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

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

OSAC Proposed Standard

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 written 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 purity determinations in the analysis of seized drugs.

1.2 This standard establishes required elements for the written reporting of results that are informational and understandable, whether used for criminal proceedings or civil litigation.

1.3 This standard is intended for use by FSSPs, in consultation with seized drug FSPs, to develop policies and templates for written reports of 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/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 written 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)

DISCUSSION: The term test report may also be used.

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

3.2.4 *decision point, n* - an administratively defined cutoff value 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. (Adapted from ANSI/ASB Standard 036, First Edition 2019, Standard Practices for Method Validation in Forensic Toxicology)[5]

DISCUSSION: Decision-point methods do not produce quantitative results but are used to differentiate samples above or below a specified threshold or cutoff value. This approach is most commonly employed in seized drug analyses for the differentiation of hemp from marijuana at a specified threshold without a full quantitative analysis.

3.2.5 *identification, n* - A result reported by an FSSP when the results of the tests conducted meet the requirements of E2329 and FSSP policy.

DISCUSSION: The terms 'identified' and '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 do not support the identification of a substance 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 substance(s) in lieu of an inconclusive result.

[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.

3.2.7 *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 and FSSP policy for the identification of the substance.

DISCUSSION: The terms presumptive results or preliminary results 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.

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. The term 'item' or 'exhibit' 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 prose text-based format.

3.2.10 *residue, n* - Items containing material of insufficient quantity for the practical determination of a weight or volume.

3.2.11 *result, n* - The product of the forensic science service provider.

DISCUSSION: This term is broad and includes observations, data, calculations, interpretations, and opinions.

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* - one or more substances present at a low-level (e.g., <1% by weight) within an appreciable amount of a sample.

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 includes some requirements for the case record as the basis for the information included on the final report. See also Practice E3255 for additional requirements for the case record.

4.3 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.

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

4.4 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 do represent various approaches to reporting the scenarios depicted.

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

5.4 The following shall be included on the report:

5.4.1 A statement that additional information is found in the case record.
EXAMPLE: "Supporting documentation is maintained separate from this report and is necessary for independent evaluation of the work, interpretation of the data, and drawing of conclusions."

5.4.2 Documentation to indicate when the FSSP is not accredited, not accredited in seized drugs analysis, or when work conducted is outside the FSSP's scope of accreditation.

5.4.3 Nonconformities that required a change to the reported results.

5.4.4 Documentation of disagreements between the analyst(s) or technical reviewer(s) related to the accuracy of the reported results that could not be resolved through the normal course of technical review and that required formal mediation through laboratory protocols.

5.4.5 Documentation 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.

5.4.6 Documentation of abnormal environmental or sample conditions that could affect the accuracy of the reported results.

5.5 The following shall be included on the report or in the case record:

5.5.1 Customer requests for testing that was not conducted.

5.5.2 The name of technical reviewers.

5.5.2.1 Documentation shall be included on the report when a technical review was not conducted.

5.5.2.2 An explanation as to why a technical review was not done shall be included either on the report or in the case record.

5.5.3 Documentation of verbal results that were provided prior to the issuance of the written report.

5.5.3.1 An accurate reflection of the verbal results should be recorded promptly after the results are communicated.

5.5.3.2 Documentation shall be included on the report when there are discrepancies between the verbal results and the written reported results.

5.5.4 Documentation of nonconformities in the performance of the analysis that did not require a change to the reported results.

5.6 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 also be included on the report.

EXAMPLES:

- "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."
- "Amended report to reflect the addition of the uncertainty measurement estimate for the reported purity value. Refer to the original laboratory report for [unique identifier] dated 01/24/2022."
- "Supplemental report to [unique identifier] dated 06/05/2022 to include additional analysis to determine the purity."
- "Report issued to supplement report [unique identifier] dated 12/11/2022 to include analysis of additional evidentiary items."
- "Report issued to supersede previously issued report [unique identifier] dated June 3, 2018 to reflect the results of a reanalysis."

5.7 Reports that contain preliminary results 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.

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 report."

5.7.1 The title of the report shall clearly indicate that it is a preliminary report.

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

6. Reporting Substance Identifications

6.1 General Requirements

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

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

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

6.1.4 Reports shall use the terms “identified” or “confirmed” to denote substances that are identified.

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

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

6.1.5 If the FSSP opts to include control status on the report, the jurisdictional or legal reference and the date used to determine the control status shall be documented (e.g., date of report, date of incident).

6.1.5.1 When the incident date is not used to determine the control status, the scheduling date should be included on the report for substances subject to recent control actions.

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

Exhibit Number	Substances Identified
1	Cocaine
2	4-Methylethcathinone [4-MEC, Schedule I][1]

[1] Control status determined per [insert legal reference]. The date used to determine the control status is the date of the report. 4-MEC was controlled as of XX/XX/XXXX.

Figure 1. Tabular reporting examples 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 substance per [insert legal reference] as of [scheduling date]. The date used to determine the control status is the date of the report. 4-MEC was controlled on XX/XX/XXXX.

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

6.2 Reporting an Identified Substance as Belonging to a Class of Substances

6.2.1 If the FSSP opts to report an identified substance as a part of a legally defined structural class of substances, the substance identified shall be named and accompanied by language stating the structural class.

6.2.2 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	4-Fluoro-MDMB-BUTICA (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 3. Tabular reporting examples of reporting an identified substance as part of a legally defined structural class of substances.

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 examples of reporting an identified substance as part of a legally defined structural class of substances.

6.3 Reporting an Identified Substance as an Analog or Structurally Similar Substance

6.3.1 If the FSSP opts to report an identified substance as an analog or structurally similar to another substance, the case record shall clearly note what elements of the legal requirements were and were not evaluated.

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

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

Exhibit Number	Substances Identified
1	Metonitazene[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 criteria within laboratory policy to be substantially similar. The basis for this determination is available upon request.

[2] β-Methylfentanyl may 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 5. Tabular reporting examples of reporting an identified substance 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 criteria within laboratory policy to be substantially similar. The basis for this determination is available upon request. β-Methylfentanyl was identified in Item 2. β-Methylfentanyl may 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 examples of reporting an identified substance as structurally similar to another substance and as an analog of another substance.

6.4 Reporting Limitations to Identifications

6.4.1 Limitations to identifications shall be disclosed on the report.

6.4.1.1 Reported limitations can include one or more of the following: method performance, analytical technique, or analytical scheme limitations.

6.4.1.2 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 warranted. 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.

6.4.1.3 Factors to consider when assessing risk include, but are not limited to, impacts to control status and sentencing.

6.4.2 Examples of scenarios and reporting that fall under this section are depicted in Figures 7 – 10.

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

[1] Optical isomer not determined.

Figure 7. Tabular reporting examples of reporting an identified substance where the specific isomer was not determined.

Fluorofentanyl confirmed in Item 1. Testing conducted was unable to determine the positional isomer.

Methorphan was identified in Item 2. The optical isomer was not determined.

Figure 8. Narrative reporting examples of reporting an identified substance 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.

Figure 9. Tabular reporting examples for reporting the inability to distinguish between two substances.

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 10. Narrative reporting examples for reporting the inability to distinguish between two substances.

7. Reporting 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" shall be used to report results obtained under the following situations, unless the results are reported according to Section 6 or Section 8:

7.1.1 No substances are detected in a complete analytical scheme as defined by the FSSP (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 Figures 11 and 12.

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.

Figure 11. Tabular reporting examples for reporting when no controlled substances are identified.

No controlled substances were identified in Item 1 based on the testing conducted.

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

Figure 12. Narrative reporting examples for reporting when no controlled substances are identified.

8. Reporting Inconclusive and Indicated Results

8.1 Inconclusive or indicated results can be reported when the analysis conducted does not support reporting the identification of a substance per section 6 or "no controlled substances identified" per section 7.

8.2 The difference between inconclusive and indicated results is how they are reported and the FSSP shall determine which term(s) meet their operational and jurisdictional needs.

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

8.4 When reporting indicated results, the reported result shall include:

8.4.1 The term "indicated", "presumptive", or "preliminary" either in narrative or in tabular headings,

8.4.2 Language that no identification was made,

8.4.3 The indicated substance(s) name, and

8.4.4 The limitations of the information and results that are inappropriate to be drawn.

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

8.6 Examples of scenarios and reporting that fall under this section are depicted in Figures 13 and 14 (inconclusive results) and Figures 15 and 16 (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.

Figure 13. Tabular reporting examples for reporting inconclusive results.

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 14. Narrative reporting examples for reporting inconclusive results.

Exhibit Number	Substances Identified	Substances Indicated
1	No Identification Made[1]	
2	None[2]	Isotonitazene
3	No Identification Made[3]	Fentanyl
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 are inappropriate based on this preliminary report.

[2] Isotonitazene 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 are inappropriate based on this report.

[3] Testing was presumptive for 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 are inappropriate.

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

Figure 15. Tabular reporting examples for reporting indicated results.

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 are inappropriate based on this preliminary report.

Item 002 - No identification made. Isotonitazene is indicated, but not confirmed in the sample. 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 are inappropriate based on this report.

Item 003 - No identification made. Initial testing was presumptive for 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 are inappropriate.

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

Figure 16. Narrative 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 or no analysis reports that include no results in accordance with FSSP policy.

9.3 Examples of scenarios and reporting that fall under this section are depicted in Figures 17 and 18.

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.

Figure 17. Tabular reporting examples for reporting items or portions of items that were not analyzed. In each scenario, five items were submitted originally.

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 18. Narrative reporting examples for reporting items or portions of items that were not analyzed. In each scenario, five items were submitted originally.

10. Reporting Weights and Volumes

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

10.2 Weights shall be identified as net or gross weights.

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 all weights or volumes listed on the report 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 or listed as a range;

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.

DISCUSSION: All reported measurements must include an associated uncertainty for transparency and in the interest of providing information to the end user. As the end use of the reported results is unknown and are being used by those external to the laboratory, the measurement uncertainty may be important in any instance and shall be included on the report.

10.7 Examples of scenarios and reporting that fall under this section are depicted in Figures 19 and 20.

10.8

Exhibit Number	Weight
1	Net Weight: 100.3 ± 0.1 g[1]
2	Net Weight: 135.2 ± 0.9 g
3	Gross Weight: 0.24 ± 0.01 g[1]
4	Residue
5	< 0.1 g
6	Net Weight: 15.8 ± 0.4 g Net Volume: 14.7 ± 0.7 mL

[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 99% 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.

Figure 19. Tabular reporting examples for reporting weight and volume results.

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 – Chunky substance from 1000 bags with an extrapolated net weight of 135.2 ± 0.9 g based on the individual weights of 9 bags. The reported expanded measurement uncertainty has a coverage probability of 99.73%.

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 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 20. Narrative reporting examples for reporting weight and volume results.

11. Reporting 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 reflective of the total number received, the total number analyzed, or both, and

11.1.2 an extrapolated value.

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 or listed as a range;

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 Figures 21 and 22.

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 units 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.

Figure 21. Tabular reporting examples for reporting unit count results. See section 12 for examples of reporting language for sampling and statistical inferences.

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 folds further containing a tan powdery substance were 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 22. Narrative reporting examples for reporting unit count results. See section 12 for examples of reporting language for sampling and statistical inferences.

12. Reporting Sampling and Statistical Inferences

12.1 When not analyzing all units within an item, the report shall clearly document that the results apply only to the portion analyzed, unless a probability-based sampling plan is used (See Practice E2548).

12.2 When a probability-based sampling plan is used, the number of units tested, the statistical inference 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 Figures 23 and 24.

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 1,306 units received. Heroin was 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 units tested; at a 95% level of confidence, at least 90% of the 157 tablets contain alprazolam.

Figure 23. Tabular 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.

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 1,306 ± 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 1,306 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 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 24. Narrative 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. Reporting Quantitative Results

13.1 Quantitative analysis results shall be 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 Figures 25 and 26.

Exhibit Number	Purity	Substances Identified
1	52 ± 8%[1]	Methamphetamine Hydrochloride

[1] *k* = 3, Approximately 99% Confidence Interval.

Exhibit Number	Purity	Amount of Pure Substance	Substances Identified
2	5.0 ± 0.9%	3.7 ± 0.7 g	Δ^9-Tetrahydrocannabinol (THC)
3	10 ± 1%	0.098 ± 0.010 g	Fentanyl

Exhibit 2 and 3: All uncertainty values represent expanded uncertainty estimates at the 95% level of confidence.
Exhibit 3: Fentanyl purity was calculated as the hydrochloride salt form.

Figure 25. Tabular reporting examples for reporting quantitative results.

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 Δ^9-Tetrahydrocannabinol (Δ^9-THC) in this sample is 5.0 ± 0.9%, which is equivalent to a content of 3.7 g ± 0.7g of Δ^9-THC at a 95% level of confidence.

Item 3 – The purity of fentanyl (calculated as the hydrochloride salt form) in this sample is 10 ± 1%, with an amount of pure substance of 0.098 ± 0.010 g. The uncertainty values represent expanded uncertainty estimates at the 95% level of confidence.

Figure 26. Narrative reporting examples for reporting quantitative results

14. Reporting Decision Point Analysis Results

14.1 The use of a decision point analysis and the administratively defined cutoff value or concentration shall be documented on the report.

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

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

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

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

14.3 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).

14.3.1 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.

14.4 Examples of scenarios and reporting that fall under this section are depicted in Figures 27 and 28.

Exhibit Number	Substances Identified
1	Marijuana
2	Inconclusive

Exhibit 1: Using a decision point analysis, total delta-9-tetrahydrocannabinol estimated >1%.

Exhibit 2: Inconclusive results for marijuana/hemp. Testing conducting included a decision point analysis that was unable to distinguish between these two substances. The total delta-9-tetrahydrocannabinol was estimated to be <1%; additional testing is required.

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

Figure 27. Tabular reporting examples for reporting results from decision point analyses.

Marijuana was identified in Item 1 using a decision point analysis. The total delta-9-tetrahydrocannabinol was estimated to be over the decision point of 1%.

Item 2 – The testing conducted was unable to distinguish between marijuana and hemp. A decision point analysis was conducted and the total delta-9-tetrahydrocannabinol estimated to be below the decision point of 1%. 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%.

Item 5 contains 1000 g of powder which contains a trace amount of fentanyl.

Figure 28. Narrative 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