

**1.0 Purpose:**

Training in the Toxicology Unit is performed prior to a new employee performing case analysis. Training is documented using the attached training worklists. These with demonstration of competency through 1 or multiple practical competency tests in conjunction with a written or oral assessment (i.e. test) will be used to recommend that the analyst be authorized to perform case analysis.

If retraining of an employee is required the Deputy Director will format a retraining plan based on the needed retraining (refer to GL-14 'General Training').

As new technologies or techniques are developed further training of previously authorized analysts may be needed. Need will depend on the nature of the change; the use of a new technology versus a change to how a current technology is used.

The Deputy Director may determine the extent of training for employees based on Unit needs. Training may range from learning only specific portions of analysis to learning all techniques. When training is not in a full method the training worklists will be used however a memo will be written to document what has occurred. An authorization letter may be written based on performing just the specific task. For example an analyst may be authorized for sample preparation but not instrument analysis.

**2.0 General Introduction New Employees:**

- A. All employees will start their first day at DESPP headquarters, where they are introduced to the Department, and complete appropriate paperwork.
- B. Upon arrival at the laboratory, the Deputy Director or designee, and/or appropriate Unit Lead will introduce the individual to the laboratory and provide a general orientation.
- C. Per GL-14 the Deputy Director (or their designee) is responsible to arrange for the General Laboratory and Safety training, of new employees, with the Quality Section.
- D. The Deputy Director or Unit Lead will introduce the new employee to the Toxicology unit and discuss the following:
  - i. A discussion of the overall operation of the laboratory
  - ii. The importance of chain of custody in all aspects of laboratory work.
  - iii. A discussion of the chain of command and the laboratory organization chart, with an explanation of specific positions and reporting relationships
  - iv. Confidentiality of case work
  - v. What to do if asked by the media about cases

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- vi. Consequences of not following set guidelines for evidence handling or other laboratory policies
- E. The employee will be issued the following:
  - i. Laboratory Access magnetic key card coded to the specification of the DSS Director.
  - ii. Login to the LAN and LIMS system; this includes state email, JusticeTrax and Qualtrax access.
- F. Responsibility:
  - i. Deputy Director: is responsible to support the training program.
  - ii. Unit Lead: is responsible to assure the unit training program is followed. Additionally they are responsible to provide guidance as needed to the assigned trainer and trainee.
  - iii. Trainee: is responsible to follow the guidance of the training program and the procedures of the DSS. IF during the training process the trainee has questions or concerns they are responsible to bring these to the trainer or Unit Lead.
- G. Safety: Safety training will be provided by the laboratory Safety Officer, or designee, with an initial laboratory safety walk-through/overview/review provided to any new employee. Method specific safety training will be provided as individuals are trained in specific Toxicology methods.
  - i. Safety Manual: New employees will have access to the Safety Manual through Qualtrax, as part of their training. They will be instructed that they are responsible for the information in the manual, and will be given time throughout their training for reading and review of the manual.
  - ii. During Unit training new employees will be shown the location and use of:
    - 1. General safety equipment, e.g. emergency showers, eye washes, location of instructions for spill kits.
    - 2. Hoods
    - 3. Location and use of PPE, e.g. gloves, lab coats, eye protection.
    - 4. Material Safety Data
    - 5. Evacuation routes; gathering areas for drills/emergencies
- H. Unit Specific Training: The Toxicology unit performs analysis of ethanol, and other volatile materials, drug screening and confirmatory drug testing in biological and other matrices. Training of new employees may be performed by the Unit Lead or their designee.

If the trainee has prior experience related to the work of the Toxicology Unit, the Unit Lead and/or the Deputy Director may assess their knowledge and work

experience and modify the training. A deviation may be written to document changes to the needed training. In all cases the trainee will still be required to successfully complete a competency test based on Unit procedures (this will include report writing and an oral or written examination).

- i. Competency: Procedural competency in the Toxicology Unit will be demonstrated by the successful analysis of control, or proficiency testing materials. Competency is documented on a per-procedure basis as noted below.
- ii. Documentation: following appropriate training and demonstration of procedural competence, the trainer will complete the appropriate training checklist which is then forwarded to the Unit Lead for review and sign-off. The training checklist is then forwarded to the Deputy Director with supporting documentation for similar review/approval. Competency documentation is maintained in the trainee's personnel training file.
- iii. The Unit Lead either performs or oversees the following processes for new employees:
  1. Laboratory Orientation
  2. Assignment of work desk/area
  3. Communicate Unit policies
  4. Ensure that the trainee is given adequate time to read appropriate reference materials
  5. Arrange for the trainee to have proper access to, and training on the LIMS system.
  6. Assure proper documentation of the training occurs.
- I. Procedural Competency: The approach to demonstration of procedural competency is similar for all toxicology procedures. The analyst must prepare a routine batch of samples for analysis, and achieve acceptable batch and control parameters, perform the appropriate level of 'analyst batch review', and understand the process of entering approved batch results into the LIMS system. It is anticipated that the analyst will work with their trainer initially while acquiring skills in the toxicology laboratory. Eventually, such an individual may demonstrate their competence in a particular procedure with minimal training required.
- J. The trainer will introduce the analyst, and/or ensure the analyst is familiar with the method including;

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- i. The SOP for the Procedure, including the underlying scientific principles – both for sample preparation, and for instrumental analysis, as applicable.
  - ii. Evidence retrieval using electronic chain of custody
  - iii. Procedural calibration, and quality control evaluation
  - iv. Sample Preparation/extraction/derivatization (as applicable)
  - v. Instrument set-up, operation and software
  - vi. Sequence set-up and initiation
  - vii. Data evaluation/review
  - viii. Quality Control/Batch Review
  - ix. Interpretation of data
  - x. Data reporting, including batch preparation, and LIMS report writing
- K. The Trainer (with guidance from the Unit Lead) will set up an appropriate series of training exercises, which may include;
  - i. Repeat of samples previously analyzed
  - ii. Analysis of previously analyzed PT samples
  - iii. Review of literature References including Instrument manuals
- L. Competency is shown when the trainee can independently prepare and reanalyze a batch of samples such that all appropriate batch quality control parameters are met, and that previously analyzed, or otherwise known case or PT samples are within an appropriate margin of the initial analysis. (Generally 5% for volatile materials and 20% with drugs in biological matrices).
- M. A verbal test will be given by the Deputy Director and/or Unit Lead Examiner concerning the process, to ensure that the analyst has an appropriate level of understanding of both the methodology and instrumentation. This will be documented to include the general topics reviewed and the outcome. A written test may be given in place of the oral test; the Deputy Director will approve the test questions if a written test is given.
- N. If the run is acceptable and the oral or written test is acceptable, the Deputy Director with the Unit Lead will write a letter of competency based on the batch results.
- O. The Trainer will discuss statutory requirements of the Laboratory for DUI cases. It shall be stressed that Alcohol reports have to be mailed within 24 hours of the final results being known.

P. The trainee will be instructed in court room testimony. This will whenever possible include moot court based on a competency case or a laboratory case. Court training will be noted in the individuals training record along with evaluations of the moot court.

Q. Analysts will be authorized to perform batch or technical reviews after gaining experience through the completion of one (1) batch or case, respectively, within the appropriate area of qualification.

### **3.0 Training for New Technologies or Techniques:**

A. New Procedure for Pre-Existing Technique/technologies: When a new procedure is introduced based on a pre-existing technique/technology, analysts which are currently authorized in that technique (instrument, extraction etc.) may be assessed to the new procedure based on a successful analytical batch. A successful batch is defined by calibrators and/or controls (negative and positive) working as expected. This must be assessed prior to the release of case data.

Examples:

- Changes to an extraction technique such as column type or solvents used.
- Addition of capabilities to an existing instrument such use for identifying as new analytes.
- Updated instrument such as a new GC/MS used in similar analysis as preexisting GC/MS.
- Software changes such as upgrades.

i. In these circumstances unit training checklists will not be required since the basic information such as use of the technique, or theory would have already been assessed.

1. Oral or written examination will only be required if the Deputy Director determines that the theory is significantly different based on how the laboratory is using the technique.
2. Report writing will only be required if the new method requires a significant change to how Unit case reports are written.

B. New Procedure for a new Technology: When a new procedure represents new technology (extraction, instrument type etc.) training will include assessment by oral or written test of the theory and use of the method along with a practical competency test. Report writing need not be re-assessed unless the reporting method changes within Justice Trax.

Examples:

- New instrument that represents a new technology LCMS v. DART

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- Sample extraction via a non-solid phase extraction or other current extraction technology.
- i. Analysts assigned to validate a new technology or procedure need not have an oral or written test or practical competency test. The validation documentation will act to demonstrate their knowledge and understanding of the technology and or procedure. The Deputy Director with the Unit Lead may determine if those assisting in a validation have contributed a sufficient amount to also be deemed competent.

#### **4.0 Transferred Employees:**

- A. Employees transferred to the Toxicology Unit from within the DSS may require Unit specific training but may not require the general training. When an employee is transferred into the Unit the Unit Lead and Deputy Director will review their previous DSS training to determine if any general training is required.
  - i. Unit worklists may be used in conjunction of a review memo to document review of general topics and court testimony.
- B. Unit Specific training will be required but may be modified based on the trainee's previous experience. For example if the analyst worked in another unit which utilized similar instrumentation the Unit Lead may choose to assess the analysts understanding of the theory and use of the instrument to determine the extent of the needed training.
- C. Competency tests will be used to document the trainee's ability to independently perform analysis.
- D. The Unit Lead or Deputy Director will recommend to the Director that the analyst be authorized to perform a method or portion of a method.

#### **5.0 References**

- A. Clark's Isolation and Identification of Drugs in pharmaceuticals, body fluids, and post-mortem materials; The Pharmaceutical Society of Great Britain, specifically chapters on GC/MS
- B. Instrumental Data for Drug Analysis; 2<sup>nd</sup> edition volumes 1-4, Terry Mills III and J. Conrad Roberson

**TX 30 Training for TOX**

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Page 7 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit – General Training**

Trainee: \_\_\_\_\_

Trainer to sign and date when they feel that they have adequately covered a specific topic; trainee to initial when they feel that they have a basic understanding of the topic.

General Training checklist for use with new employees, employees transferred to the unit may have general knowledge of the topics below. There will be no competency examination as a direct result of this basic information.

Topic	Trainee initial	Date	Trainer Initial	Date
General Information				
Maintaining Chain of Custody				
Evidence Storage				
Forensic Corrections				
DSS security				
Evidence Handling and Receipt				
Case Assignment in JT				
Electronic Transfers				
Verification of case identifiers				
Labeling				
Case Storage				
Case files				
Case Reports				
JusticeTrax report function				
Components of Reports				
Case Review				
Standards retrieving and validation				
Retrieving standards				
Validation of standards – Qualitative				
Validation of standards – Quantitative				

I have reviewed the document and find that the trainee listed above has a basic knowledge of these topics.

Unit Lead: \_\_\_\_\_ Date: \_\_\_\_\_

**TX 30 Training for TOX**

Document ID: 1380

Revision: 5

Effective Date: 7/21/2016

Status: Published

Page 8 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit - Courtroom Testimony**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

Topic	Trainee initial	Date	Trainer Initial	Date
Review of Basic Questions				
Analysts education				
Work experience				
Background experience				
Laboratory Questions				
Chain of Custody				
Evidence Handling				
Instrument controls/calibrators				
General Instrumentation -theory				
Reporting				
Moot Court Performed				
Specialized question/topics:				

When possible the trainee will attend court with an experienced analyst to become familiar with the process. Moot court will be held prior to an analyst testifying in case work. Reviews of the moot court will be written by the unit Lead or Deputy Director. The unit Lead and/or the Deputy Director will go over these reviews with the trainee as a teaching experience. Copies of the reviews will be filled with this document in the analysts professional development file.

Document reviewed by:

Unit Lead: \_\_\_\_\_ Date: \_\_\_\_\_



**TX 30 Training for TOX**

Document ID: 1380

Revision: 5

Effective Date: 7/21/2016

Status: Published

Page 9 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit -Basic Drug Screen (WAN/BDS)**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Instrument theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Data analysis				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_.

Review of this batch demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.  
I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX***Approved by Director: Dr. Guy Vallaro*

Document ID: 1380

Revision: 5

Effective Date: 7/21/2016

Status: Published

Page **10** of **16****Toxicology Unit - Cocaine and Benzoyllecgonine**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Instrument theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Data analysis				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_. Review of this batch  
demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.

I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX**

Document ID: 1380

Revision: 5

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Page **11** of **16***Approved by Director: Dr. Guy Vallaro***Toxicology Unit - EMIT**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_.

Review of this batch demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.  
I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX**

Document ID: 1380

Revision: 5

Effective Date: 7/21/2016

Status: Published

Page **12** of **16***Approved by Director: Dr. Guy Vallaro*Toxicology Unit - **Ethanol and Volatiles**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_.

Review of this batch demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.  
I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX**

Document ID: 1380

Revision: 5

Effective Date: 7/21/2016

Status: Published

Page 13 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit - GHB Analysis:**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Instrument theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Data analysis				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead

\_\_\_\_\_ on date: \_\_\_\_\_. Review of this batch

demonstrates that the trainee **has/ does not have** a basic understanding of this procedure. I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this

method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX**

Document ID: 1380

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Page 14 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit - Sympathomimetic Amines (SMA)**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_.

Review of this batch demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.  
I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX**

Document ID: 1380

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Status: Published

Page 15 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit THC**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Retrieving data				
Criteria for batch acceptance				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_.

Review of this batch demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.  
I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_

**TX 30 Training for TOX**

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Status: Published

Page 16 of 16

*Approved by Director: Dr. Guy Vallaro***Toxicology Unit - LC/MS**

Trainee: \_\_\_\_\_

Trainer to sign and date when they have adequately covered a specific topic; trainee to initial when they have a basic understanding of the topic.

When signed by the Deputy Director this document is to serve as a letter of competency for the method stated above.

Topic	Trainee initial	Date	Trainer Initial	Date
Sample Set up				
Sample retrieval and storage				
Sample preparation				
Use of calibrator and controls				
Instrumentation				
Theory				
Maintenance/set-up				
Software				
Sequence set-up				
Sample run program				
Data analysis				
Criteria for run acceptance				
Reporting				
JusticeTrax				
Batch Review				
Case files				

Competency batch ID# \_\_\_\_\_ completed and reviewed by Toxicology unit Lead  
\_\_\_\_\_ on date: \_\_\_\_\_.

Review of this batch demonstrates that the trainee **has/ does not have** a basic understanding of this procedure.  
I **recommend / do not recommend** this trainee as competent in this method.

By signing the Deputy Director recommends analysts authorization for this  
method: \_\_\_\_\_ date: \_\_\_\_\_