DRUG DETECTION LABORATORIES, INC.

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Recommendations for Discovery

Suggested List of Items to Request from Primary Laboratory (Discovery Requests)

Please Note: Re-testing of biological samples (or any collected sample) is generally the best way to ensure proper results. In most cases, there is adequate sample volume for a referee laboratory to confirm or deny positive drug test results or perform additional analyses. Breath test results are obviously an exception, as breath samples are not typically retained.

Discovery for Blood/Urine Alcohol Cases

Typical discovery (California):

- Chromatograms from gas chromatograph, including chromatograms from the following four "reference samples".
- Secondary alcohol standard (a.k.a. calibrator, alcohol standard).
- Quality control (a.k.a. QC). There must be *at least* one QC sample, and many labs utilize more than one.
- Mixed reference sample (sample typically contains methanol, ethanol, and rubbing alcohol (a.k.a. resolution solution).
- Method blank (a.k.a. negative control, water).
- Case samples (note: case samples must always be analyzed in duplicate, so expect two chromatograms.

- Chain-of-custody (a.k.a. C-O-C, chain-of-possession)
- Photocopy of evidence container (usually a box or envelope)
- Chain-of-custody usually includes both *internal* chain-of-custody and *external* chain-of-custody.
- External chain-of-custody is usually hand written on the evidence container (box or envelope). The internal chain-of-custody is usually a computer-controlled and stored document, that electronically records all parties who handle a sample, using a bar code system.

- Sample collection: Name and credentials of phlebotomist (or other medical professional) who drew the blood sample.

- Name and credentials of forensic scientist (a.k.a. criminalist, forensic toxicologist, laboratory analyst) performing the actual analysis, including: curriculum vitae, Title 17 status (FAS, FAA, FAT), board certifications, undergrad and graduate degrees, NHTSA field sobriety test qualifications (student level, instructor level), specific training in pharmacology, toxicology, pharmacokinetics, etc.

- Titration of *Secondary Alcohol Standard* (a.k.a direct oxidation, direct ox, etc.) worksheet, including replicate results of secondary Alcohol Standard and method blanks.
- Name and qualifications of person who performed direct oxidation titration.

Breath Alcohol Cases:

There are two possible types of calibration technologies, including "wet bath" simulators and "dry gas" tanks. Dry gas has become very popular due to its ease of use and ready supply of vendors providing reliable standards.

In either case, typical discovery (California) should include:

- Copy of actual printout from test (including ALL result values). Please note that dual technology machines (infrared and electro-chemical) generate two results for each breath test, for a total of four discrete results.
- Calibration records (minimum calibration check every 10 days or 150 tests).
- Maintenance logs, including any contact with manufacturer or service center.
- Record of officer trainer (officer that administered test).
- History of results for instrument (at least last 30 days).

Urine and Blood Drug Testing Samples:

Please Note: Re-testing of biological samples, such as blood and urine, is generally the best way to ensure proper results. In most cases, there is adequate sample volume for a referee laboratory to confirm or deny positive drug test results.

Request the following data:

- Analytical technology (usually found on the result report); examples include GC/MS, GC, LC/MS, immunoassay, etc.

Chromatograms for:

- Case sample
- Calibrators or other positive standards
- Control samples
- Method blanks
- Chromatogram from injection just prior to case sample (to inspect for potential carryover).

- Autotune (for mass spectrometers)
- Laboratory reporting limits (may be limits of detection, screening cutoffs, etc.).
- Chain-of-custody (a.k.a. C-O-C, chain-of-possession)
- Copy of evidence container (usually a box or envelope)
- Chain-of-custody usually includes both internal chain-of-custody and external chain-of-custody.

- External chain-of-custody is usually hand written on the evidence container (box or envelope). The internal chain-of custody is usually a computer controlled and stored document, that records electronically, all parties who handle a sample, using a bar code system.

Solid dose cases (pills, powders, syringes, plant material, etc.).

Please Note: Re-testing of solid dose samples is generally the best way to ensure proper results. Most prosecutorial laboratories (crime labs) do not routinely perform quantitative analysis on pills, powders, and other samples. One exception is the DEA, which often performs quantitative analysis on many samples. Contact your local crime lab for more information.

Request the following data:

Analytical technology (usually found on the result report); examples include GC/MS, GC, LC/MS, immunoassay, etc.
Chromatograms for:

- Case sample
- Calibrators or other positive standards
- Control samples
- Method blanks
- Chromatogram from injection just prior to case sample (to inspect for potential carryover).

- Autotune (for mass spectrometers)
- Chain-of-custody (a.k.a. C-O-C, chain-of-possession)
- Copy of evidence container (usually a box or envelope)
- Chain-of-custody usually includes both internal chain-of-custody and external chain-of-custody.
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Important Definitions:

In chemistry, **quantitative analysis** is the determination of the abundance (usually expressed as a concentration or mass) of a substance present in a sample. Typical quantitative units for blood or urine drug concentration are milligrams per liter (mg/L), or nanograms per milliliter (ng/mL).

Typical quantitative units for pills or powders are milligrams per tablet (mg), or as a percentage of the whole (% w/w).

Qualitative analysis, on the other hand, describes the determination of the presence or absence of a substance or substances in a sample. Qualitative results are unit-less. An example of a qualitative result is a result such as, "positive for morphine". Please note that a report which states "powder contains morphine, total net weight = 1.0 grams" does **not** indicate that quantitative analysis for morphine was performed.

In some cases, results are "semi-quantitative". Semi-quantitative reporting may indicate that the result is approximate or has some other limitation. Results may also be reported as above or below a certain "cut-off". Great caution should be exercised when interpreting these results, as results may not be reliable.

Re-testing:

Independent re-testing is recommended as the absolute best way to ensure proper results and/or to protect the subject from an analytical or clerical error.

Requests to the original laboratory (often through the local DA's office) should include a request for the original vial (evidence container) to be sent to the referee laboratory. If the original vial is not sent, request a photocopy or photograph of the original label. In addition, request a copy of the original chain-of-custody envelope (or box) be sent with the sample. If re-testing is performed at DDL, these documents will be provided to you along with the re-testing report.

Thank you!