

*Approved by Director: Dr. Guy Vallaro*

A. **PURPOSE:**

There are general guidelines that are important in maintaining the integrity and forensic defensibility of the work performed in the Controlled Substance Laboratory section. These are basic guidelines used for the majority of cases analyzed in the section.

B. **RESPONSIBILITY:**

Analysts Assigned to the Controlled Substance section.

C. **DEFINITIONS:**

CS: Controlled Substance

ECO: Evidence Control Officer

JT: Justice Trax computer system

DPS-997c: the form completed by submitting agencies when submitting evidence to the Evidence Receiving section.

TX Bag/TX Container: a bag or container used by the laboratory for convenience. These are labeled as "TX" to demonstrate that they were added to the case by the laboratory.

FTIR: Fourier Transform Infrared Spectrometer

GC/MS: Gas Chromatography/Mass Spectrometry

Pure standard: standards that are purchased as pure, these will state the exact purity on the container

DEA Exempt Standard: Standard material purchased or made in solution, in the concentration of 1mg/ml or less.

"Like" items: items within a case with similar physical appearance, including packaging and contents.

Sample Selection: selecting items to test or portions of items to test based on knowledge training and experience. There is no assumption of homogeneity and results apply only to the items tested, results are not related to the whole population.

Sampling Plan: selecting samples based on a statistically based plan. This is used with multiple unit populations. This is used to determine the number of samples to analyze to be able to make an inference about the whole population. *The CS laboratory does not use a sample plan however in the rare event that a customer requires this, a Bayesian statistical approach will be used and thoroughly documented in the case.*

*Approved by Director: Dr. Guy Vallaro*

Case Analyst: An Analyst working in the Controlled Substance section is one who has cases assigned to them. The case analyst is responsible for the security of the evidence and the analytical work performed.

Witness: An employee of the Laboratory that is a witness during specific steps of the case analysis process. Although the witness is not responsible for the analytical work they are responsible in part for the security of the evidence.

**D. SAFETY:**

Proper PPE must be worn whenever handling seized drug evidence. This is a minimum of gloves and a laboratory coat.

Sources of biological risks from laboratory samples may include:

Hypodermic needles, broken glass pipes and razors which can puncture the skin

Evidence seized through body cavity searches

Sources of chemical risks from laboratory samples and the laboratory environment may include:

Drugs, which may be aerosolized, volatilized, and/or absorbed through the skin (including PCP, LSD and Fentanyl)

Chemicals used in extractions (MSDSs available for proper handling)

**E. GENERAL INFORMATION:**

The Controlled Substance section will analyze cases using a two person system for any cases which involve the analysis of solid evidence (powders, rocks, tablets, capsules, plant material, liquids, paper tabs, window panes, and food items). The intention of this system is to minimize the possibility of diversion of case materials. Upon opening and inventorying a case, if it is determined to be strictly a residue case, excluding paper tabs and "window panes", it can be handled and analyzed independently. For all other cases, the case analyst will work as a team with a witness. All actions involving open evidence will be performed with the witness present. Once aliquots are taken and the evidence is secured, the assigned analyst can independently analyze the case materials.

The steps where the analyst must have a witness are 1) opening and inventorying the case, 2) photographing and writing case notes, 3) weighing the case items, 4) taking aliquots of the items, 5) re-sampling of items, or any other steps which require the original evidence to be accessed.

Evidence lockers in the section will be divided into two types, those that require two locks and those with one lock. Two lock evidence lockers will require that two keys be used to open the locker. The key to one lock will be assessable by the analysts in the section, the second key will be assessable by the Deputy Director and Supervisors of Controlled Substance and Toxicology. No individual will have

*Approved by Director: Dr. Guy Vallaro*

access to both keys. When a locker needs to be opened, the witness will obtain the 2<sup>nd</sup> key from the Deputy Director or Supervisors. One key lockers are assigned to specific analysts. This is for the storage of items such as evidence aliquots and extractions in their control.

The incoming evidence locker and cases in review locker are one lock lockers. The In-Progress Evidence Locker is a two lock cabinet. Incoming Evidence Locker is intended for cases transferred up from Evidence Receiving. The In-Progress Evidence locker is intended for cases that have been assigned and are in process of being analyzed. Items located in this lockup will be sealed by the case analyst and witness. In order to facilitate the expected reopening of the case, the TX or convenience container seal from evidence receiving or another analyst, may be cut open as long as it is recorded and witnessed each time by the analyst and witness in form (CS-1:4) The Cases in Review Evidence locker is for evidence that is analyzed and either waiting case review or return to Evidence Receiving. Evidence in this location will have been itemized and sealed by the analyst and witness. Any time evidence is moved from any analyst or storage area to another location or analyst, chain of custody must be recorded in Justice Trax. For cases transferred to the Cases in review Locker, the transfer in Justice Trax will be entered as follows: the case will go from analyst, to witness, and finally to the cases in review locker. When the case comes out of the Cases in review locker, the case in Justice Trax will go from the locker, to the witness, and then to the analyst.

1. All analysts must work in a manner that provides safe working conditions for themselves and their co-workers.
2. Analysts must wear lab coats and disposable gloves while working on case materials.

Evidence:

3. All evidence transfers are documented in JT at the time they occur, PIN numbers are used when applicable.
  - a. To document the presence of a witness when the two key locker is used, evidence transfers are documented in JT as follows:
    - i. Storage to Analyst: transfer from storage location, to the witness, to the analyst.
    - ii. Analyst to Storage: transfer from the analyst, to the witness, to the storage location.
4. All cases are opened and inventoried by the assigned analyst with the assistance of a second person (this is the witness).
5. All cases are re-inventoried and sealed when analysis is completed by the assigned analyst with the assistance of a witness.
6. Only one case is opened by an analyst at a time, this is to avoid mix-ups in case materials.

*Approved by Director: Dr. Guy Vallaro*

7. When items are sampled, the aliquot is placed into a labeled vessel, be it a test tube, GC/MS vial or other disposable container. Labeling will include the case number and generally, an item identifier.
8. Photographs will be taken of all case materials as appropriate. These are to act as a record of the case and to demonstrate when items are identified as “like”.
9. Blue pens are preferred for all casework. Other colors are allowed (except black), this allows the original document to be distinguished from a copy. Pencils may not be used on case paperwork.
10. Case materials will be opened on a “Brown paper” or equivalent underlayment to prevent contamination of the laboratory bench space.
11. All single key lockers which contain aliquots of evidence, extractions or residue cases, will be kept locked when the assigned analyst is not in the wet laboratory. All two lock lockers will remain locked unless the analyst and witness are actively accessing the locker.
12. All non-common abbreviations used on worksheets (e.g. PPE), including case notes, will be maintained in a master list of abbreviations stored in the CS Laboratory.
13. Analysts will follow laboratory SOPs for case analysis. If significant deviations from an SOP are required due to the nature of the case, the analyst must discuss the issue with the section supervisor or their designee for approval. If the proposed deviation is accepted by the supervisor or designee, the submitting agency must be consulted and they must accept the change (see SOP GL-11 for guidance). The analyst must clearly document the changes to the procedure in the case notes.
  - a. Note: Significant changes may include using a “different” extraction method then what is usually used: It does not necessarily include simply using a different solvent in an extraction. (Although this would be documented).

**Laboratory Space:**

14. Laboratory areas will be kept clean to avoid case contamination and any accidental exposure to chemicals, drugs and/or biological materials.
15. All consumable supplies will be stored in a manner as to assure that they are suitable for use in case analysis. This includes prevention of laboratory contamination.
16. Consumable materials will be ordered to meet the needs of the laboratory testing performed. When orders are placed for items that can affect the quality of the testing, the ordered item must meet the needs of the test. When receiving the item from the vendor, the receiver must verify that what is received is what was ordered. (Example: if grade A pipettes were ordered verify that what is received is grade A pipettes not a lower grade).
  - a. The person performing the check will indicate that the item(s) are acceptable by checking off the item(s) on the packing slip, and initialing and dating the slip.

*Approved by Director: Dr. Guy Vallaro*

- b. If the item does not meet the required quality, the analyst will write the issue on the packing slip and inform the supervisor. (Example: a grade A pipette is ordered but a grade B pipette is received).
- c. The annotated packing slip is copied, a copy is filed in the CS/Tox administration section, and the original is returned to DSS administration. For P-Card orders, original packing slip will be placed in the appropriate folder.

Reagents: (See SOP CS-3)

17. All reagents must be properly labeled and stored in a manner as to assure that they are suitable for use in case analysis. Analysts must assure that any reagent with special handling requirements (which will be addressed in the SOP the reagent is used) is stored to meet that requirement. Manufacturer's guidelines (e.g. MSDS ) should be consulted when unsure of storage (e.g. refrigerator, solvent cabinet)
18. All reagents used in case analysis must be validated for use in the method. In general a reagent is deemed as acceptable if the reagent works in the method acceptably (giving results as expected for both positive and negative controls). See SOP CS-3.

Standards: (See SOP CS - 3)

19. All standards must be stored to maintain their integrity; manufacturer's guidelines should be followed.
20. Standards used as comparison standards are evaluated / validated at the time of use. See Sop CS-3.

Instrumentation:

21. All instruments will be operated per specific SOP.
22. Instruments will be maintained per specific SOP.
23. Instruments that do not meet daily set-up requirements will be marked as out of service or not acceptable for use until the problem is fixed and the daily set-up requirements are met. See SOPs CS-7, 8 & 9

F. **PROCEDURE:**

General Case Flow in the CS Laboratory:

- Cases are transferred from the Evidence Receiving section to the laboratory storage area by one of the analysts assigned to the section.
- A case file is prepared for each case (barcode and milestone labels attached) - case paperwork placed inside.

*Approved by Director: Dr. Guy Vallaro*

- Case or cases are assigned to an analyst, by the section supervisor or designee. The analyst, in the presence of a witness, transfers the evidence from the storage location to themselves using JT. To show the presence of the witness in JT, the evidence will be scanned from the storage area, to the witness, and then to the analyst. Assignment notification is printed from Justice Trax.
  - The analyst opens the case with a witness.
  - The analyst makes labels for the case, takes case notes, case photos, takes weights and or volumes, takes aliquots of the evidence, and assesses how they will proceed with the case, in the presence of a witness.
  - Appropriate analyses are performed.
  - Case paperwork is compiled (instrument data sheets, worksheets) and identifications are made.
  - Case descriptions and findings are entered into Justice Trax and a draft report is printed.
  - The case is re-inventoried and closed (sealed) by the analyst in the presence of a witness.
  - The evidence is transferred into storage in the “Cases in Review” location by the analyst and the case file is placed in the “to be tech reviewed” bin, for technical review.
  - The case is technically reviewed and JT is updated.
  - The case is forwarded for Administrative review. Once the report is marked administratively reviewed in JT the report can be printed for signature.
  - The analyst makes three copies of the report. These, along with the evidence, get transferred back to the Evidence Receiving section for transfer back to the submitting agency.
  - The report case file is filed in the CS administrative area.
1. **Case Receipt:** Evidence is transferred from an ECO to a section analyst through the JT system. Once transferred to an analyst the evidence is transported to the CS laboratory, the analyst transfers the evidence from their possession to the CS storage site in JT. The analyst retrieves the key for the common storage area and places the evidence into the cabinet. This is locked and the key is returned to its storage location. The analyst creates a file for the case by placing a bar code label on a appropriate folder. This is placed in a bin with other cases awaiting assignment.
  2. **Case Assignment:** The section Supervisor (or designee) assigns cases through the JT system. The case is updated to show that it is assigned, and to which analyst. The case files or the assignment

notification forms (generated through Justice Trax) are given to the analyst as notification of the cases being assigned to them. The analyst retrieves the cases from their storage location by unlocking the storage cabinet, taking the appropriate cases, and transferring them to their possession in JT.

3. **Case Inventory:** Once a case is assigned to an analyst, they must verify the contents of the case as compared to the DPS-997c submitted with the evidence by the submitting agency. The analyst opens the case in the presence of another witness. The analyst, with the witness, first checks that the evidence is sealed and that the agency case number on the container matches that on the paperwork. The evidence container is then opened and the contents are compared to what is listed on the DPS-997c. The inventorying of the case is documented on either of the two, Controlled Substance –Evidence Summary Case Forms (Forms CS1:1).

If a discrepancy is found at this step the analyst will note the problem and depending on the nature of the problem will either halt the analysis until the issue can be cleared up, or continue with the analysis of the case. Case analysis will be halted if the issue jeopardizes the quality of the evidence. When the analysis must be halted the section Supervisor must be informed of the issue(s). Analysts that are unsure if the issue warrants halting the case analysis should consult their section Supervisor or their designee.

a. Examples of issues that will halt case analysis:

- Discrepancies in count where there are less suspected controlled items than stated on the DPS-997c. The DPS-997c states there are 20 bags of powder however only 18 are found. This requires the agency to be contacted and the count discrepancy to be accounted for prior to case analysis.
- Agency case number discrepancy – if the case number on the evidence container does not match the case number on the DPS-997c, then the agency must be contacted to determine if the correct case was submitted and what number is correct.
- Extra Items of value: on the DPS 997c only one bag of powder is listed, the case is opened and the analyst also finds bags of suspected marijuana. The chemist or section supervisor will contact the agency to clear up the discrepancy.

When an analyst contacts a submitting agency concerning a discrepancy in a case they must document this in the case notes, in the case file, or both. The solution to the problem will also be documented.

b. Examples of issues that will not halt case analysis:

- Minor count discrepancy – if there are more items found than listed, (e.g. 11 glassine bags of powder instead of 10. The analyst can note this in the case notes, both the analyst and witness will initial this).

*Approved by Director: Dr. Guy Vallaro*

- Minor count discrepancies where there are less drug paraphernalia items then expected, (e.g. 10 empty bags as compared to 11 listed on the DPS-997c). A case note initialed by both the analyst and witness is sufficient documentation for this example.
- Tablet counts: if a case is opened and the DPS 997c states ten tablets are present, and the analyst finds 8 whole tablets and partial tablets or crushed tablets, it is reasonable for the analyst to note this in the case file and assume the partial or crushed tablets were part of the count.
- Extra Items – if items such as elastics or packing materials are found which are not listed the analyst can just describe the items in the notes for the case.
- Vague descriptions: the DPS -997c lists bags of powder, the analyst and witness count the number of bags, write a lab note as to what was found and both initial the note.

There are times that discrepancies are not seen until during the weighing process when the analyst is closely examining every object. At this time it is not uncommon to find additional items within the items initially viewed. An example thereof may be a bag of powder substance that contains other hidden bags of powder. For cases such as these the analyst will write a case note to document what was found. The case witness will initial and date this notation.

4. **Justice Trax:** the analyst uses the Justice Trax system throughout the process of case analysis, to maintain the chain of custody, enter the case description, enter the case findings and create the case report. All analysts have a secure PIN (personal identification number) that they use for all secure evidence transfers. Analysts should not share this number with anyone. JT is also used to track the case milestones from unassigned, findings entered, draft completed, technically reviewed, and administrative reviewed.
5. **Case labels:** Bar code labels are placed on the evidence container(s) by the ECO. These labels are also on the convenience container used by the Evidence section. The analyst initials and writes the identifier on the bar code label. (If there is one evidence bag this container is identified as 1A. If there are multiple evidence containers they are identified as 1A, 1B, 1C, 1D...as needed.) The 1 indicates the submission number, the letter indicates the bag. If there are 2 submissions on a case the 2<sup>nd</sup> submission is identified as 2A, 2B, 2C...as needed.

The analyst, using a computer, generates labels with the case number (handwritten labels are also acceptable). Any item which is analyzed will be labeled with the case number, the item designator, and the analyst's handwritten initials. When possible the item itself is labeled however it is acceptable to label the container the item is in (example: label a glassine bag which is holding the powder which was tested, or labeling a jar which is containing a liquid). TX containers can be used to hold and enclose tested items. These will be labeled with "TX" or "TX bag" and with the case number and item identifier.



*Approved by Director: Dr. Guy Vallaro*

6. **Case Notes:** once a case is opened and inventoried, the analyst describes the evidence in the case notes. The case notes need not be overly detailed however, they should be detailed enough for the analyst to itemize the case for the case report and to recall details of the case if reviewed in the future. Details which should be listed include: numbers of items, logos, colors, and inscriptions on tablets when legible. Handwritten case notes may be more comprehensive than what is written into the final case report. Case notes must be legible. In General lab case notes are written on the Controlled Substance –'Evidence Summary Case' (CS-1:1) form. However, for larger cases, a 'Case Notes' (CS-1:3) form may be required.
7. **Photographs:** photographs are generally taken for two purposes, one, to demonstrate that items are alike (multiple bags are similar and thus can be treated alike) and two, as an aid to the case description.
8. **Case Evaluation:** evidence submitted to this laboratory can be in multiple forms including but not limited to: rock-like material, powder, plant material, liquid, tablets, capsules, cigars, cigarettes, syringes, razors, and other paraphernalia. The analyst will consider the type of evidence when determining how to proceed with case analysis. The analyst will review the items in the case and depending on what is submitted will proceed with case analysis, which can include weights, solubility in water, morphology of plants, FTIR, and GC/MS. (See SOP CS-4). Some steps may require the presence of a witness.
9. **Weighing case materials and taking Aliquots for analysis:** weights are taken as required based on the case, following the guidance in SOP CS-5. Aliquots are taken based on case needs, following the guidance in SOP CS-4. Both steps require the presence of a witness. Aliquots not actively being worked on will be stored in the analyst's locker.
10. **Storage of Cases in Progress:** Cases in progress can be in a number of steps of analysis. This generally includes taking case notes, photographs, weights, and aliquots. All of these steps require a witness. When a case is not actively open in the presence of a witness, the case will be sealed. Before each time the TX container is opened, the seal will be checked by recorded by the analyst and witness on form CS-1:4.
11. **Findings/Reporting:** Identification is made when there are two results that are in agreement. In general this will mean either two portions or two samples run by GC/MS, both concurring as to the findings. Findings are recorded on the Controlled Substance –Evidence Summary Case form.
  - a. **Cocaine Free Base:** two portions/items run by GC/MS with concurring results, one FTIR and one solubility in agreement on the form of the drug.
    - i. Exception: in cases where only one bag of rock material is submitted, solubility is performed with the result of insoluble, one portion is run by GC/MS, one portion by FTIR. This is accepted since both FTIR and GC/MS are confirmatory tests. To identify the substance as cocaine free base the solubility and FTIR must agree as to the form of the drug and the GC/MS and FTIR must agree to the drug identification of cocaine.

*Approved by Director: Dr. Guy Vallaro*

- b. **Cocaine Salt Form:** Two portions/items run by GC/MS with concurring results. Two portions/items run for solubility in water
  - c. **All other drugs:** two portions/items run by GC/MS both in agreement on the drug identified.
  - d. Special cases may arise when other confirmation methods are used. These will be noted in the case file. These will only be used when GC/MS and FTIR are not appropriate methods for identifying the compound of interest such as with some poisoning cases.
  - e. No Controlled Substance / No Drugs Identified: Two portions/items run by GC/MS with concurring results.
12. **Case-Draft Reports:** Upon completing analysis of a case and making conclusions based on the findings, the analyst shall enter the findings into JT and mark the case "draft complete". The draft report will be printed and placed in the case jacket along with the chain of custody report. These will be reviewed during the technical review of the case. The Controlled Substance laboratory uses a JT report format for all case files. Analysts are required to provide information for the following sections:
- a. Description of Evidence –with identification of sub-items analyzed when multiple like objects make up a single item. When sub-items are isolated for analysis it must be clear in the description that the items are from larger group of items.  
Example: 1A1 Twenty round blue tablets.  
Item 1A1.1 & 1A1.2 Two of the twenty tablets isolated of item 1A1 for analysis.
  - b. Examination/Methods Performed
  - c. Results and Conclusions (which includes)
    - i. Substance name (including form when appropriate)
    - ii. Total weight of the item (i.e. net or gross weight of a group of like materials) with uncertainty (if applicable) and weight of the sub-items analyzed. Note that the uncertainty for the weight of the items analyzed need not be reported unless the weight of the items analyzed exceeds a criteria weight.
    - iii. When reporting weights in Justice Trax the analyst will pick either Net Weight or Gross Weight from the drop down menu in the reporting field.
    - iv. Quantitation results (if applicable)
  - d. Notations will be included, if required to clarify the finding on the case.

Example:

Item 1A1.1 and 1A1.2 (powder, 1.70 grams).

Item 1A1.1 and 1A1.2 were determined to contain Cocaine Free base.

---

**State of Connecticut Department of Emergency Services and Public Protection**  
**Division of Scientific Services**

*Once printed this version is no longer controlled. Use Qualtrax for the most current version.*

Cocaine Free Base is a schedule II controlled substance (CT and Federal).

Weight of item 1A1 (powder) = 28.35 grams = 1.00 ounce. (95% C.I. = +/- 0.072g)

13. **Closing Cases:** when analysis of a case is complete the analyst re-inventories and closes the case with a witness. The re-inventory demonstrates that the correct number of items are being resealed into the evidence container(s). Both the analyst and witness will initial and date the evidence tape seal or heat seal on the evidence container(s) and initial the 'Evidence Summary' sheet under the 'Closing' section. Once the case is sealed the analyst returns the evidence container(s) to the convenience container and seals that. The analyst then transfers the evidence from their custody to the proper storage area. The evidence is stored there until the Technical and Administrative reviews are complete.
14. **Case Files:** the analyst will include all documentation of case analysis, which is the foundation of the conclusions in the case. This includes, but is not limited to, all worksheets including case notes, instrumentation data sheets, case photographs, the draft report and a copy of the chain of custody. Also included in the case file are administrative documents including the DPS-997c, Evidence Receipt, and any other documents submitted by the customer including faxes that may have been obtained on the case. Once complete the case file is placed into a bin for technical review.
15. **Final Report:** the Administrative reviewer of the case generates the final case report once they are satisfied with the case as a whole. The final report is signed and dated by both the analyst and the technical reviewer and is maintained in the case file. The milestone sticker, on the front of the case file, is updated by the appropriate person at each step of the review process (draft complete, technical review, administrative review).
  - a. Technical reviews in the CS Laboratory follow the guidance of SOP GL-18, however they also include a review of the evidence description on the report to assure that it is clear and does not contain typographical errors. This is done at this step since the evidence description is an integral part of the case report. The technical review in this section also includes a review of the demographic information of the case comparing the information of the DPS-997C to what was entered into the JT system.
  - b. Administrative Reviews in the CS laboratory follow the guidance of SOP GL-18 however since the evidence description is reviewed by the technical reviewer the Administrative reviewer only assures that each page in the case file has the case number and is initialed by the analyst.
16. **"Supplemental" or "Revised" Reports:** rarely supplemental or revised reports may need to be issued after a final report has been issued. These reports will be completed and issued having the same level of technical and administrative reviews as all case reports.

*Approved by Director: Dr. Guy Vallaro*

- a. **Supplemental Reports:** these are used when additional evidence or additional work on evidence is performed at the request of the submitting agency.
    - i. The report will be marked "Supplemental". The case report will be subject to the same review process as the original report. Supplemental reports will be issued in the same manner as original reports.
  - b. **Revised Reports:** these are used when errors are found in the case report. These may include:
    - i. Errors generated by incorrect information being supplied to the laboratory such as demographic information (case source or case number).
    - ii. Errors generated by the laboratory, (typos, number inversion, etc.).
    - iii. For Revised reports the new report will be clearly marked "REVISED". The laboratory will issue the revised report to the submitting agency and the prosecutor.
      - (a) If the revision is of a significant nature an explanation will be added to the report. The laboratory will contact the submitting agency and the States Attorney to explain the issue.
      - (b) The above (a) is not required for simple typos or changes to the demographics.
17. **Returning Cases:** the analyst makes three copies of the signed report. One copy is for the submitting agent, one copy is for the file held in evidence receiving and one copy is for the court. The original signed report is maintained in the case file. The analyst transfers the case from the 'CS Cases in Review' storage location to themselves through Justice Trax. They bring the evidence and the copies of the report to evidence receiving for transfer to an ECO.
18. **Case File Storage:** after completing all reviews and sending the reports and evidence to evidence receiving the case file is maintained in an appropriate area.