VIRGINIA DEPARTMENT OF FORENSIC SCIENCE

EVIDENCE HANDLING & LABORATORY CAPABILITIES GUIDE

CONTROLLED SUBSTANCES

Contact Information

If you have any questions concerning the Controlled Substances laboratory examination capabilities or evidence handling procedures, please call the Training Section or the Controlled Substances Section at the Forensic Laboratory that services your area.

Laboratory	Section Contact	Phone Number
Central	**John Przybylski**	**(804) 588-4154**
Eastern	**Brian Meinweiser**	**(757) 355-5958**
Northern	**Jeana Rodenas**	**(703) 334-9736**
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OVERVIEW

Examiners in the Controlled Substances Section test materials for the presence of controlled substances or marijuana. Illegal drugs may be presented in powders, solid material, liquids or LSD blotter paper, as well as in plants and mushrooms. The section also examines pharmaceutical preparations (e.g., tablets, capsules and injectables).

Drugs are classified both legally and pharmacologically. Legally, drugs are listed in the Code of Virginia in Schedules based on their medical use and potential for abuse and dependency. The "highest" schedule is Schedule I (drugs with no accepted medical use and a high potential for abuse and dependency) and the "lowest" schedule is Schedule VI (drugs that require a prescription but have a very low potential for abuse). The following table lists common drugs along with their pharmacological category and schedule. Schedule VI controlled substances require a prescription to legally possess but are not listed by name in the Code.

Drug	**Pharmacological Category**	**Schedule**
Alprazolam (Xanax)	Depressants	IV
Amphetamine	Stimulants	II
Caffeine (look-a-like)	Stimulants	OTC
Cocaine (forms include salt and base (crack)	Stimulants	II
Codeine	Narcotics	II, III, V
Diazepam (Valium)	Depressants	IV
Fentanyl	Narcotics	II
GHB (gamma-butyrolactone)	Depressants	I
Heroin	Narcotics	I
Hydromorphone (Dilaudid)	Narcotics	II
LSD (Lysergic Acid Diethylamide)	Hallucinogens	I
MDMA (Ecstasy)	Hallucinogens	I
Meperidine (Demerol)	Narcotics	II
Mescaline (usually found in peyote cactus)	Hallucinogens	I
Methadone	Narcotics	II
Methamphetamine	Stimulants	II

Methylphenidate (Ritalin)	Stimulants	II
Morphine	Narcotics	II
Nandrolone	Anabolic Steroids	III
Opium	Narcotics	II
Oxycodone	Narcotics	II
PCP (Phencyclidine)	Hallucinogens	II
Psilocybin or Psilocyn (usually found in mushrooms)	Hallucinogens	I
Salvinorin A (usually found in *Salvia Divinorum*)	Hallucinogens	I
Secobarbital	Depressants	II
Testosterone	Anabolic Steroids	III

In the Commonwealth, marijuana is not listed as a controlled substance or scheduled in the Code of Virginia.

- Marijuana is defined in § 54.1-3401 as "any part of a plant of the genus Cannabis, whether growing or not, its seeds or resin; and every compound, manufacture, salt, derivative, mixture, or preparation of such plant, its seeds, its resin, or any extract containing one or more cannabinoids. Marijuana does not include the mature stalks of such plant, fiber produced from such stalk, oil or cake made from the seed of such plant, unless such stalks, fiber, oil or cake is combined with other parts of plants of the genus Cannabis. Marijuana does not include (i) industrial hemp, as defined in § 3.2-4112, that is possessed by a person registered pursuant to subsection A of § 3.2-4115 or his agent or (ii) a hemp product, as defined in § 3.2-4112, containing a tetrahydrocannabinol concentration of no greater than 0.3 percent that is derived from industrial hemp, as defined in § 3.2-4112, that is grown, dealt, or processed in compliance with state or federal law."

- Industrial hemp is defined in § 3.2-4112 as "any part of the plant Cannabis sativa, including seeds thereof and any derivative, extract, cannabinoid, isomer, acid, salt, or salt of an isomer, whether growing or not, with a concentration of tetrahydrocannabinol that is no greater than that allowed by federal law."

- Cannabimimetic agents such as JWH-018 and CP 47,497 are Schedule I controlled substances as defined in the Code of Virginia, § 54.1-3446 (6).

- Cannabimimetic agents that are not listed specifically, but fit into defined structural classes, are Schedule I controlled substances (Code of Virginia, § 54.1-3446 (6)).

CAPABILITIES AND SERVICES

Analysis

The Controlled Substances Section analyzes evidence submitted by law enforcement agencies for the presence or absence of controlled substances and/or marijuana.

In the laboratory, evidence is routinely screened using color tests and thin layer chromatography (TLC) with identification by gas chromatography/mass spectrometry (GC/MS). Additional instrumental techniques such as infrared spectrophotometry (FTIR), gas chromatography with flame ionization detector (GC/FID), and direct analysis in real time/time of flight mass spectrometry (DART/TOF) may also be used.

Quantitative analyses are not necessary in most situations and are only performed at the request of the Commonwealth's Attorney.

The original Certificate of Analysis (CoA) is prepared and sent directly to the Office of the Commonwealth's Attorney with a copy sent to the investigating officer.

Drug Item Reduction Policy

In 1988, the Controlled Substances Section implemented the Drug Item Reduction Policy (DIRP). The aim of this program was to increase the number of cases worked by having the examiners analyze only the most important items in a case in terms of quantity and schedule. Typically, residue items are not analyzed when accompanied by items containing a weighable quantity of drugs. Exceptions to this are cases where an item with residue is the only item connected to a particular suspect, the residue is likely a higher schedule than the weighable material, or the item with residue is the probable cause for a search. For these exceptions to be granted, information should be specifically noted by the item in question on the Request for Laboratory Examination form (RFLE).

If, during the pretrial process, it becomes apparent that items that were not analyzed are necessary for successful prosecution then, upon resubmission, those items will receive top priority at the laboratory.

Reversals

The Department of Forensic Science (DFS) will assist law enforcement agencies with preparation of materials to be used in drug reversals, buy/bust operations and "show and tell" drugs. In all instances, the requesting agency must assume full responsibility for distribution of these materials. Contact a Controlled Substances Section Supervisor for further information.

Training

The Controlled Substances section also provides training for user agencies. This includes training police officers about current drug abuse practices and trends to teaching them how to recognize, collect, properly preserve, and submit various drug evidence and paraphernalia to DFS for analysis. This section also has the unique opportunity to assist attorneys, legislators and law enforcement officers in understanding the scientific meaning of analytical results as they pertain to the Virginia Drug Control Act and the Controlled Substances Act.

Field Test Approval

The Controlled Substances Section is primarily responsible for the regulation and approval of field tests used by police officers for the field detection of drugs in the Commonwealth.

Field tests can be used for two purposes in Virginia as listed in § 19.2-188.1. First, § 19.2-188.1 (A) allows officers using an approved field test to offer testimony as to the results he/she obtained in any preliminary hearing on many drug related offenses. This statute has been in place since 1991. Additionally, in July 2006, the legislature enacted § 19.2-188.1 (B) which allows for the results of marijuana field test kits to be used in trial of simple possession offenses. Effective January 1, 2015, DFS discontinued the routine analysis of marijuana plant material in simple possession cases without a court order, however, there are exceptions to this policy including the felony possession by prisoners, cases involving juveniles and inconclusive field test kit results. Please contact the laboratory if you have questions regarding evidence submissions.

The two separate but related statutes each have associated regulations which describe the approval process. Once tests have been approved, DFS publishes separate lists of these approved tests in the Virginia Register of Regulations. Care must be taken to make sure that tests used in the field are for the appropriate purpose.

Links to both the regulations and the current list of approved field test kits are available on our website:

Document	Website
Regulations for Field Tests	http://www.dfs.virginia.gov/field-test-kits/field-test-kit-evaluation/ §19.2-188.1 (A) – for preliminary hearings only §19.2-188.1 (B) – for simple possession of marijuana plant material
Approved Drug Field Tests	http://www.dfs.virginia.gov/field-test-kits/field-test-kit-evaluation/preliminary-hearing-drug-field-test-kits/ §19.2-188.1 (A) – for preliminary hearings only
Approved Marijuana Field Tests	http://www.dfs.virginia.gov/field-test-kits/field-test-kit-evaluation/marijuana-field-test-kits/ §19.2-188.1 (B) – for simple possession of marijuana plant material

Clandestine Laboratories.

The "Best Practices Protocol for use by law enforcement and emergency response agencies regarding the clean-up of abandoned and deactivated methamphetamine production sites and the retention and handling of the byproducts of methamphetamine production" addresses the entire process of taking down a lab and is located at the following web address:

http://www.dfs.virginia.gov/laboratory-forensic-services/controlled-substances/meth-labs/

Key points in this document include:

Local Law Enforcement (LLE) entities without Certified Clandestine Lab Response teams and adopted Safety and Health Programs will notify Certified Clandestine Lab Response Personnel from the Virginia State Police (VSP) or Drug Enforcement Agency (DEA). To contact VSP personnel, please utilize the appropriate Division number below:

Appomattox (800) 552-0962

Chesapeake (800) 582-8350

Culpeper (800) 572-2260

Fairfax (800) 572-4510

Richmond (800) 552-9965

Salem (800) 542-5959

Wytheville (800) 542-8716

No individual or agency will intentionally enter or authorize entry into a suspected clandestine laboratory without adoption of an entity-specific Standard Operating Procedure (SOP) that provides for a Safety and Health Program as required by the Virginia Occupational Safety and Health (VOSH) Program and in compliance with 16 VAC 25-90-1910.120 (HAZWOPER) Standards and/or Safety and Health Program as required by OSHA and Federal Regulation 29 CFR 1910.120 (HAZWOPER) Standards.

Evidence from clandestine laboratories requires special handling and packaging in order to be submitted to the laboratory. An excerpt from this "Best Practices Protocol" relates specifically to evidence submission and packing to the laboratory for analysis. The "Collection and Submission of Meth Labs Materials to DFS" is shown below:

Collection and Submission of Meth Lab Materials to DFS

An Excerpt from

Best Practices protocol for use by law enforcement and emergency response agencies regarding the clean-up of abandoned and deactivated methamphetamine production sites and the retention and handling of the byproducts of methamphetamine production

5. Safe packaging of evidentiary samples

- Only Certified Clandestine Lab Response Personnel shall collect samples from clandestine laboratories.

- A representative sample shall be removed from those precursor items, chemicals, and reaction vessels requiring analysis. Bulk items should not be submitted for analysis. Appropriate size samples of items shall be collected in a bottle assembly

consisting of a glass vial with a Teflon-lined (PTFE) cap which is secured in an appropriately sized wide-mouth, high-density polyethylene plastic bottle. (i.e. acids/bases samples should be approximately 25 mL.) The glass vials should be filled no more than 75% to prevent breakage. Each bottle assembly shall be placed in a separate evidence container/bag and sealed. Under no circumstances should any metal containers be used due to the reactivity of many of the materials encountered.

- Liquefied ammonia gas will not be accepted by the Virginia Department of Forensic Science (DFS).

- Lithium metal or sodium metal will not be accepted unless pre-approved by the Controlled Substances Section at DFS. Where final product is present or where two or more substances other than lithium metal or sodium metal listed in Code § 18.2-248 (J) are found, submission of lithium metal or sodium metal will not be approved. Every effort should be made to remove either of these materials from samples prior to submitting them to the lab. If lithium metal or sodium metal must be submitted, a small quantity shall be placed in a bottle assembly consisting of an appropriately sized (at least twice the volume of the metal) glass vial with a Teflon-lined cap which is secured in an appropriately sized wide-mouth, high-density polyethylene plastic bottle. The glass vial containing the lithium metal or sodium metal shall be completely filled with mineral oil to prevent combustion of the metal. The bottle assembly shall be placed in a separate evidence container/bag and sealed (If you need additional clarification or guidance, please contact the Controlled Substances Section).

- Dry items of suspected final product (e.g., plastic bag corners of powder product) shall be secured in an inner container/bag or jar and placed in sealed plastic evidence bags.

- A copy of the evidence log/list and photographs documenting the items recovered at the scene **must** be submitted to the laboratory with the evidentiary samples. The photos should illustrate to the DFS analyst the association between the parent container and the submitted sample. This is vital to facilitate substance identification and recognition of hazards. The Request for Laboratory Examination form (RFLE) should associate the submitted evidentiary samples to the bulk items on the evidence log/list.

6. Transportation of evidentiary samples

- All samples shall be promptly hand-delivered to the nearest DFS laboratory. Sample(s) contained within sealed evidence container(s)/bag(s) shall be placed in five gallon plastic bucket(s) packed with vermiculite for transportation purposes. For samples other than lithium metal or sodium metal, more than one sealed evidence container/bag may be placed in each five gallon plastic bucket provided an ample amount of vermiculite is present for spill absorption. When approved for submission, each evidence container/bag containing a sample of lithium metal or sodium metal shall be placed in its own five gallon plastic bucket packed with vermiculite. The buckets will serve as the evidence container upon submission to the laboratory. Upon arrival to the lab, the evidence will be screened by appropriate DFS personnel prior to acceptance.

7. Retention of evidentiary samples by law enforcement agencies after analysis by DFS

• Upon completion of analysis by DFS, collected samples will be returned by hand delivery to the appropriate law enforcement entity for maintenance as evidence.

Evidence from clandestine laboratories not packaged accordingly will not be accepted at the laboratory.

COLLECTION GUIDELINES

ALWAYS USE CAUTION WHEN SEARCHING A VEHICLE OR A SUSPECT. USE GLOVES AND WASH HANDS WHEN COMPLETED. USE DENTAL MIRRORS OR MIRRORS WHEN SEARCHING A VEHICLE TO PREVENT STICKS AND CUTS.

Safety Alert!

Due to the Department's recent submissions of fentanyl, carfentanil, and other powerful synthetic opioids, special precautions should be taken to minimize exposure when handling, sampling, and field testing powders. The DEA does not recommend field testing. For more information visit: https://www.dea.gov/divisions/hq/2016/hq061016.shtml

For information on Safe Handling for First Responders, visit: https://www.fentanylsafety.com/safe-handling/

Please contact the laboratory if you have questions regarding evidence submissions.

ITEM - Powders and Plant Material (for **fresh/wet** plant material, see below)

METHOD - Package in evidence envelopes or bags in the material's original containers.

ITEM - Tablets and Capsules

METHOD - Package in rigid containers.

DISCUSSION - Rigid containers will ensure that evidence is not crushed or damaged, especially when shipped via mail.

ITEM - Prescription Bottle with Label

METHOD - Submit in original prescription bottle.

ITEM - Fresh, Wet or Moist Plant Material or Mushrooms

METHOD - Should be air dried and placed in a paper bag. Roots and dirt should be removed before submitting. Please do not strip leaves, buds, etc. from mature stalks.

DISCUSSION - Wet marijuana supports the growth of a fungus that produces carcinogenic spores that can produce respiratory and other infections. Fresh plant material packaged in plastic decomposes rapidly leading to material which is unsuitable for analysis. The dirt and roots are not necessary and will not be weighed or analyzed. The mature stalk is considered to be marijuana only when mixed with other parts of the plant and should be left intact. Wet mushrooms packaged in plastic bags will rapidly decompose to the point that they are no longer suitable for analysis.

ITEM – Large Smoking Devices

METHOD - When large smoking devices are collected as evidence, remove and submit only that part of the device which contains the drug residue or plant material (e.g., the stem from a "bong"). If that part of the device is glass, then package it in a small rigid container, plastic safety tube or bubble wrap, then into an appropriately sized outer container (e.g. minimum 5" x 7" manila envelope). If the recovery of latent prints are a concern, then package it in a manner that reduces friction against the outer surface. If it is necessary to submit an entire "bong", please remove any water before packaging.

DISCUSSION - Residues should not be submitted for analysis unless drugs other than marijuana are suspected. Only the portion of the smoking device containing the residue will be analyzed. Water from a smoking device increases time of analysis due to the need for drying the device prior to analysis. Leaking evidence may damage other items, RFLEs, etc.

ITEM – Small Devices

METHOD - Items should be packaged securely to avoid cross-contamination or loss of sample. Cover the area of the device which contains the drug residue or plant material. If the device is glass, then package it in a small rigid container, plastic safety tube or bubble wrap, then into an appropriately sized outer container (e.g. minimum 5" x 7" manila envelope). If the recovery of latent prints are a concern, then package in a manner that reduces friction against the outer surface.

DISCUSSION - When residue items are submitted with weighable quantities and/or countable dosage units of drugs, only the weighable (countable) item(s) will be analyzed, unless the investigating or submitting officer provides a written, case-specific request for analysis of the residue on the RFLE. For example, analysis of an item such as a pipe containing residue found in possession of a defendant is necessary to show possession of a weighable quantity of drugs found nearby. These requests will be considered by DFS in accordance with the procedures set forth in the DFS Controlled Substances Procedures Manual, Section 3.1 et seq., (Drug Item Reduction Program, DIRP.)

ITEM - Clandestine Laboratory Samples

METHOD - See "Collection and Submission of Meth Lab Materials to DFS" in preceding section.

ITEM - Multiple Packages of Powder or Plant Material

METHOD - Items with multiple packages (e.g., 20 plastic bag corners of crack) should be packaged together in one container.

DISCUSSION - This decreases number of containers associated with a case. Also, it allows the examiner to address the items collectively on the Certificate of Analysis.

ITEM - Syringes and Other Sharp Materials

METHOD - SYRINGES SHOULD NOT BE SUBMITTED UNLESS THEY ARE THE ONLY ITEM IN THE CASE. Syringes will also be accepted when they are likely to contain a controlled substance in a schedule that is higher than what is likely to be in the other evidence. If necessary, package the syringe in a **rigid plastic safety tube.** Please do not uncap the syringe prior to submission. Label the outer container with the following information:

- "Handle with Caution"
- "Contains a Syringe"
- "BIOHAZARD"

Other sharp or breakable materials, such as glass pipes, mirrors, and razor blades, should be packaged in a rigid container and the outer container labeled with a warning to "Handle with Caution".

DISCUSSION - Syringes are a health hazard to all. **In general, syringes will not be analyzed when measurable quantities of the associated drugs are also included among the submitted items, as per DIRP.** To protect anyone handling the evidence from the hazards of accidental exposure to biohazard materials, sharps should be packaged in appropriate rigid, plastic safety tubes.

ITEM - Biohazard Materials

METHOD - Any potential hazards to the examiner should be addressed on the RFLE. This might include noting that an object was removed from a body cavity or items were recovered from a toilet, etc. The evidence package should also be labeled with a "BIOHAZARD" sticker or label prominently affixed.

ITEM - Special Handling Warnings

DISCUSSION - LSD in liquid form can be absorbed through the skin. It is also light sensitive. Handle with caution and wrap container with paper to block light.

Fentanyl and other powerful opioids have been found in some suspected heroin submissions. Special precautions should be taken when handling powerful opioids to avoid accidental inhalation or ingestion. The normal pharmaceutical dosage is in the microgram range. Evidence suspected of containing fentanyl, carfentanil or other powerful opioids, should be noted on the RFLE.

ITEM - Cases Involving Found Property in Which No Suspect is Identified

METHOD - These cases should not be submitted and will not be accepted for drug analysis without a written request citing exigent circumstances.

ITEM - Used Field Test Kits

METHOD - Used field test kits should NEVER be submitted to the laboratory.

DISCUSSION - Most field test kits contain strong acids which can cause burns to the skin with contact. Also, if the acid were to leak out of the kit and come into contact with the submitted evidence, the evidence and its packaging could be destroyed. It is imperative to dispose of all field test kits properly (according to the manufacturers' instructions supplied with the field test kit) after their use.

ITEM - Cases for Federal Prosecution

METHOD - Drug Task Force cases designated for federal prosecution should be submitted to the Drug Enforcement Administration (DEA) laboratory while DFS continues to experience a significant backlog of controlled substances cases.

DFS, in consultation with the DEA, has developed the following guidelines for handling drug task force cases:

- Evidence collected by drug task forces should not be submitted to the laboratory until federal and state prosecutors have decided who will prosecute the case
- Cases slated for state prosecution will be accepted by DFS from state or local agencies
- Cases slated for federal prosecution will be accepted by DEA from any federal investigative agency with a federal case number

- Cases that are submitted to DFS that will be adjudicated in federal court will be placed at a lower priority than any Virginia cases and scheduled federal court dates will not elevate this priority

- DFS protocols will be utilized for normal case examinations and may not provide results that can support federal charges or penalties

- Written requests from federal prosecutors will be required for additional analysis on previously completed cases. Such requests will be considered by DFS management.

DISCUSSION - The analytical testing required to support federal prosecutions, which often includes time consuming quantitation and base determination, exceeds the testing performed to support most state prosecutions. Additionally, testimony in federal cases is frequently required. DFS is tasked by statute (§ 9.1-1101) with providing forensic laboratory services to Virginia law enforcement agencies. This statute allows DFS to provide such services to any federal investigatory agency within available resources.

ITEM – The RFLE

METHOD - 1. The RFLE for drug analysis should include a brief statement of facts about the case including the specific criminal charge(s) relating to the items submitted (Code section and/or charge description). Briefly indicate, with respect to each item submitted, the reason the requested analysis is necessary in order to aid examiners in selecting samples for testing. For example, when multiple items and multiple suspects are involved, the RFLE should specify which suspect is charged with which item(s) so all items necessary for prosecution are tested. A sample RFLE can be found on the DFS website.

2. Please complete the RFLE information for court date with the notation of "hearing" or "trial" and communicate on a regular basis pending trial dates for felony drug cases pending.

3. If the evidence is suspected of containing fentanyl, carfentanil, or other powerful opioids, please indicate that on the RFLE. Please do not indicate the weights of substances on the request form. Finally, be sure to count individual drug units (e.g., pills, bags).When describing the evidence on the RFLE, specify quantities as an approximate count (e.g., approximately 97 tablets).

DISCUSSION - 1. DFS utilizes an administrative sampling plan where the number of specimens analyzed within an item will be based on the type of criminal charge.

2. One of the DFS considerations for prioritization of drug cases focuses on pending trial dates.

3. Weights listed on the RFLE may be a cause of confusion when a gross weight is indicated on the request, and a net weight is reported in the Certificate of Analysis. An approximate count on the request form is all

that is needed, in order to eliminate the need to contact the investigating officer when a discrepancy arises.

SUBMISSION REMINDERS

When a case becomes inactive, either through refusal to charge, dismissal or plea agreement, it is the responsibility of the primary officer and/or the assigned Commonwealth's Attorney to notify DFS of that status. Analysis will cease, DFS will terminate the case and submissions will be returned to the submitting agency.

Exclusive possession is the ultimate goal. Therefore, if the substance is located in a common area, consider requesting latent fingerprints and handle evidence accordingly to preserve potential latent fingerprints.

A secure seal is necessary for chain-of-custody. HOWEVER, it is not necessary to tape excessively, or "mummify", because this makes evidence handling in the laboratory more difficult.

Items which establish probable cause should be clearly marked and noted as such on the RFLE.

Items that need to be tested separately should be packaged separately.

USE DISCRETION: Submit only necessary items in need of analysis. Eliminate trash and ashes from ashtray submissions. Items that do not need to be tested should not be submitted (e.g., drivers license, cigarette rolling papers).

Make sure the packaging size is suitable for your evidence. Small objects (such as a "rock" of cocaine) may become lost or crushed in a large bag. Please make sure that the final bag or package is at least 5" x 7". Small items should be packaged in a suitable envelope and THEN placed in a 5" x 7" container. This assures security of the evidence and allows the analyst room to re-package and secure the evidence without breaking your seal.