

7. Internal Quality Control

A. Technical and Administrative Case Review

All cases analyzed by chemists in the Section will be reviewed by the Section Supervisor or a designated Chemist III. The technical and administrative review consists of the Supervisor or designated Chemist III reviewing the laboratory case file to ensure:

1. That the proper technical procedures were utilized.
2. That the chemist's opinions/conclusions as to the results of analysis are consistent with the results of the technical procedures the chemist used in the analysis.
3. That the laboratory notes properly document the technical procedures used in the analysis and the notes are consistent with Section and Crime Laboratory policy.
4. That the chain-of-custody for the evidence is properly documented.
5. That the laboratory report accurately reflects the results of the chemist's analysis.
6. That the laboratory report is correct, complete, and consistent with laboratory policy.

The case file reviewer will note their approval of the reviewed case by placing their initials and the date the case was reviewed in the section marked "Technical and Administrative Review" on the case notes cover sheet. The case file reviewer will then enter that the administrative and technical review has been approved in the laboratory automation system.

B. Criteria for the Identification of Controlled Substances

The procedures listed in the Section's Technical Procedures Manual are used to identify controlled substances.

1. Preliminary tests, ultraviolet spectroscopy, microscopic examination, and enzyme multiplied immunoassay technique (EMIT) are used to screen evidence to determine the possible presence of controlled substances and also to classify controlled substances into these general categories: opium alkaloids, synthetic opiates, cocaine, indole alkaloids, benzodiazepines, barbiturates, sedatives, hypnotics, anesthetics, marijuana, and phenalkylamines. Thin layer chromatography, infrared spectroscopy, microcrystalline tests, or other technical procedures can also be used to screen evidence to determine the presence of controlled substances or to classify controlled substances into the general categories.

2. Confirmatory tests are used to identify conclusively a controlled substance. The confirmatory test may be a single technical procedure or a combination of two or more technical procedures.

a. Infrared spectroscopy is a confirmatory test for a controlled substance when the controlled substance is not mixed with other substances or is mixed with other substances in a ratio so that the infrared spectrum of the mixture is not significantly different from the infrared spectrum of the known reference standard. If other substances in the mixture significantly alter the spectrum of the controlled substance, the controlled substance must be separated from the mixture and an infrared spectrum of the controlled substance obtained. A known impurity in a mixture with a controlled substance can also be subtracted from the infrared spectrum of the mixture by use of the "difference" function of the FTIR. An infrared spectrum of a controlled substance must be compared to and found to be substantially the same as an infrared spectrum of the known reference standard before an identification is made.

b. Mass spectrometry is a confirmatory test for a controlled substance. If the controlled substance is mixed with another substance that is not a known reference standard, the controlled substance must first be

separated from the mixture and then a mass spectrum obtained of the controlled substance.

This separation is usually accomplished by the use of a gas chromatograph connected directly to the mass spectrometer. A mass spectrum of a controlled substance must be compared to and found to be substantially the same as a mass spectrum of the known reference standard before an identification is made.

c. Gas chromatography and high performance liquid chromatography (HPLC) are confirmatory tests when used in conjunction with other technical procedures: preliminary tests, ultraviolet spectroscopy, infrared spectroscopy (of a mixture), microcrystalline test, microscopic examination, and thin layer chromatography. The chromatogram of a controlled substance must be compared to the chromatogram of a known reference standard and found to be substantially the same before an identification is made.

d. Thin layer chromatography utilizing three developing solvent systems (one developing solvent system for marijuana and derivatives of marijuana) is a confirmatory test when used in conjunction with other technical procedures: preliminary tests, ultraviolet spectroscopy, infrared spectroscopy (of a mixture), microcrystalline test, microscopic examination, gas chromatography, and HPLC. The chromatograms of a controlled substance must be compared to the chromatograms of a known reference standard and found to be substantially the same before an identification is made.

3. The following technical procedures are the minimum criteria required to identify a controlled substance:

- a. Controlled substance contained in a pharmaceutical preparation
 - (1) identification of controlled substance from reference material (Micromedex, Physicians Desk Reference, etc)
 - (2) infrared spectroscopy, or mass spectrometry, or gas chromatography, or HPLC, or microcrystalline test, or thin layer chromatography
- b. Marijuana

- (1) microscopic examination with the identification of plant material
 - (2) Duquenois-Levine test, or thin layer chromatography, or mass spectrometry
- c. Derivatives of Marijuana
 - (1) microscopic examination
 - (2) Duquenois-Levine test
 - (3) thin layer chromatography, or mass spectrometry
- d. Indole alkaloids
 - (1) fluorescence with UV light or ultraviolet spectroscopy
 - (2) PDMAB test
 - (3) thin layer chromatography, or mass spectrometry
- e. Phenalkylamines
 - (1) preliminary test, or ultraviolet spectroscopy, or microcrystalline test
 - (2) infrared spectroscopy, or mass spectroscopy, or gas chromatography, or HPLC
- f. Opium alkaloids
 - (1) preliminary test, or ultraviolet spectroscopy, or microcrystalline test
 - (2) infrared spectroscopy, or mass spectrometry, or thin layer chromatography, or gas chromatography, or HPLC
- g. Synthetic opiates
 - (1) preliminary test, or ultraviolet spectroscopy
 - (2) infrared spectroscopy, or mass spectrometry, or thin layer chromatography, or gas chromatography, or HPLC
- h. Cocaine
 - (1) preliminary test, or ultraviolet spectroscopy, or microcrystalline

- test
- (2) infrared spectroscopy, or mass spectrometry, or thin layer chromatography, or gas chromatography, or HPLC
- i. Benzodiazepines
 - (1) preliminary test, or ultraviolet spectroscopy
 - (2) infrared spectroscopy, or mass spectrometry, or thin layer chromatography, or gas chromatography, or HPLC
- j. Barbiturates
 - (1) preliminary test, or ultraviolet spectroscopy, or microcrystalline test
 - (2) infrared spectroscopy, or mass spectrometry, or gas chromatography, or HPLC
- k. Sedatives, Hypnotics, Anesthetics
 - (1) preliminary test, or ultraviolet spectroscopy, or microcrystalline test
 - (2) infrared spectroscopy, or mass spectrometry, or thin layer chromatography, or gas chromatography, or HPLC
- l. Other Controlled Substances
 - (1) general classification of the controlled substance by use of preliminary tests, or ultraviolet spectroscopy, or microscopic examination, or other technical procedure
 - (2) a confirmatory test