Drug Toxicology Reporting

1.0 Purpose - This procedure specifies the required elements for reporting drug toxicology results.

2.0 Scope – This procedure applies to all submissions to the Toxicology sections in the Raleigh, Triad, and Western locations of the State Crime Laboratory

3.0 Definitions – see Toxicology Definitions List

4.0 Toxicology Workflow

4.1 The initial identification of a substance (drug, impairing substance, and/or metabolite) shall be confirmed by a second test.

4.2 The following are acceptable tests to make an initial identification of a substance:

4.2.1 Positive indication by Enzyme Immunoassay.

4.2.2 Indication by QSCREEN Extraction and Analysis.

4.3 Substances may be confirmed by **4.2.2** that are greater than 50% cross-reactive with an assay indicated by **4.2.1.**

4.3.1 If a Schedule I substance or its metabolite as defined by NCGS 90-89 is confirmed, no further analysis will be conducted for a DWI case unless the case involves a fatality or injury to someone other than the driver.

4.4 For substances indicated by **4.2,** confirmation testing will be based upon the confirmation process listed on the Toxicology Reporting Index.

4.4.1 Substances that are either the parent drug or metabolite of a substance indicated by **4.2.1** may be confirmed from only one aliquot if that parent drug or metabolite is identified in that specimen.

4.4.2 If a substance cross reacts less than 50% with an assay, and **4.4.1** does not apply and the applicable assay has a none detected response, the poor cross-reactive substance may be confirmed based upon an acceptable identification in two aliquots.

4.5 For substances that are not covered by **4.2,** screening and confirmation will be done by acceptable identification by Gas Chromatographic and Mass Spectrometry in two aliquots. These compounds are listed on the Toxicology Reporting Index.

4.6 Quantitative testing shall be performed for all compounds listed on the Toxicology Reporting Index where there is an approved procedure.

4.7 For DWI cases in which no substances are indicated by **4.2**, the blood specimen will be analyzed by the Basic Drugs Solid Phase Extraction procedure.

4.8 For non-DWI cases where both blood and urine specimens are submitted:

4.8.1 Both the blood and urine specimens require additional analysis by the Basic Drugs Solid Phase Extraction procedure.

4.8.2 For substances confirmed in the blood, identification by **4.2.2** and/or **4.8.1** are only required to confirm these substances in the urine.

4.9 If the case requires deviation from the normal workflow due to specimen concerns (e.g., low volume of specimen, clotted), the deviation shall be approved by the Toxicology Technical Leader or designee and the approval shall be documented in the case record.

5.0 Acceptable Work Product

5.1 Acceptable work product is defined as a report that was generated from the analysis of evidence in accordance with approved Toxicology procedures.

5.2 Acceptable work product must be derived from tests in which the controls perform according to the acceptance criteria outlined in the appropriate procedure.

5.3 For an initial or confirmatory identification of a substance, the subtracted mass spectra of a substance may not contain any ions at a relative abundance equal to or greater than 50% that are not present in the reference standard.

5.3.1 Quantitations shall not be reported where the analyte or corresponding internal standard is not greater than 90% baseline resolved from a closely eluting compound.

5.3.2 The analyte shall be reported qualitatively if all other procedural acceptance criteria are met.

6.0 Reporting Statements:

6.1 Drug Confirmation Reporting Statements:

6.1.1 If the analysis did not identify any drugs and/or their metabolites, use the following statement:

> No impairing substances were identified.

6.1.2 If analysis results in the confirmation of alcohol and/or other volatiles, but no drugs and/or their metabolites were identified, and both results will be listed on the report, use the following statement:

> No other impairing substances were identified.

6.1.3 If analysis did confirm impairing substances and/or their metabolites, use the statement below followed by the name of the substance(s).

> Analysis confirmed the presence of the following substances: {insert the substances}

6.1.4 If a substance requested cannot be identified based on the limitations listed in **7.1**.

6.1.4.1 (Insert the specifically requested substance(s)) generally cannot be identified by current State Crime Laboratory analytical procedures.

6.1.5 If a Schedule I substance or its metabolite as defined by NCGS 90-89 is confirmed per **4.3.1**, the following statement will be added to the report:

6.1.5.1 Due to the confirmed presence of a NCGS 90-89 Schedule I substance or its metabolite, further drug toxicology analysis was discontinued.

6.1.6 Reporting statements not included above may be needed to convey the analysis results. These reporting statements shall be approved by the Toxicology Technical Leader or designee and the approval shall be documented in the case record.

6.2 Application of Procedure on Evidence – Insufficient or Clotted Specimens

6.2.1 If a specimen is submitted with insufficient volume for analysis, add the following statement to the report:

Quantity of specimen submitted is insufficient for analysis.

6.2.2 If the specimen volume is insufficient to complete the requested analysis or do any additional testing, add the following statement to the report:

Quantity of specimen submitted is insufficient for further analysis.

6.2.3 If the specimen submitted is clotted and is unable to be analyzed, add the following statement to the report:

The condition of the specimen submitted precludes analysis.

6.3 Uncertainty of Measurement – Refer to the Toxicology Reporting Index.

7.0 Limitations

7.1 Not all known substances, including those that cross-react with the immunoassay drug screening tests, can generally be confirmed by current State Crime Laboratory analytical procedures. Toxicology capabilities and limitations are listed in the Toxicology Reporting Index. These shall be updated as needed by the Toxicology Technical Leader or designee.

8.0 Safety

8.1 Refer to the Laboratory Safety Manual.

8.2 Refer to the Toxicology Technical Procedures.

9.0 References

Toxicology Procedures

Toxicology Reporting Index

Williams, Philip L., et al. *Principles of Toxicology Environmental and Industrial Applications,* 2nd edition. A Wiley Interscience Publication John Wiley & Sons, Inc, © 2000: 5.

Forensic Toxicology Laboratory Guidelines, 2006 version; SOFT / AAFS.

10.0 Records

- Case Record

11.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
03/14/2025	6	Inserted new 4.0 and moved subsequent sections down 4.1 – Moved to 5.1 4.2 – Moved to 4.1 4.3 – Moved to 4.2, added "Enzyme" to 4.2.1, added 4.2.2, removed "Chromatographic and Mass Spectral Identification of a non-screened substance" Added new 4.3, 4.4, 4.4.3, 4.5,4.5.1, 4.6, 4.7, 4.7.1, 4.7.2, 4.8, and 4.9 4.4 – Reworded to add reference to "Toxicology Reporting Index", removed bullet points 4.5 – Moved to 5.3 4.5.1 – Split and moved to 5.3.1 and 5.3.2 4.6 – Moved to 4.4.1 and updated language 4.7 – Moved to 5.2 4.8 – Moved to 4.3.1 and exception added 4.8.1 – Moved to 6.1.5.1 5.3 (New 6.3) – Removed "Toxicology Measurement Assurance"