# OSAC 2025-S-0010
# Standard Practice for Reporting Results of the Analysis of Seized Drugs

Seized Drugs Subcommittee
Chemistry: Seized Drugs & Toxicology Scientific Area Committee (SAC)
Organization of Scientific Area Committees (OSAC) for Forensic Science



## OSAC Proposed Standard

# DRAFT OSAC 2025-S-0010 Standard Practice for Reporting Results of the Analysis of Seized Drugs

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# Standard Practice for Reporting Results of the Analysis of Seized Drugs

## 1. Scope

1.1 This standard covers requirements for technical reports issued by Forensic Science Service Providers (FSSPs), which express the results of forensic science practitioners (FSPs) as they pertain to measurements, substance identifications, classifications, and quantitations in the analysis of seized drugs.

1.2 This standard establishes required elements for the written reporting of results that are informational, understandable, and suitable for both criminal and civil litigation.

1.3 This standard is intended for use by FSSPs, in consultation with seized drug analysts, to develop policies and templates for reporting the findings of the analysis of seized drugs.

1.4 This standard is intended for use by competent forensic science practitioners with the requisite formal education, discipline-specific training (see E2917 and E2326), and demonstrated proficiency to perform forensic casework.

## 2. Referenced Documents

2.1 *ASTM Standards*:[1]

E620 *Practice for Reporting Opinions of Scientific or Technical Experts*

E1732 *Terminology Relating to Forensic Science*

E2326 *Practice for Education and Training of Seized-Drug Analysts*

E2329 *Practice for Identification of Seized Drugs*

E2548 *Guide for Sampling Seized Drugs for Qualitative and Quantitative Analysis*

E2655 *Guide for Reporting Uncertainty of Test Results* and the *Use of the Term Measurement of Uncertainty in ASTM Test Methods*

E2917 *Practice for Forensic Science Practitioner Training, Continuing Education, and Professional Development Programs*

E3255 *Standard Practice for Quality Assurance of Forensic Science Service Providers Performing Forensic Chemical Analysis*

2.2 Other

ENFSI European Network of Forensic Science Institutes - Minimum Reporting Requirements for the Analysis of Controlled Drugs[2]

United States Department of Justice - Uniform Language for Testimony and Reports for General Forensic Chemistry and Seized Drug Examinations[3]

[1] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[2] Available from European Network of Forensic Science Institutes (ENSFI), DWG-Minimum Reporting Requirements-250913-final accepted by QCC (enfsi.eu).

[3] Available from US DOJ, https://www.justice.gov/olp/page/file/1144921/download

ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*

SWGDRUG Scientific Working Group for the Analysis of Seized Drugs - *Recommendations for: Education and Training, Quality Assurance, Methods of Analysis*[4]

## 3. Terminology

3.1 Terms that assist in interpreting this standard are found in Terminology E1732. Definitions found in section 3.2 should be used when terms are found in both E1732 and this standard.

3.2 *Definitions:*

3.2.1 *case record, n* - Examination and administration documentation received or generated by the laboratory pertaining to a uniquely identified case and includes a case file and other laboratory records that are pertinent to forensic analyses of a particular case. (Excerpted from *Code of Maryland Regulations* COMAR 10.51.01.03)

3.2.2 *case report, n* - A final, formal report that is signed by the analyst or examiner and issued by a forensic laboratory. (Excerpted from *Code of Maryland Regulations* COMAR 10.51.01.03)

3.2.3 *control status, n* - How a drug is regulated in a given jurisdiction (e.g., Cocaine's Federal control status is a Schedule II controlled substance).

3.2.4 *decision point, n* - an administratively defined cutoff or concentration that is at or above the method's limit of detection or limit of quantitation and is used to discriminate between positive and negative results.[5]

3.2.5 *identification, n* - An identification of a compound is made when the results of the tests conducted meet the requirements of E2329 and FSSP policy.

DISCUSSION: The term confirmed may also be used by some FSSPs.

3.2.6 *inconclusive, n* - A result reported by an FSSP when the results of the tests conducted lead to no identification or definite result and do not support reporting the identification of a compound nor the reporting of 'no substances identified'.

DISCUSSION: Based on the jurisdiction, results of the testing conducted, and FSSP requirements, some FSSPs may report the indication of compound(s) in lieu of an inconclusive result.

3.2.7 *indication, n* - A result reported by the FSSP when the testing conducted supports the possible presence of a substance, but does not meet the requirements of E2329 or FSSP policy for the identification of the substance.

DISCUSSION: The terms presumptive or preliminary may also be used by some FSSPs. Note that some FSSPs opt to not indicate the presence of a substance by name and instead report inconclusive or no substances identified.

[4] Available from the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG), http://www.swgdrug.org/approved.htm.

[5] ANSI/ASB Standard 036, First Edition 2019, Standard Practices for Method Validation in Forensic Toxicology.

3.2.8 *item, n* - An object, substance or sample recovered as part of an investigation. This includes everything recovered in the forensic science process including, whole objects, and debris and may include derived samples such as swabs, casts of footprints, and fingermark lifts. Items may sometimes be referred to as exhibits or evidence.[6]

DISCUSSION 1: Items can be referred to as exhibits by some FSSPs. This term refers to the sealed evidence container and contents, which could contain further packages of seized drug evidence (e.g., One sealed evidence envelope containing three knotted plastic bags each containing white powder; the item is the evidence envelope and all of the contents).

DISCUSSION 2: Items can be further divided into sub-items or sub-exhibits.

3.2.9 *narrative reporting, n* - A reporting style that presents the results in a flowing text-based format.

3.2.10 *preliminary report, n* - A report issued to provide information based on initial testing that does not meet the requirements of E2329 or FSSP policy.

3.2.11 *residue, n* - Samples which consist of a small amount of substance of which there is insufficient quantity for the practical determination of a weight or volume.

3.2.12 *tabular reporting, n* - A reporting style that presents the results in a table format.

DISCUSSION: Reports using tabular reporting can also include narrative remarks or explanatory notes.

3.2.13 *trace, n* - a sample consisting of a substance present at a low-level (usually <1% by weight).

## 4. Significance and Use

4.1 This standard provides further guidance for reporting results from the analysis of seized drugs, in addition to the requirements of Practice E620.

4.2 This standard does not imply that terminology, definitions, or reports provided prior to its effective date that may differ from that set forth within this document were erroneous, incorrect, or indefensible.

4.3 Examples shown in this standard are not the only permissible ways to meet the requirements of this standard and are not reflective of the entire report; portions have been selected to highlight the specific requirements of each section and to depict various options for compliance. Not all scenarios depicted in each example scenario would be included on a single report, but represent various approaches to reporting the scenarios depicted.

[6] ILAC G19:06/2022 - Modules in a Forensic Science Process

## 5. General Report Requirements

5.1 Reports issued for seized drug analyses shall follow the general requirements for reporting results of scientific or technical analyses in Practice E620, the requirements of this standard, and any jurisdictional requirements.

5.1.1 When differences arise between this standard and jurisdictional requirements, jurisdictional requirements can take precedence.

5.2 Reported results shall be based on the test results.

5.2.1 The test results and any corresponding scientific data shall be included in the case record (see Practice E3255).

5.3 The case record shall be subject to the FSSP review policy and made available for an independent review upon request.

5.4 Test results can be reported in either a narrative or tabular format.

5.5 Since reports do not typically include all documentation of the work performed, a statement shall be included that additional information is found in the case record.

5.5.1 For example: “The report does not contain all of the documentation associated with the work performed. In order to fully understand and independently evaluate the work and interpret the data, a review of the case record by personnel with the requisite formal education and discipline-specific training may be required.”

5.6 Documentation shall be included on the report when the FSSP is not accredited in the discipline reported on, or when procedures used are outside their scope of accreditation.

5.7 Requests for analysis that are not conducted shall be documented on the report or in the case record.

5.8 Documentation shall be included on the report in the event of non-conformities that impact the accuracy of the reported results.

5.9 Documentation shall be included on the report if there were disagreements between the analyst(s) or technical reviewer(s) related to the accuracy of the reported results that required mediation through laboratory protocols.

5.10 Documentation shall be included on the report of deviations from the FSSP’s analytical SOP, normal test procedure, quality assurance procedures, or from a published method, if the deviation could affect the accuracy of the reported results.

5.11 Documentation shall be included on the report of any abnormal environmental or sample conditions that can impact the results.

5.12 The name of any reviewer shall be included on the report or in the case record. For any reports that were not technically reviewed, this shall be documented on the report. An explanation as to why a technical review was not done shall also be included.

5.13 Reports that are issued to amend, supersede, or supplement a prior report shall be clearly notated as such, reference the original report, and all changes shall be clearly identified. The reason for the additional report shall be included on the report.

5.13.1 Examples include:

5.13.1.1 "This report corrects an administrative error previously reported in report number [unique identifier] dated June 12, 2021. The corrected language is underlined. This is an administrative error and does not affect the integrity of results previously reported."

5.13.1.2 "Amended report to reflect addition of the uncertainty measurement estimate for the reported purity value. Refer to the original laboratory report for [unique identifier] dated 01/24/2022."

5.13.1.3 "Supplemental report to [unique identifier] dated 06/05/2022 to include additional analysis to determine the purity."

5.13.1.4 "Report issued to supplement report [unique identifier] dated 12/11/2022 to include analysis of additional evidentiary items."

5.13.1.5 "Report issued to supersede previously issued report [unique identifier] dated June 3, 2018 to reflect the results of a reanalysis."

5.14 Reports that are issued based on a preliminary analysis shall be clearly notated as such and the limitations of the information and results that are inappropriate to be drawn shall be clearly stated on the report.

5.14.1 For example: "This is provided for informational purposes only. Further analysis is required prior to use in any legal proceedings. No substance identification has been made and any implication that an identification has occurred is inappropriate based on this preliminary/presumptive report."

5.14.2 Terms that shall be used are "indicated", "presumptive", or "preliminary" either in narrative or in tabular headings.

5.14.3 The title of the report shall clearly indicate that it is based on preliminary analysis, for example "Preliminary Report" or "Presumptive Report".

5.14.4 Additional requirements for reporting indicated results are listed in Section 8.

## 6. Reporting Language for Identifications

6.1 An identification of a compound is reported when testing meets the requirements of Practice E2329 and FSSP policy.

6.2 The scope of substances reported is subject to jurisdictional requirements and FSSP policy.

6.3 Language used to report an identified substance shall include the name of the substance as listed in the relevant statute, where practical.

6.3.1 Narrative reporting shall use language that clearly denotes an identification was made.

6.3.2 Tabular reporting shall use titles, captions, or column headings to clearly denote identifications.

6.3.3 Terms that shall be used are "identified" or "confirmed" either in narrative or in tabular headings.

6.4 If control status is included on the report, the jurisdictional or legal reference used to determine the control status and the date used to determine the control status shall be documented (e.g., date of report, date of incident).

6.4.1 When the incident date is not used to determine the control status, consider including the scheduling date on the report for substances subject to recent control actions.

6.5 Examples of scenarios and reporting that fall under this section are depicted in Figure 1 and 2.

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Cocaine |
| 2 | Lysergic Acid Diethylamide [LSD, Schedule I][1] |

[1] Control status determined per State of XX statute XXX. The date used to determine the control status is the date of the report.

*Figure 1. Tabular reporting example of reporting a substance identification with (Exhibit 2) and without (Exhibit 1) control status.*

Cocaine was confirmed in Item 1.

4-Methylethcathinone (4-MEC) was identified in Item 2. 4-MEC is a Schedule I compound per [insert legal reference] as of [scheduling date].

*Figure 2. Narrative reporting example of reporting a substance identification with (Item 2) and without (Item 1) control status.*

6.6 Reporting an Identified Compound as Belonging to a Class of Compounds

6.6.1 If an identified compound is reported as a part of a legally defined structural class of compounds, the compound identified shall be named and accompanied by language stating the structural class.

6.6.2 Examples of scenarios and reporting that fall under this section are depicted in Figures 3 and 4.

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Ethylone (Synthetic Cathinone) |
| 2 | 5-chloro AB-PINACA, an indazole carboxamide (Synthetic Cannabinoid) |

*Figure 3. Tabular reporting example of reporting an identified compound as part of a legally defined structural class of compounds.*

Ethylone was confirmed in Item 1. Ethylone is a member of the synthetic cathinone class of drugs as defined by [statute, date].

4-Fluoro-MDMB-BUTICA was identified in Item 2. 4-Fluoro-MDMB-BUTICA is a Texas PG 2-A compound with an Indole (Core), Methoxy dimethyl oxobutane (Group A) and Carboxamide (Link) as listed in the Texas Health and Safety Code.

*Figure 4. Narrative reporting example of reporting an identified compound as part of a legally defined structural class of compounds.*

6.7 Reporting an Identified Compound as an Analog or Structurally Similar Compound

6.7.1 The basis of any analog or structural similarity determination shall follow FSSP policy, be documented in the case record, and referenced on the report.

6.7.2 If an identified compound is reported as an analog or structurally similar to another compound, the case record shall clearly note what elements of the legal requirements were and were not evaluated.

6.7.3 Examples of scenarios and reporting that fall under this section are depicted in Figures 5 and 6.

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Metonitzene[1] |
| 2 | β-Methylfentanyl[2] |

[1] Metonitazene is substantially similar to the chemical structure of etonitazene, a Schedule I controlled substance per XX statute. The chemical structure is considered per laboratory policy to be substantially similar. The basis for this determination is available upon request.

[2] Based on an evaluation of the structural similarity and represented use, β-Methylfentanyl can be considered an analog of Fentanyl, a Schedule II controlled substance per Statute X. Pharmacologic activity was not assessed.

*Figure 5. Tabular reporting example of reporting an identified compound as structurally similar to another substance and as an analog of another substance.*

Metonitazene was confirmed in Item 1. Metonitazene is substantially similar to the chemical structure of etonitazene, a Schedule I controlled substance per XX statute. The chemical structure is considered per laboratory policy to be substantially similar. The basis for this determination is available upon request.

β-Methylfentanyl was identified in Item 2. β-Methylfentanyl can be considered an analog of Fentanyl, a Schedule II controlled substance per Statute X. Structural similarity and represented use were evaluated. Pharmacologic activity was not assessed.

*Figure 6. Narrative reporting example of reporting an identified compound as structurally similar to another substance and as an analog of another substance.*

6.8 Reporting Limitations to Identifications

6.8.1 Limitations to reported identifications shall be disclosed on the report.

6.8.1.1 Reported limitations can include method performance, analytical technique or analytical scheme limitations.

6.8.1.2 The FSSP shall evaluate the risk associated with how a substance is reported and the impact to the transparency of the reported result. The FSSP may determine that additional transparency is required. For example, reporting "methamphetamine" does not imply a particular optical isomer, however, the FSSP can opt to report "methamphetamine, optical isomer not determined" to emphasize the limitation of this analysis.

6.8.2 Examples of scenarios and reporting that fall under this section are depicted in Figures 7 and 8.

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Fluorofentanyl, positional isomer not determined |
| 2 | Methorphan[1] |

[1] Optical isomer not determined.

Eutylone or one of its positional isomers confirmed in Item 1.

Fluoroamphetamine was identified in Item 2. The positional isomer of fluoroamphetamine was not determined.

*Figure 7. Tabular (top) and narrative (bottom) reporting examples of reporting an identified compound where the specific isomer was not determined.*

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Psilocin and/or Psilocybin[1] |
| 2 | Diazepam and/or Ketazolam[2] |

[1] Any psilocybin present in the sample would have been detected as psilocin due to the analytical procedures used. Psilocin and psilocybin are both Schedule I controlled substances in the State of XX.

[2] Diazepam and/or ketazolam was identified in both items. The testing conducted was unable to distinguish between these two substances due to the known thermal degradation of ketazolam into diazepam.

Psilocin and/or Psilocybin was identified in Item 1. The testing conducted was unable to distinguish between these two substances, however, both are controlled as Schedule I substances in the State of XX [date]).

Diazepam and/or ketazolam was identified in Item 2. The testing conducted was unable to distinguish between these two substances due to the known thermal degradation of ketazolam into diazepam.

*Figure 8. Tabular (top) and narrative (bottom) reporting examples for reporting the inability to distinguish between two compounds.*

## 7. Reporting Language When No Controlled Substances are Identified

7.1 The language “No controlled substances identified based on the testing conducted” or “No substances identified based on the testing conducted” can be used to report results obtained under the following situations:

7.1.1 No compounds are detected in a full analytical scheme (i.e., negative results).

7.1.2 Only non-controlled substances are detected.

7.1.2.1 Depending on jurisdictional requirements, non-controlled substances can be identified and reported according to section 6. This shall be clearly defined by the FSSP.

7.1.3 Controlled substances are detected, but with insufficient data to meet the requirements of E2329 or the FSSP's acceptance criteria for identification.

7.1.3.1 Depending on jurisdictional requirements, this situation can also be reported according to section 8. This shall be clearly defined by the FSSP.

7.2 Examples of scenarios and reporting that fall under this section are depicted in Figure 9.

| Exhibit Number | Substances Identified |
|---|---|
| 1 | No Controlled Substances[1] |
| 2 | None[2] |

[1] No controlled substances were identified based on the testing conducted.

[2] No substances were identified based on the testing conducted.

No controlled substances were identified in Item 1.

No substances were able to be identified based on the testing conducted for Item 2.

*Figure 9. Tabular (top) and narrative (bottom) reporting examples for reporting when no controlled substances are identified.*

## 8. Reporting Language for Inconclusive and Indicated Results

8.1 When the analysis conducted does not support reporting the identification of a substance per section 6 or "no controlled substances identified" per section 7, the reporting of inconclusive or indicated results can be warranted.

8.2 The difference between inconclusive and indicated results is how they are reported.

8.2.1 The FSSP shall determine which term(s) meet their operational and jurisdictional needs.

8.2.2 When reporting inconclusive results, the reported result shall include the term "inconclusive" either in narrative or in tabular headings.

8.2.3 When reporting indicated results, the reported result shall include the term "indicated" either in narrative or in tabular headings, language that no identification was made, the indicated substance(s) name, and the limitations of the information and results that are inappropriate to be drawn.

8.3 The report shall include a qualifying statement that explains why an inconclusive result was reported or why a substance indicated was not identified.

8.4 Examples of scenarios and reporting that fall under this section are depicted in Figure 10 (inconclusive results) and 11 (indicated results).

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Inconclusive[1] |
| 2 | Inconclusive[2] |
| 3 | Inconclusive[3] |
| 4 | Inconclusive[4] |

[1] Analytical testing was performed; results were inconclusive due to insufficient sample for identification.

[2] Testing performed was unable to differentiate marijuana from hemp. Further analysis can be conducted upon request.

[3] Analytical testing was performed; no conclusions drawn. Analysis was terminated by agency request.

[4] Inconclusive pending reference material availability.

Analytical testing was performed on Item 1; results were inconclusive due to insufficient sample for identification.

The results from testing performed on Item 2 were inconclusive and were unable to differentiate marijuana from hemp. Further analysis can be conducted upon request.

Initial testing was performed on Item 3, but was not completed upon agency request. The results of testing conducted are inconclusive.

Analytical testing was performed on Item 4. The results are inconclusive pending the receipt of a reference material for comparison.

*Figure 10. Tabular (top) and narrative (bottom) reporting examples for reporting inconclusive results.*

| Exhibit Number | Substances Identified |
|---|---|
| 1 | No Identification Made[1] |
| 2 | None[2] |
| 3 | No Identification Made[3] |
| 4 | None[4] |

[1] Testing indicated cocaine, however testing performed is not consistent with ASTM E2329 and was insufficient to make an identification. This is provided for informational purposes only. Further analysis is required for legal proceedings. No substance identification has been made and any conclusions suggesting that identification has occurred is inappropriate based on this preliminary report.

[2] Flubromazolam indicated; not confirmed. Confirmation with a chemical reference material is necessary for identification. This is provided for investigational purposes only and is not intended for prosecution. No substance identification has been made and any conclusions suggesting that identification has occurred is inappropriate based on this presumptive report.

[3] Testing indicated fentanyl, however insufficient sample is available for identification. This is provided for informational purposes only, and does not constitute an identification. Any conclusions suggesting that identification has occurred is inappropriate based on this preliminary report.

[4] Visual examination of the physical characteristics of the tablets, including shape, color and manufacturer's markings, was consistent with Zolpidem. No chemical analysis was performed. No substance identification has been made and any conclusions suggesting that identification has occurred is inappropriate based on this presumptive report.

Item 001 - No identification made. Testing indicated cocaine, however testing performed was insufficient to make an identification. This is provided for informational purposes only. Further analysis is required for legal proceedings. No substance identification has been made and any conclusions suggesting that identification has occurred is inappropriate based on this preliminary report.

Item 002 - No identification made. Isotonitazene is indicated, but not confirmed in the sample, with a net weight of 0.502 ± 0.002 grams as received. Confirmation with a chemical reference material is necessary for identification. This is provided for investigational purposes only and is not intended for prosecution. No substance identification has been made and any conclusions suggesting that identification has occurred is inappropriate based on this presumptive report.

Item 003 - No identification made. Initial testing indicated fentanyl, however insufficient sample is available for identification. This is provided for informational purposes only, and does not constitute an identification. Any conclusions suggesting that identification has occurred is inappropriate based on this preliminary report.

Item 004 - No identification made. Markings on the tablet(s) indicated non-controlled substance(s); no chemical analysis was performed. No substance identification has been made and any conclusions suggesting that identification has occurred is inappropriate based on this presumptive report.

*Figure 11. Tabular (top) and narrative (bottom) reporting examples for reporting indicated results.*

## 9. Reporting When No Analysis is Performed

9.1 Evidence that is not analyzed shall be clearly noted on the report, whether this applies to the entire submitted item or only to portions of the submitted item. How sub-items or sub-exhibits are documented on the report shall be established by the FSSP.

9.1.1 Refer to section 12 for sampling plan and sample selection reporting requirements.

9.1.2 Weights and unit counts can be obtained and reported without chemical analysis of the submitted material.

9.2 An FSSP can issue cancellation reports that include no results.

9.3 Examples of scenarios and reporting that fall under this section are depicted in Figure 12.

| Exhibit Number | Number of Units | Inner Packaging | Form | Net Weight | Substances Identified |
|---|---|---|---|---|---|
| 1 | 3 | Clear Plastic Bag | Powder | 10.1 ± 0.1 g | Cocaine |
| | 2 | Clear Plastic Bag | Powder | ---- | No Analysis |
| 2.01 | 3 | Clear Plastic Bag | Powder | 10.1 ± 0.1 g | Heroin |
| 2.02 | 2 | Clear Plastic Bag | Powder | 6.8 ± 0.1 g | No Analysis |
| 3 | 3 | Clear Plastic Bag | Powder | 10.1 ± 0.1 g | Fentanyl |
| 4 | 5 | Clear Plastic Bag | Powder | ---- | No Analysis |

Exhibit 1: Cocaine confirmed in 3 units tested of 5 units received; 2 units not analyzed. Net weight is reflective of the three units tested.
Exhibit 2.01: Heroin confirmed in 3 units tested.
Exhibit 2.02: No analysis conducted. The results from exhibit 2.01 cannot be applied to the unanalyzed units in exhibit 2.02.
Exhibit 3: Five units received; results reported are from the 3 units tested. The 2 additional units were not analyzed.
Exhibit 4: No analysis conducted.

Item 1 – Five clear plastic bags of white powder submitted; three units analyzed. 10.1 ± 0.1 g (net weight) of powder from three units. Cocaine confirmed in three units tested.

Item 2 – Five knotted plastic bags of white powder submitted. Heroin identified, total net weight of 10.1 ± 0.1 g of powder, in the three units tested. The unanalyzed powder in two of the units had a net weight of 6.8 ± 0.1 g.

Item 3 – Five plastic bags each containing an off-white powder. The powder in three of the plastic bags was analyzed and fentanyl was confirmed. The powder in the three plastic bags had a net weight of 10.1 ± 0.1 g. The remaining powder in the other plastic bags was not analyzed.

Item 4 – Five plastic bags each containing an off-white powder. No analysis conducted.

*Figure 12. Tabular (top) and narrative (bottom) reporting examples for reporting items or portions of items that were not analyzed. In each scenario, five items were submitted originally.*

## 10. Reporting of Weights and Volumes

10.1 Weights and volumes shall be reported with the appropriate unit (e.g., g, kg, mL).

10.2 Weights shall be identified as net or gross weights on the report.

10.3 For weights or volumes not directly measured, a statement shall be included on the report documenting that weight extrapolations, volume calculations, or estimations were performed.

10.4 The term “residue” shall be reported for samples that consist of a small amount of substance of which there is insufficient quantity for the practical determination of a weight or volume.

10.5 Laboratories can report weights or volumes under a defined threshold as “less than X g” or “less than Y mL.”

10.6 The report shall include the expanded measurement uncertainty associated with a weight or volume in the same unit as the measured value or in a term relative to the measured value (e.g. percent) and the coverage probability. The measurement uncertainty shall also:

10.6.1 be in the format of y ± U;

10.6.2 be limited to at most two significant digits, unless there is a documented rationale for reporting additional significant digits; and

10.6.3 be reported to the same number of decimal places or digits as the measurement result.

10.7 Examples of scenarios and reporting that fall under this section are depicted in Figure 13.

| Exhibit Number | Weight | Substances Identified |
|---|---|---|
| 1 | Net Weight: 100.3 ± 0.1 g[1] | Cocaine |
| 2 | Net Weight: 10.1 ± 0.1 g | Heroin |
| 3 | Gross Weight: 0.619 ± 0.003 g[1] | No Analysis |
| 4 | Residue | Methamphetamine |
| 5 | < 0.1 g | Fentanyl |
| 6 | Net Weight: 15.8 ± 0.4 g<br>Net Volume: 14.7 ± 0.7 mL | Codeine |

[1] $k$ = 2, Approximately 95% Confidence Interval.

Exhibit 2: The net weight is an extrapolated value based on the individual net weights of 9 units. The net weight uncertainty value represents an expanded uncertainty estimate at approximately the 95% level of confidence.

Exhibit 6: The measurement uncertainty values represent expanded uncertainty estimates at approximately the 95% level of confidence. The net volume was calculated based on the density of the liquid.

Item 1 – 100.3 g of powder from 25 bags (net weight). The uncertainty associated with the mass measurement is ± 0.1 g at a 95% confidence level.

Item 2 – A gross weight of 0.24 ± 0.01 g of wet powder inside one plastic bag. The uncertainty value represents an expanded uncertainty estimate at the 95% level of confidence.

Item 3 – Chunky substance from 1000 bags with an extrapolated net weight of 135.2 ± 0.9 g. The reported expanded measurement uncertainty has a coverage probability of 99.73%.

Item 4 – Residue from one pipe.

Item 5 – Less than 0.1 g of powder from one item. All weights are net weights unless otherwise indicated.

Item 6 – Net weight of 15.8 ± 0.4 g, net volume of 14.7 ± 0.7 mL calculated based on the density. The reported expanded measurement uncertainty values have a coverage probability of 95.45%.

*Figure 13. Tabular (top) and narrative (bottom) reporting examples for reporting weight and volume results.*

## 11. Reporting of Unit Counts

11.1 When reporting the number of units (e.g., bags, tablets, sublingual films, patches, or paper squares) in an item, the report shall specify if the count is:

11.1.1 an extrapolated value

11.1.2 reflective of the total number received, the total number analyzed, or both.

11.2 When the count is extrapolated, the report shall include the measurement uncertainty associated with the extrapolation.

11.2.1 The report shall include the expanded measurement uncertainty associated with the calculated unit count in the same unit as the measured value or in a

term relative to the measured value (e.g., percent) and the coverage probability. The measurement uncertainty shall also:

11.2.1.1 be in the format of y ± U;

11.2.1.2 be limited to at most two significant digits, unless there is a documented rationale for reporting additional significant digits; and

11.2.1.3 be reported to the same number of decimal places or digits as the measurement result.

11.2.2 Approximate unit count extrapolations shall be clearly denoted as estimates on the report.

11.3 Examples of scenarios and reporting that fall under this section are depicted in Figure 14.

| Exhibit Number | Inner Packaging | Form | Number of Units | Substances Identified |
|---|---|---|---|---|
| 1 | Clear Plastic Bag | Tablet | 157 | Oxycodone |
| 2 | Clear Plastic Bag | Tablet | 6602 ± 380 | Fentanyl |
| 3 | Paper Fold | Powder | 1306 ± 57 | Heroin |
| 4 | Clear Plastic Bag | Tablet | Not Determined | Oxycodone |

Exhibit 1: The total number of tablets in the exhibit was directly counted.

Exhibit 2: The total number of tablets in the exhibit was extrapolated based on the individual weight of 10 tablets. The uncertainty value represents an expanded uncertainty estimate at the 95% level of confidence.

Exhibit 3: The total number of units in the exhibit was extrapolated based on the individual weight of 9 units. The uncertainty value represents an expanded uncertainty estimate at the 95% level of confidence.

Exhibit 4: The total number of tablets in the exhibit was not determined.

Item 1 – One clear plastic bag containing 157 tablets. The total number of tablets was directly counted.

Item 2 – One clear plastic bag containing 6,602 ± 380 tablets submitted. The total number of tablets was extrapolated based on the individual weight of 10 tablets. The uncertainty value represents an expanded uncertainty estimate at the 95% level of confidence.

Item 3 – 1,306 ± 57 paper fold containing a tan powder submitted. The total number of units was extrapolated based on the individual weight of 9 units. The uncertainty value represents an expanded uncertainty estimate at the 95% level of confidence.

Item 4 – One clear plastic bag containing numerous tablets. The total number of tablets was not determined.

*Figure 14. Tabular (top) and narrative (bottom) reporting examples for reporting unit count results. See section 12 for examples of reporting language for sampling and statistical inferences.*

## 12. Sampling and Statistical Inferences

12.1 When analyzing a portion of a total population, the result shall apply only to the portion analyzed, unless a probability-based sampling plan is used (See Practice E2548). This shall be clearly documented in the report.

12.2 When a probability-based sampling plan is used, the number of units tested, the statistical assertion being made, the results of the units tested, and the confidence level shall be stated on the report.

12.3 Examples of scenarios and reporting that fall under this section are depicted in Figure 15.

| Exhibit Number | Inner Packaging | Form | Number of Units | Substances Identified |
|---|---|---|---|---|
| 1 | Clear Plastic Bag | Powder | 7 | Cocaine |
| 2 | Clear Plastic Bag | Tablet | 1 | Oxycodone |
| | | | 9 | No Analysis |
| 3 | Paper Fold | Powder | 1306 ± 57 | Heroin |
| 4 | Clear Plastic Bag | Tablet | 157 | Alprazolam |

Exhibit 1: Cocaine confirmed in 7 units tested of 7 units received.
Exhibit 2: 10 tablets were submitted; Oxycodone confirmed in 1 unit analyzed, 9 units not analyzed. The results of the 1 unit analyzed cannot be attributed to the unanalyzed units.
Exhibit 3: 29 units tested of 1306 units received. Heroin confirmed in all 29 units tested, indicating, to a 95% level of confidence, that at least 90% of the units in the population contain the substance.
Exhibit 4: Based on hypergeometric sampling of the exhibit, 26 tablets of the total population of 157 tablets were tested. Alprazolam was identified in all 26 unites tested; at a 95% level of confidence, at least 90% of the 157 tablets contain alprazolam.

Item 1 – Seven clear plastic bags containing a white powdery substance were submitted; all units analyzed. Cocaine confirmed in 7 units tested of 7 units received.

Item 2 – One clear plastic bag containing 10 tablets submitted. Oxycodone was confirmed in 1 unit tested. The remaining 9 units were not analyzed. The results of the 1 unit analyzed cannot be attributed to the unanalyzed units.

Item 3 – One clear plastic bag containing 1306 ± 57 paper folds further containing a tan powdery substance were submitted. 29 units were tested, and heroin was confirmed in all 29 units tested of the 1306 units received indicating, to a 95% level of confidence, that at least 90% of the units in the population contain the substance.

Item 4 – One clear plastic bag containing 157 tablets was submitted. Based on hypergeometric sampling of the exhibit, 26 tablets of the total population of 157 tablets were tested. Alprazolam was identified in all 26 tablets tested. At a 95% level of confidence, at least 90% of the 157 tablets contain alprazolam.

*Figure 15. Tabular (top) and narrative (bottom) reporting examples for reporting results from a sampling plan. Scenarios 1 and 2 represent sample selection (testing a portion of the total*

*population using a non-probability based sampling plan). Scenarios 3 and 4 represent probability-based sampling plans with an inference made to the total population.*

## 13. Quantitative Reporting

13.1 Quantitative analysis determines the purity of an analyte in a sample and the results are reported numerically with an appropriate unit and the uncertainty of measurement, including the confidence level.

13.1.1 The form of the drug (base or salt) used in the calculation shall be included on the report.

13.1.2 The equivalent amount of pure drug can be listed on the report with its associated measurement uncertainty.

13.2 Examples of scenarios and reporting that fall under this section are depicted in Figure 16.

| Exhibit Number | Purity | Substances Identified |
|---|---|---|
| 1 | 52 ± 4%[1] | Methamphetamine Hydrochloride |

[1] *k* = 2, Approximately 95% Confidence Interval.

| Exhibit Number | Purity | Amount of Pure Substance | Substances Identified |
|---|---|---|---|
| 2 | 5.0 ± 0.9% | 3.7 ± 0.7 g | Δ⁹-Tetrahydrocannabinol (THC) |

Exhibit 2: All uncertainty values represent expanded uncertainty estimates at the 95% level of confidence.

Item 1 – The purity of methamphetamine hydrochloride in the sample was 52% ± 8% at a coverage probability of 99.73%.

Item 2 – The purity of Δ⁹-Tetrahydrocannabinol (Δ⁹-THC) in this sample is 5.0 ± 0.9%, which is equivalent to a content of 3.7 g ± 0.7g of Δ⁹-THC at a 95% level of confidence.

*Figure 16. Tabular (top) and narrative (bottom) reporting examples for reporting quantitative results.*

## 14. Reporting of Decision Point Analysis

14.1 Assessment of the concentration of a substance relative to a defined decision point shall be reported as follows:

14.1.1 Using a defined term, such as a legal definition of marijuana.

14.1.2 Over a defined cut-off value (e.g. greater than X%).

14.1.3 Under a defined cut-off value (e.g. less than Y%).

14.2 Use of the term “trace” shall be reserved for situations in which a sample consists of a substance present at a low-level (usually <1% by weight).

14.2.1 An example of a trace component includes, but is not limited to, a sample consisting of 400 mg of a material containing 99% heroin hydrochloride and 0.50% cocaine hydrochloride or a sample consisting of 1000 g of a material

containing 99% sucrose and 0.20% cocaine hydrochloride. Cocaine hydrochloride is considered a trace component in these samples.

14.3 Examples of scenarios and reporting that fall under this section are depicted in Figure 17.

| Exhibit Number | Substances Identified |
|---|---|
| 1 | Marijuana |
| 2 | Inconclusive |

Exhibit 1: Total delta 9-tetrahydrocannabinol estimated >1%.

Exhibit 2: Inconclusive marijuana/hemp. The testing conducted was unable to distinguish between these two substances; additional testing is required.

| Exhibit Number | Purity | Substances Identified |
|---|---|---|
| 3 | >90% | Methamphetamine Hydrochloride |
| 4 | <10% | Cocaine Base |
| 5 | Trace | Fentanyl |

Marijuana was identified in Item 1.

Item 2 – The testing conducted was unable to distinguish between marijuana and hemp. Additional testing is required.

Item 3 – The purity of methamphetamine HCl in this sample is greater than 90%.

The purity of cocaine base in Item 4 is less than 10%.

Exhibit 5 contains 1000 g of powder which contains a trace amount of heroin.

*Figure 17. Tabular (top) and narrative (bottom) reporting examples for reporting results from decision point analyses.*

## 15. Keywords

15.1 seized drugs; results; reporting; identification; inconclusive; indicated; not identified; presumptive; preliminary; analog; structural similarity; decision point; net weight; unit count; uncertainty