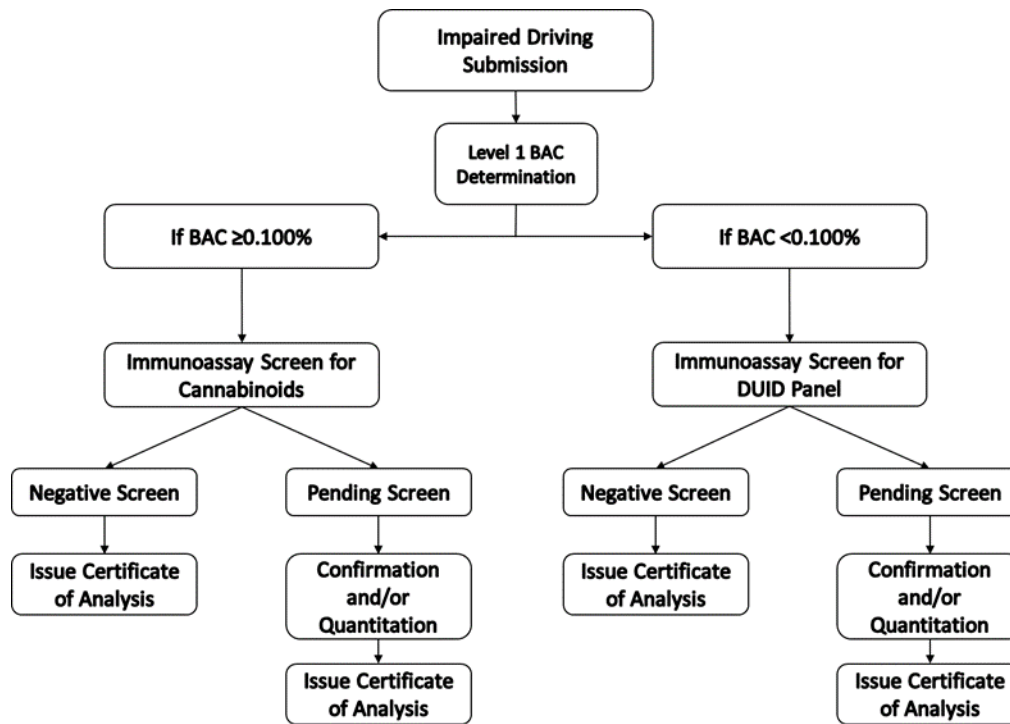


Figure 9: Incorrect CBW and vial seal placement on vials.

The DFS Toxicology Section uses a protocol (see Toxicology Procedures Manual on the [Manuals and Procedures](#) page at the DFS website) for testing blood samples in implied consent or search warrant cases using a DFS DUI/DUID Blood Specimen Collection Kit. The DUI/DUID protocol is designed to identify alcohol and drugs that can impair driving using two levels of testing as delineated in the table below. Additional testing may be conducted if specifically requested or at the discretion of a DFS toxicologist. This protocol incorporates an expanded immunoassay screening panel and allows for a more streamlined analysis process.

### Testing Protocol



## BAC Determination: Blood Alcohol Content Determination

### DUID Screening Panel (Immunoassay) Includes:

- Amphetamine
- Barbiturates
- Benzodiazepines
- Buprenorphine
- Cannabinoids
- Carisoprodol/meprobamate
- Cocaine/Benzoylecgonine
- Dextromethorphan
- Diphenhydramine
- Fentanyl
- Methadone
- Methamphetamine/MDMA
- Opiates
- Oxycodone/oxymorphone
- Phencyclidine (PCP)
- Tramadol
- Tricyclic antidepressants
- Zolpidem

### Example Report Wording Resulting from Each Scenario

#### *Scenario 1:*

*Blood alcohol level was greater than 0.100%w/v, screened for cannabinoids, and no cannabinoids were detected.*

Blood Alcohol Content  $0.110 \pm 0.005\%$  by weight by volume.

Method: Alcohols by Headspace Gas Chromatography

No other drugs and/or drug classes were detected.

The specimen was screened for the following drugs, drug classes and/or substances:  
Ethanol (blood alcohol), methanol, acetone, isopropanol, cannabinoids.

Supporting examination documentation is maintained in the case file. The above-listed methods are those approved for use at the time of analysis. All methods can be found in the Toxicology Procedures Manual which can be found at <https://www.dfs.virginia.gov/documentation-publications/manuals/>. Measurement uncertainty is reported at a 95.45% level of confidence for all toxicological analyses except blood alcohol or ethanol which is reported at a 99.73% level of confidence.

*Scenario 2: Blood alcohol level was less than 0.100%w/v and oxycodone was present and quantified.*

Blood Alcohol Content  $0.025 \pm 0.001\%$  by weight by volume  
Method: Alcohols by Headspace Gas Chromatography

Oxycodone  $0.12 \pm 0.02$  mg/L

Method: Opioid, Cocaine, Benzoyllecgonine, Cocaethylene Quantitation and Confirmation by LCMSMS

No other drugs and/or drug classes were detected.

The specimen was screened for the following drugs, drug classes and/or substances: Ethanol (blood alcohol), methanol, acetone, isopropanol, cocaine/benzoyllecgonine, opiates, oxycodone/oxymorphone, methamphetamine/methylenedioxyamphetamine (MDMA), phencyclidine, barbiturates, benzodiazepines, carisoprodol/meprobamate, fentanyl, methadone, cannabinoids, zolpidem, diphenhydramine/cyclobenzaprine, dextromethorphan, tramadol, tricyclic antidepressants, buprenorphine/norbuprenorphine.

Supporting examination documentation is maintained in the case file. The above-listed methods are those approved for use at the time of analysis. All methods can be found in the Toxicology Procedures Manual which can be found at <https://www.dfs.virginia.gov/documentation-publications/manuals/>. Measurement uncertainty is reported at a 95.45% level of confidence for all toxicological analyses except blood alcohol or ethanol which is reported at a 99.73% level of confidence.

*Scenario 3: Blood alcohol level was less than 0.100%w/v and no drugs or drug classes screened positive.*

Blood Alcohol Content  $0.025 \pm 0.001\%$  by weight by volume  
Method: Alcohols by Headspace Gas Chromatography

No other drugs and/or drug classes were detected.

The specimen was screened for the following drugs and/or drug classes: Ethanol (blood alcohol), methanol, acetone, isopropanol, cocaine/benzoyllecgonine, opiates, oxycodone/oxymorphone, methamphetamine/methylenedioxyamphetamine (MDMA), phencyclidine, barbiturates, benzodiazepines, carisoprodol/meprobamate, fentanyl, methadone, cannabinoids, zolpidem, diphenhydramine/cyclobenzaprine, dextromethorphan, tramadol, tricyclic antidepressants, buprenorphine/norbuprenorphine.

Supporting examination documentation is maintained in the case file. The above-listed methods are those approved for use at the time of analysis. All methods can be found in the Toxicology Procedures Manual which can be found at <https://www.dfs.virginia.gov/documentation-publications/manuals/>. Measurement uncertainty is reported at a 95.45% level of confidence for all toxicological analyses except blood alcohol or ethanol which is reported at a 99.73% level of confidence.

**ITEM** – Non-implicit consent cases: DUI/DUID which do NOT use the DFS DUI/DUID Blood Specimen Collection Kit

If the suspect had used or ingested drugs recently (<6 hrs.), blood samples would provide the most probative evidence, although a urine sample can also be collected. If more than 6 hours has

passed since the suspected time of drug use, then both blood and urine samples should be collected from the suspect.

**PROCESS** - Blood, urine or other biological samples can be collected by medical personnel using blood vials and containers provided by the medical facility (previously collected for medical/evaluation purposes). When submitting hospital vials and containers, please make sure they are leak proof. Submit an RFLE with the evidence, including the nature of the offense, manner in which evidence was collected (e.g., search warrant). The testing protocol for non-implied consent DUI/DUID cases may follow the protocol outlined for implied consent DUI/DUID cases (see above) however that is dependent upon sample volume limitations.

**CONSIDERATION** - Once the analysis is complete, the evidence and CoA will be returned to the investigating officer.

**ITEM** – Other non-implied consent cases (Biological samples collected pursuant to search warrant that are not in DFS DUI/DUID Blood Specimen Collection Kit)

Examples of cases include possession of controlled substance, child endangerment, manslaughter, maiming or any other type of offense in which the arresting officer is interested in determining whether or not the suspect had consumed alcohol or drugs as it relates to a charge beyond an implied/non-implied consent DUI/DUID. Separate biological evidence from other physical evidence for submission to DFS.

If the suspect had used or ingested drugs recently (<6 hrs), blood samples would provide the most probative evidence, although a urine sample can also be collected. If more than 6 hours has passed since the suspected time of drug use, then both blood and urine samples should be collected from the suspect.

**PROCESS** - Blood, urine or other biological samples can be collected by medical personnel using blood vials and containers provided by the medical facility. When submitting hospital vials and containers, please make sure they are leak proof. Submit an RFLE with the evidence, including the nature of the offense, manner in which evidence was collected (e.g., search warrant) and types of examinations requested (ethanol or specific drugs). The testing protocol for this type of case will be determined by a toxicologist (or designee) based upon the request and provided history.

**CONSIDERATION** - Once the analysis is complete, the evidence and CoA will be returned to the investigating officer.

**ITEM** - Drug-Facilitated Crimes Cases

In cases of alleged drug-facilitated crimes, both blood and urine samples should be collected if the alleged incident/drugging occurred within 24 hours of examination. If alleged incident/drugging occurred more than 24 hours but less than 120 hours (5 days) prior to examination, collect and submit urine only.

**PROCESS** - The small purple top blood tube in the Physical Evidence Recovery Kit (PERK) does not provide enough sample for a complete toxicological investigation, so additional

blood and urine samples are required. When collecting evidence, request the Sexual Assault Nurse Examiner (SANE) or other medical professional to collect additional blood samples in 2 gray top tubes *and* a urine sample if the sexual assault occurred less than 24 hours prior to examination. If the sexual assault occurred more than 24 hours prior but less than 120 hours (5 days) to examination, instruct the SANE nurse to collect a urine sample *only*. Keep these samples separate from the PERK and submit them along with the completed *Questionnaire for Drug-Facilitated Sexual Assault Cases* located inside the PERK to the laboratory as a separate item with a request for a toxicological examination.

**CONSIDERATION** - The sooner blood and urine samples are collected after the alleged assault, the greater the chance of detecting drugs that are quickly eliminated from the body if they are present. If the time from the alleged incident/drugging and the collection is greater than 120 hours (5 days), the samples will be returned to the submitting agency without being tested. This provision addresses the pharmacokinetic properties of most drugs and alcohol and the toxicological significance of analytical results obtained from these samples.

GHB panel testing will not be pursued if more than 15 hours had passed between the alleged incident/drugging and the collection of urine (or 8 hours for blood) specimen(s). This provision addresses the pharmacokinetic properties of GHB/GHB analogues and the toxicological significance of analytical results that may contribute to the investigation of a drug facilitated crime.

#### **ITEM - Alcoholic Beverage**

Suspected alcoholic beverages may be submitted to the Toxicology Section to determine alcohol content. Determination of alcohol content requires at least one ounce of liquid.

**PROCESS** - Submit original container whenever possible. If the original container is open or could potentially leak, transfer at least 1 ounce of liquid to a clean glass screw top bottle prior to submission. If evidence contains multiple samples submit one representative item from each brand or type of beverage for analysis. Submit the samples with the required RFLÉ indicating the requested examination as “Alcohol Content.”

**CONSIDERATION** - Alcohol evaporates easily so make sure evidence is sealed tightly.

#### **ITEM - Poisoning Cases**

Poisoning cases are extremely rare and require specific handling and collection. Please contact the Toxicology, Controlled Substances or Trace Evidence Sections for suggestions and instructions on submission of poisoning cases. Items such as empty bottles, partially eaten food, liquid from glasses or other containers, medicinal products, as well as many other possibilities, may be the key piece of evidence in these cases. Depending on the nature and circumstances of the poisoning, evidence may be analyzed by Toxicology, Controlled Substances, and/or Trace Evidence. Note that evidence related to food adulteration may need to be submitted to the [Division of Consolidated Laboratory Services](#).