to NMS, which is conducting the analyses in the selected cases and providing Certificates of Analyses that are fully compliant with the requirements outlined in the Virginia Code. DFS is forwarding each Certificate of Analysis prepared by NMS to the Commonwealth's Attorney's Office for the jurisdiction where the offense will be heard. An explanatory letter is included with each Certificate of Analysis, which includes information on how to request authenticated copies of the contract documentation and who to contact at DFS with questions.

If a Commonwealth's Attorney's Office receives notification that the defendant is objecting to the admissibility of the Certificate of Analysis from NMS, and the case is going forward to trial, upon resubmission of the evidence, the Department will reanalyze the evidence on an expedited basis and provide a Certificate of Analysis prepared by DFS. A DFS Controlled Substances Forensic Scientist will then be available to testify at trial as to the results of the reanalysis. In addition, DFS is reanalyzing 1% of cases sent to NMS as a quality assurance measure.

The Department anticipates outsourcing up to 8,000 cases over a three-year period while increasing analytical capacity. As of September 26, 2019, 1,945 cases have been sent to NMS, and 1,658 reports have been received from NMS.

Other Measures

DFS has continued to work to educate its customers regarding its long-standing Drug Item Reduction Policy (DIRP), which is designed to reduce the submission of evidence that will not be tested to more effectively use Department resources. On November 29, 2018, DFS convened a Controlled Substances Stakeholder meeting. Nineteen Commonwealth's Attorneys and narcotics detectives from across the state participated in the meeting to discuss the Controlled Substances Section workload and actions taken by DFS to address the increased backlog and turnaround times. The group encouraged all DFS laboratories to work with agencies prior to evidence being accepted at the laboratory in order to reduce the submission of items that will likely not be tested under DIRP.

All Controlled Substances examiners were required to work 40 hours of overtime during the time period of January 1 – May 30, 2019. Controlled Substances examiners also have been permitted to work voluntary overtime.

DFS was awarded grant funds to conduct a Lean Six Sigma (LSS) study of Controlled Substances Section processes to identify any systemic inefficiencies and improve workflows. The Department has been unable to identify a suitable LSS provider.

[4] *Chapters 478 and 479 of the 2019 Acts of Assembly*.

Accordingly, DFS anticipates seeking approval to re-allocate the funds for another Controlled Substances project.

Projections

Even though submissions were relatively flat during the first eight months of 2019, recent changes in federal and state law regarding marijuana and industrial hemp are requiring departmental resources to validate quantitative methods that can test plant material and potential "hemp products" for delta-9-tetrahydrocannabinol content. The Department is also predicting increased submissions for marijuana and hemp cases that require quantitative analysis, which is testing that is not currently occurring. Accordingly, DFS is using a projection model that assumes a 3% increase in case submissions from the previous year beginning in September 2019. With that model, it is estimated that an approximate average case turnaround time of 60 days will be achieved between December 2020 and February 2021.

Factors Affecting DFS Workloads and Backlogs

Passage of Federal Farm Bill and Enactment of Virginia Industrial Hemp Legislation

On March 21, 2019, Chapters 653 and 654 of the 2019 Virginia Acts of Assembly became effective, amending the Industrial Hemp Act (Virginia Code §§ 3.2-4112 *et seq*.), Virginia Code § 18.2-247, and the Drug Control Act (Virginia Code §§ 54.1-3400 *et seq*.). The legislation was enacted, in part, in response to the passage of the federal 2018 Farm Bill, which established a regulatory framework for the agricultural production of industrial hemp and removed industrial hemp from Schedule I of the federal Controlled Substances Act (21 U.S.C. §§ 801 *et seq.*).

Under federal law, industrial hemp is defined as any part of the *Cannabis sativa* plant, "including the seeds thereof and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis." The Virginia General Assembly adopted a parallel definition in Chapters 653 and 654 of the 2019 Acts of Assembly.

Field Tests

Marijuana and industrial hemp are different strains of the *Cannabis sativa* plant. The only mechanism to distinguish hemp plant material from marijuana plant material is to conduct a quantitative analysis to determine the tetrahydrocannabinol (THC) concentration. The Duquenois-Levine field test, which is the marijuana field test currently approved by DFS, is only capable of presumptively identifying *Cannabis sativa* plant material and cannot distinguish marijuana from industrial hemp.

The Cannabis Typification test ("4-AP" or "Swiss" test) can be used in conjunction with the Duquenois-Levine field test to help indicate if plant material is marijuana or

industrial hemp. The 4-AP test cannot determine the concentration of THC in the sample. Instead, the 4-AP field test is a ratio test that turns different colors based on the ratio of cannabidiol (CBD) to tetrahydrocannabinol (THC) in the Cannabis plant material. Controlled Substances Forensic Scientists have evaluated and anticipate completing validation of the 4-AP test by the end of October 2019. This tool will assist law enforcement in deciding whether the plant material should be submitted to DFS to determine its THC concentration.

Changes to DFS's Analytical Scheme for Marijuana

The Department's current analytical scheme for the testing of suspected marijuana plant material, which has been used by forensic laboratories across the country, does not evaluate the amount of THC present. Controlled Substances Forensic Scientists, assisted by the Research Section Supervisor, have developed and are validating new methodologies for use in the laboratory to differentiate marijuana from hemp. DFS anticipates implementing the 4-AP test and a semi-quantitative method for the analysis of plant material submissions in the Fall 2019. In addition, a quantitative method that will allow for the measurement of THC, THC-A and Cannabidiol is being developed and validated. DFS has collaborated with the federal Drug Enforcement Administration (DEA) on these new methods.

Anticipated Changes to Marijuana Submissions

With the enactment of Virginia Code § 19.2-188.1(B)[5] in 2006, marijuana submissions to DFS decreased significantly. The field test kits approved by DFS in accordance with that Code section, the Duquenois-Levine kits, cannot differentiate between marijuana and hemp. Additionally, the 4-AP field test is not an approved field test published in the Virginia Register of Regulations, which means that the results of the 4-AP field test cannot be used for testimony. Accordingly, DFS anticipates an increase in the number of suspected marijuana cases being submitted to the laboratory that require an evaluation of the concentration of THC.

Court Appearances for Controlled Substances and Toxicology Sections

A long-term impact of the United States Supreme Court's 2009 decision in Melendez-Diaz v. Massachusetts has been the increased the number of witness subpoenas DFS staff receive and the increased time examiners spend out of the laboratory for court travel and appearances. In Melendez-Diaz, the Court held that the defendant's Sixth Amendment right to confront witnesses against him is violated if the laboratory report is offered into evidence without the testimony of the forensic scientist who performed the analysis. The Controlled Substances and Toxicology Sections continue to be most directly affected by this decision.

[5] Code § 19.2-188.1(B) permits a law enforcement officer to testify at trial as to the results of any marijuana field test approved as accurate and reliable by the Department of Forensic Science pursuant to regulations adopted in accordance with the Administrative Process Act (§ 2.2-4000 et seq.), regarding whether or not any plant material, the identity of which is at issue, is marijuana.

In FY2019, DFS staff statewide received 17,215 subpoenas, which resulted in 4,085 appearances, and approximately 1,294 days spent away from the laboratory. The Controlled Substances Section alone received 8,196 of the subpoenas and made 497 appearances, which resulted in approximately 210 days of examiner time spent away from the laboratory. The Toxicology Section received 5,670 of the subpoenas and made 3,017 appearances, which resulted in approximately 822 days away from the laboratory. When examiners are out of the laboratory, they have fewer hours available to perform forensic analyses. In presentations provided to Commonwealth's Attorneys, staff requested assistance in minimizing the time examiners spend away from the laboratory by, among other things, allowing examiners to be placed on call for testimony and use video testimony.

Ability to Hire and Train Qualified Examiners

The demand for trained, experienced forensic scientists has exceeded the supply for many years. In order to fill positions with limited qualified applicants, DFS has developed a process of hiring and training individuals with the necessary educational credentials, but without the practical experience. The table below reflects the average length of the training for new scientists hired as trainees in each discipline. The length of training for scientists who come to DFS as previously "qualified" in another laboratory system may be reduced.

Section	Average Examiner Training Period
Breath Alcohol	12 months
Controlled Substances	10 months
Digital & Multimedia Evidence	12 months
Firearms & Toolmarks	6 months (NIBIN forensic scientists) 24 months (forensic scientists)
Forensic Biology (DNA)	12 months
Latent Prints & Impressions	12 months (latent prints forensic scientists) 12 months (impressions forensic scientists)
Toxicology	12 months (forensic scientists) 18 months (toxicologists)
Trace Evidence	12 months

Current examiners conduct the training for new hires and must dedicate significant time to working with the trainees, which results in decreased case output for the examiners conducting the training.

3. GENERAL FISCAL YEAR OPERATIONAL BUDGET AND ANY MAJOR CHANGES IN APPROPRIATED FUNDS

Budget Overview

The Department's annual budget for FY2020 is:

General Fund Base Budget	$46,173,510
Technical Adjustments to Base Budget	$2,228,514
Additions to Base Budget	$2,181,288
Non-General Funds	$2,259,770
TOTAL OPERATING BUDGET	$52,843,082

The "Additions to Base Budget" include $1,681,288 for the additional Controlled Substances resources to increase capacity, and $500,000 for increases in laboratory supply costs.

Grants

During the period of November 1, 2018, through October 31, 2019, funding has been available or awarded to DFS under the following grant programs:

FY17 Paul Coverdell Forensic Science Improvement Program – $220,228 awarded by NIJ to Virginia (the Department of Criminal Justice Services or DCJS) for DFS and the Office of the Chief Medical Examiner. The DFS portion ($100,114) was used for training and continuing education of scientific staff in the Chemistry, Physical Evidence, and Toxicology program areas. The grant period was January 1, 2018 – December 31, 2018.

FY18 Paul Coverdell Forensic Science Improvement Program – $502,354 awarded by NIJ to Virginia (DCJS) for DFS and the Office of the Chief Medical Examiner. The DFS portion ($268,926) was used for training and continuing education of scientific staff in the Chemistry, Physical Evidence, and Toxicology program areas. In addition, the DFS portion of the budget contains funding for a joint DFS-OCME training related to the opioid crisis. The grant period is January 1, 2019 – December 31, 2019.

FY16 DNA Capacity Enhancement and Backlog Reduction Grant – $1,382,996 awarded by NIJ to enhance capacity in the Forensic Biology Section. The funds were used to support personnel, training, and equipment. The grant period was January 1, 2017 – December 31, 2018.

FY17 DNA Capacity Enhancement and Backlog Reduction Grant – $1,376,805 awarded by NIJ to enhance capacity in the Forensic Biology Section. The funds are to be used to support personnel, training, and equipment. The grant period is January 1, 2018 – December 31, 2019.

FY18 DNA Capacity Enhancement and Backlog Reduction Grant – $1,297,996 awarded by NIJ to enhance capacity in the Forensic Biology Section. The funds are to be used to support personnel, training, and equipment. The grant period is January 1, 2019 – December 31, 2020.

FY15 NIJ Research and Development for Publicly Funded Forensic Science Laboratories – $149,504 awarded by NIJ to develop and validate two innovative quantitative liquid chromatography mass spectrometry methods for forensic toxicology analyses. The grant period was January 1, 2016 – December 31, 2018.

FY16 Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories (Latent Prints) – $216,225 awarded by NIJ to: 1) determine the accuracy and reliability of the LatentSleuth technology for latent print examinations; and 2) determine if integrating LatentSleuth into the current comparison workflow for complex comparisons improves efficiency and reproducibility as compared to existing methods. The grant period was January 1, 2017 – September 30, 2019.

FY18 Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories (Toxicology) – $448,063 awarded by NIJ to DFS to develop and validate two automated sample preparation techniques for a robust screening method using liquid chromatography quadrupole time-of-flight mass spectrometry (LC-qTOF) that will promote efficiency in the Toxicology Section. Award period is January 1, 2019 – December 31, 2020.

FY18 Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories (Fire Debris) – $176,490 awarded by NIJ to DFS to generate a quantitative sufficiency chart for reliable data interpretation with the adaptation and utilization of a computerized pattern comparison documentation program that also facilitates verification. Award period is January 1, 2019 – December 31, 2020.

Opioid Joint Project (OCME and DFS) – Continuation – DFS received funds in 2017 from the OCME to support additional personnel in DFS to improve both the timeliness and comprehensiveness of toxicological studies in deaths suspected as opioid overdoses. This continuation fully funded the project for another year, at the same level of $133,293, for the same activities. The new award period ran from September 1, 2018 – August 31, 2019.

Opioid Joint Project (OCME and DFS) – 2019 Overdose Data to Action Project – DFS received funds from the OCME in the amount of $164,807 to support additional personnel and supplies/reagents in the DFS Toxicology Section to improve both the timeliness and comprehensiveness of toxicological studies in deaths suspected as opioid overdoses. The grant period is September 1, 2019 – August 31, 2020.

FY19 Byrne Justice Assistance Grant (JAG) – Continuation Funding – $46,536 awarded by DCJS to maintain the increased capacity in the Forensic Training Section that was realized with the FY17 grant project. Funds were used to retain the part-time forensic trainer position and to add several items of equipment to be used as back-up when the current equipment is in need of repair. The total amount of the grant included a required match of $11,634. The grant period was October 1, 2018 – September 30, 2019.

FY20 Byrne Justice Assistance Grant (JAG) – Continuation Funding Final Year – $46,536 awarded by DCJS to maintain the increased capacity in the Forensic Training Section that was realized with the FY18 grant project. Funds will be used to retain the part-time forensic trainer position and to add several items of equipment that can be used as a back-up when the current equipment is in need of repair. The total amount of the grant includes a required match of $11,634. The grant period is October 1, 2019 – September 30, 2020.

Sexual Assault Kit Initiative (SAKI) Grant – $421,155 awarded by the Office of the Attorney General (OAG) to DFS as a sub-recipient. Funding provided to DFS to hire a part-time forensic laboratory specialist to assist in implementing a streamlined approach to processing sexual assault kits that will include testing of samples collected in the kits for male DNA followed by extraction and testing of DNA with robotics. The OAG also provided funds to DFS to contract with a vendor to develop sexual assault kit tracking software that will be integrated with the DFS Laboratory Information Management system. In addition, funds were allocated to DFS to hire a kit tracking system coordinator to provide help-desk support for law enforcement. The grant period was October 1, 2016 – September 30, 2019. This project was extended through September 30, 2020.

FY 2019 Sexual Assault Kit Initiative (SAKI) Grant – $75,000 awarded by the Office of the Attorney General (OAG) to DFS as a sub-recipient. Funding will be provided to DFS to retain the PERK Tracking System Coordinator position for an additional year to continue to provide help-desk support for law enforcement. The grant period is October 1, 2019 – September 30, 2022.

2019 Highway Safety Grant Program – $280,455 in federal funds awarded by DMV for the DFS Breath Alcohol training program. Funding was provided for reimbursement of travel costs for law enforcement officers, supplies needed for breath alcohol classes, continuing education for DFS Breath Alcohol personnel, and the retention of the grant-funded Breath Alcohol forensic scientist position. The award requires an in-kind match of $70,114. The grant period was October 1, 2018 – September 30, 2019.

2020 Highway Safety Grant Program – $ 273,519 in federal funds awarded by DMV for the DFS Breath Alcohol training program. Funding is provided for reimbursement of travel costs for law enforcement officers, supplies needed for breath alcohol classes, continuing education for DFS Breath Alcohol personnel, and

the retention of the grant-funded Breath Alcohol forensic scientist position. The award requires an in-kind match of $68,380. The grant period is October 1, 2019 – September 30, 2020.

2019 Highway Safety Grant Program (TREDS Project) – $84,290 awarded to DFS as a sub-recipient of DMV under its TREDS (Traffic Records Electronic Data System) Program. The project goal was to decrease the turnaround time of data from the OCME to DMV in cases involving motor vehicle accident fatalities. This project involved the OCME, DFS and DMV. DFS received funds to retain four part-time forensic laboratory specialists to assist in the Toxicology Sections statewide to increase capacity. The grant period was October 1, 2018– September 30, 2019.

2020 Highway Safety Grant Program (TREDS Project) – $84,290 awarded to DFS as a sub-recipient of DMV under its TREDS (Traffic Records Electronic Data System) Program. The project goal is to decrease the turnaround time of data from the OCME to DMV in cases involving motor vehicle accident fatalities. This project will involve the OCME, DFS and DMV. DFS received funds to retain four part-time forensic laboratory specialists to assist in the Toxicology Sections statewide to increase capacity. The grant period is October 1, 2019– September 30, 2020.

Virginia Prescription Drug Overdose Prevention Program – $50,000 awarded to DFS via a Memorandum of Understanding with VDH for improvements to the DFS LIMS using a Business Intelligence model to enhance data reporting on opioid cases to DFS stakeholders. The grant period was August 1, 2018 – August 31, 2019.

Centers for Disease Control - Public Health Crisis Response One-Time Funding – $948,000 awarded to DFS through the VDH to add equipment and supplies to increase capacity in the Toxicology Section statewide. The grant period was September 1, 2018 – August 31, 2019.

Department of Criminal Justice Services – DFS will receive $97,500 in one-time funding to purchase 16,150 hemp typification field test kits for use by law enforcement officers to screen cannabis plant material in the field. The typification kits can be used to differentiate industrial hemp from recreational marijuana when used in conjunction with the Duquenois-Levine field test.

4. ACTIONS TO FOSTER AND PROMOTE COORDINATION AND COOPERATION BETWEEN DFS AND THE USER PROGRAMS WHICH ARE SERVED

Policy Notices Sent to DFS User Agencies

Marijuana Field Tests and Changes to the Department's Analytical and Reporting Scheme for Marijuana and Marijuana Byproducts

On May 23, 2019, the Department sent a Notice of DFS Policy Change to its user agencies, advising of recent changes in federal and state law regarding marijuana and industrial hemp and their impact on: 1) the use of marijuana field tests; and 2) DFS's analytical and reporting scheme for marijuana and its byproducts.

Specifically, the Notice explained that marijuana and industrial hemp are different strains of the *Cannabis sativa* plant, and that the only mechanism to distinguish hemp plant material from marijuana plant material is to conduct a quantitative analysis to determine the tetrahydrocannabinol (THC) concentration of the plant material. The current marijuana field test approved by DFS, the Duquenois-Levine field test, is only capable of presumptively identifying *Cannabis sativa* plant material and is, therefore, unable to distinguish between marijuana from industrial hemp. The Notice further advises that DFS is in the process of validating a field test that has the potential to differentiate industrial hemp from marijuana.

The Notice also reviewed the Department's analytical and reporting scheme for marijuana and its byproducts, including the fact that DFS currently is only able to quantify the THC concentration in oils. It explained that DFS is in the process of validating a semi-quantitative method for determining whether plant material has a THC concentration of greater than 1% and that DFS would inform customers and stakeholders once the method is implemented.

Samples that were indicated as potential hemp products or where the affirmative defense has been raised have been held since the effective date of the legislation.

NIBIN Potential Association Notification

On March 11, 2019, the Department sent a Notice of DFS Policy Change to its user agencies, advising that, effective immediately, the Firearms & Toolmarks Section had implemented a new notification approach in National Integrated Ballistic Information Network (NIBIN) cases. For cases where the initial NIBIN search results in a potential association, a Certificate of Analysis will continue to be issued. However, for potential associations subsequent to the initial NIBIN search, DFS will be providing the investigating agency with a NIBIN screen-print containing agency and case information in lieu of issuing a Certificate of Analysis. This approach will allow DFS to provide investigative leads as quickly as possible. If confirmation of the potential association becomes necessary, the evidence from both cases will need to be resubmitted.

Automated Results for Digital & Multimedia Examinations

On March 11, 2019, the Department sent a Notice of DFS Policy Change to its user agencies, advising that, effective immediately, the Digital & Multimedia Evidence Section had implemented a new examination approach for automated results in order to provide investigative leads as quickly as possible. For cases in which the request is broad (e.g., all data on a device, all communications), the results identified from automated processes will be returned to the requesting submitter as soon as completed. No manual processes will be performed, and additional information that would require manual processes to produce the data will be documented on the Certificate of Analysis. After reviewing the automated results, if the submitting agency determines that additional data is required, the agency may resubmit the original and/or derivative evidence for an expedited, supplemental manual examination.

Average Case Turnaround Times Posted on DFS Website

The Department posts, on the DFS website, the average case turnaround times (in days) for cases completed in the prior month. This information, which is available by section, is updated at the beginning of each month.

Board of Pharmacy Expedited Regulations

Pursuant to Virginia Code § 54.1-3443(D), the Board of Pharmacy is permitted to temporarily place substances into Schedule I or II via an expedited regulatory process. This process may be used when the Board of Pharmacy has determined, in consultation with DFS, that the substances should be so scheduled. The Board of Pharmacy must conduct a public hearing, with at least 30 days' notice, providing a list of substances it intends to schedule. The Board of Pharmacy must notify the House and Senate Courts of Justice Committees of any new substances added to Schedule I or II by this expedited regulatory process. Any substances added by this process will remain in Schedule I or II for 18 months and then be de-scheduled unless a general law is enacted adding such substance to Schedule I or II in the Code of Virginia. DFS monitors evidence submissions to its Controlled Substances Section and tracks new compounds that are submitted statewide. DFS recommends compounds to the Board of Pharmacy for this process on a quarterly basis.

Between October 1, 2018, and September 30, 2019, DFS recommended a total of eighteen compounds to the Board of Pharmacy for consideration. These compounds included: four synthetic opioids (Schedule I), eleven research chemicals (Schedule I), and three cannabimimetic agents (Schedule I). As of October 1, 2019, nine of the eighteen compounds have been scheduled via Board of Pharmacy regulation; the remaining nine were approved by the Board of Pharmacy on September 25, 2019, and will be scheduled following publication in the Register of Regulations.

Conferences and Presentations

The Department encourages its staff to attend meetings and conferences of its user agencies to give presentations on relevant forensic science issues and to be available for feedback and comment on the services that the Department is providing. From October 1 1, 2018 to September 30, 2019, DFS representatives attended statewide conferences for and gave presentations to the Virginia Association of Commonwealth's Attorneys, the Virginia Association of Chiefs of Police, the Virginia Sheriffs' Association, and the Virginia Chapter of the International Association of Forensic Nurses. Staff also attended and gave presentations at multiple regional and local meetings of DFS user agencies.

Training

Forensic Training Section

In 2017, using funds from a FY17 Byrne Justice Assistance Grant, the Department's Forensic Training Section was able to hire a part-time instructor to expand the number of short courses offered, as well as provide staff capacity to offer a third Forensic Science Academy (FSA) session. DFS has been awarded continuation funding for this grant since 2017, but has been advised that the FY20 grant cycle is the last time this funding will be available. DFS has been able to offer a third FSA Session since it obtained the part-time instructor position and anticipates doing so again in 2020 during the final year of grant funding. Each nine-week Academy session provides in-depth training to twelve select law enforcement personnel in the recognition, documentation, collection, preservation, and handling of physical evidence through classroom instruction by forensic experts, evidence collection demonstrations, and numerous practical exercises in simulated crime scenes.

The Forensic Training Section also presented numerous short courses throughout the year on various crime scene investigation subjects, including Basic Crime Scene Investigation, Basic Digital Crime Scene Photography, and Impression Evidence Documentation and Collection. Law enforcement training updates were also conducted at each of the four DFS Regional Laboratories. These programs, entitled "Laboratory Capabilities and Updates," allow DFS personnel to communicate evidence collection guidelines and changes to laboratory services to, as well as receive feedback directly from, the larger law enforcement community. The Virginia Forensic Science Academy Alumni Association 2019 Annual Retraining Seminar was held August 28 – August 30, 2019. DFS staff and FSA graduates gave presentations at this seminar, which was coordinated by the Forensic Training Section and attended by 165 Forensic Science Academy alumni.

Breath Alcohol Instrument Operator Training

The Department's Breath Alcohol Section provides maintenance of evidential breath alcohol instruments, responses to legal requests for information, testimony, and training for law enforcement personnel. From October 16, 2018 through October 1, 2019, the Breath Alcohol Section conducted 36 initial breath alcohol instrument operator (three-day) classes and licensed 737 new operators. During this period, the Section continued to utilize

the online recertification course, and, as of October 1, 2019, had offered 18 of these courses, relicensing 897 operators online. In addition, the Section conducted 83 in-person relicensing (four-hour) sessions and subsequently relicensed 2,002 operators in person. An Instructor Basic Course was held from June 17 – 19, 2019, certifying 12 new instructors. Instructor Recertification was held September 9 – 11, 2019, and 20 law enforcement instructors were recertified. The law enforcement instructors assist Breath Alcohol staff in conducting the operator training classes.

Forensic Science Training Program for Attorneys and Judges

DFS implemented a forensic science training program for criminal attorneys in Virginia in 2018. The program, which is modeled after the Arizona Forensic Science Academy, provides training to prosecutors and criminal defense attorneys together on the science underlying the various laboratory disciplines. Judges are also invited to attend the classes. Each subject offered is provided to attorneys and judges in each of the four DFS laboratories. No continuing legal education (CLE) credits are being provided for the trainings because the program teaches science and does not include a legal component, which is a requirement for CLE credit. However, the Department is not charging for the training.

In 2017, the Department formed a stakeholder group, which included the Chief Medical Examiner, prosecutors, criminal defense attorneys and two circuit judges. The stakeholder group provided input to DFS on how such a training program could best be implemented in Virginia. The consensus of the group, after reviewing the results of a Needs Assessment survey of attorneys conducted by DFS, was that the first offering should be a DNA Training. The day-long DNA course, which is designed to help attorneys and judges who use and evaluate DNA testing in their cases to have the background to understand the methods and practices of the discipline, was held in the fall of 2018 in each DFS regional laboratory. A total of 109 individuals attended the DNA Trainings.

On May 2, 2019, DFS held a meeting of the stakeholder group to review the survey results from the attendees of the 2018 DNA Trainings and to discuss trainings for 2019. The DNA staff who provided the training in 2018 had reviewed the feedback and shared with the stakeholder group changes to the training that they planned to make in 2019. As a result of the stakeholder meeting, it was decided that DFS would offer the DNA Training again in 2019 and also add a new half-day Driving Under the Influence/Driving Under the Influence of Drugs (DUI/DUID) Training. The new DUI/DUID Training will be provided by the Department's Breath Alcohol and Toxicology Sections.

The forensic trainings will be offered by DFS in 2019 as follows:

Laboratory	**DNA Training** 8:30 a.m. – 5:00 p.m.	**DUI/DUID Training** 8:30 a.m. – 12:30 p.m.
Central (Richmond)	November 1, 2019	September 27, 2019
Eastern (Norfolk)	November 1, 2019	October 25, 2019
Northern (Manassas)	September 27, 2019	November 1, 2019
Western (Roanoke)	November 15, 2019	October 25, 2019

5. RULES AND REGULATIONS NECESSARY TO CARRY OUT THE PURPOSES AND INTENT OF CHAPTER 11 OF TITLE 9.1 OF THE CODE OF VIRGINIA (DFS)

Regulations

At its October 17, 2018 meeting, the Board considered and approved proposed amendments for 6 VAC 40-30, the Regulations for the Approval of Field Tests for the Detection of Drugs. In the fall of 2017, the Department had received a request from a law enforcement agency to approve a handheld Raman spectrometer for the detection of drugs as a field test under these regulations. However, as currently written, the field test regulations only contemplate the approval of presumptive chemical tests as field tests. The proposed amendments to the regulations would amend the definition of field test to include presumptive mobile instruments and set up a process for the approval of presumptive mobile instruments.

Most, if not all, law enforcement agencies in Virginia have discontinued the use of presumptive chemical tests for powders due to safety concerns with the handling of such potentially lethal compounds. Some of the presumptive mobile instruments, such as the handheld Raman spectrometer, permit field testing of suspected controlled substances without destroying any portion of the sample. Some of these instruments are also able to test the sample through clear plastic or glass packaging.

The proposed text of the amendments and the Agency Statement were submitted for review on November 30, 2018. The Office of the Attorney General provided its Certification on March 20, 2019, having determined that the proposed regulations were constitutional, consistent with the authority granted by Virginia Code § 2.2-4007.02, and in conformity with existing statutory provisions. The Department of Planning and Budget submitted its Economic Impact Analysis on May 1, 2019. On September 18, 2019, the Governor's Office approved the proposed regulations. The proposed regulations have been submitted to the Register of Regulations for publication on October 28, 2019, and a public comment period will ensue. The Board will hold a public hearing on the proposed amendments at its January 2020 meeting.

6. ANY RECOMMENDATIONS SUBMITTED TO THE FORENSIC SCIENCE BOARD OR THE DIRECTOR BY THE SCIENTIFIC ADVISORY COMMITTEE

The Scientific Advisory Committee (SAC) met at the DFS Central Laboratory in Richmond on May 7, 2019, and October 2, 2019. A list of members of the Scientific Advisory Committee is included as Attachment B.

Scientific Advisory Committee (SAC) Recommendations/Actions in 2019

- The SAC's Breath Alcohol Subcommittee met on May 6, 2019, to review the Breath Alcohol Procedures Manual and Worksheets, which had been provided to the Subcommittee in advance of the meeting. After making comments and suggestions to DFS, the Subcommittee closed its review.
- The SAC's Toxicology Committee met on May 7, 2019, prior to the full Scientific Advisory Committee meeting, to review validation documents (Qualitative Analysis of Novel Psychoactive Substances using LCMSMS and Validation Summary of Fentanyl Analog Qualitative Analysis by Protein Precipitation using LCMSMS) and methods in development (Confirmation and Quantitation of Fentanyl Derivatives in Biological Samples by Solid Phase Extraction Using LCMSMS; Qualitative Drugs Screening Using High-Resolution Mass Spectrometry; GHB, GBL, and 1, 4-Butanediol Quantitation and Confirmation Method by LCMSMS; and Nonsteroidal Anti-Inflammatory Drugs Quantitation and Confirmation Method by LCMSMS). The Subcommittee had been provided materials for the validations and methods in development in advance of the meeting. After making recommendations to DFS, the Subcommittee closed the reviews.
- At its meeting on May 7, 2019, the SAC accepted the reports of the Breath Alcohol and Toxicology Subcommittees.
- At its meeting on October 2, 2019, the SAC amended its Policy on Individual Participation in Scientific Advisory Committee Meetings by Electronic Means to correct an outdated statutory reference.

Attachment A

FORENSIC SCIENCE BOARD MEMBERS

(as of October 1, 2019)

- **Colonel Gary T. Settle** – Term: period in office or employment
  Superintendent of the Virginia State Police
- **Shannon Dion** – Term: period in office or employment
  Director of the Department of Criminal Justice Services
- **William T. Gormley, M.D.** – Term: period in office or employment
  Chief Medical Examiner
- **Caroline D. Juran (Vice Chair)** – Term: period in office or employment
  Executive Director of the Virginia Board of Pharmacy
- **Holli Wood** – Term: period in office or employment
  Designee of Attorney General Mark R. Herring
- **Karl R. Hade** – Term: period in office or employment
  Executive Secretary of the Supreme Court of Virginia
- **Kristen J. Howard** – Term: period in office or employment
  Designee of the Chair of the Virginia State Crime Commission
- **Denise M. Toney, Ph.D.** – Term: period in office or employment
  Director of the Division of Consolidated Laboratory Services
- **The Honorable Vince Donoghue** – Term: period in office or employment
  Designee of the Chair of the Senate Committee for Courts of Justice
- **The Honorable Emily M. Brewer, Delegate** – Term: period in office or employment
  Designee of the Chair of the House Committee for Courts of Justice
- **Leslie Edinboro, Ph.D.** – Term: designated by Scientific Advisory Committee Chair
  Member of the Scientific Advisory Committee
- **Richard P. Meyers** – Term: designated by Scientific Advisory Committee Chair
  Member of the Scientific Advisory Committee
- **Colonel Maggie A. DeBoard** – Term: ending 6/30/2021
  Governor Appointee – Member of Law Enforcement
- **Colette W. McEachin** – Term: ending 6/30/2021
  Governor Appointee – Member of the Virginia Commonwealth's Attorneys Association
- **David R. Lett (Chair)** – Term: ending 6/30/2021
  Governor Appointee – Criminal defense attorney with special knowledge in the area of forensic sciences

Attachment B

SCIENTIFIC ADVISORY COMMITTEE MEMBERS

(as of October 1, 2019)

- **Linda C. Jackson** – Term: period in office or employment
  Director of the Department of Forensic Science
- **Les Edinboro, Ph.D.** – Term: ending 6/30/2023
  Governor Appointee – Director of a private or federal forensic laboratory located in the Commonwealth
- **Jami St. Clair** – Term: ending 6/30/2023
  Governor Appointee – Scientist or other person with education, training or experience in laboratory standards or quality assurance regulation and monitoring
- **Robin W. Cotton, Ph.D.** – Term: ending 6/30/2021
  Governor Appointee – Molecular Biologist
- **George C. Maha, Ph.D.** – Term: ending 6/30/2023
  Governor Appointee – Population Geneticist
- **Richard P. Meyers** – Term: ending 6/30/2022
  Governor Appointee – Forensic Chemist
- **Vacant**
  Governor Appointee – Forensic Biologist
- **Maureen C. Bottrell (Vice-Chair)** – Term: ending 6/30/2022
  Governor Appointee – Trace Evidence Scientist
- **Barry S. Levine, Ph.D.** – Term: ending 6/30/2022
  Governor Appointee – Toxicologist certified by the American Board of Forensic Toxicologists
- **Kenneth Zercie** – Term: ending 6/30/2023
  Governor Appointee – Member of the Board of the International Association for Identification
- **Travis Spinder** – Term: ending 6/30/2021
  Governor Appointee – Member of the Board of the Association of Firearms and Toolmark Examiners
- **Randall E. Beaty** – Term: ending 6/30/2022
  Governor Appointee – Member of the International Association for Chemical Testing
- **Kathleen Corrado, Ph.D. (Chair)** – Term: ending 6/30/2021
  Governor Appointee – Member of the American Society of Crime Laboratory Directors