

VERMONT FORENSIC LABORATORY

Alcohol Analysis Data Review and Reporting

Doc. No.
ALC_P103_v3

Approved by:
Lab Director

Effective Date:
12012013
Status: Archive

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1.0 Purpose and Scope

- 1.1 This procedure describes the process used to review, report and release data collected by headspace GC analysis in determining the presence and concentration of ethanol in evidentiary blood samples.

2.0 Responsibility

- 2.1 It is the responsibility of all analysts assigned to perform this procedure to follow it as written. In the event that there are changes to be made to this procedure, the analyst must report those changes in detail to the Alcohol Program Supervisor in a timely manner. This procedure is reviewed periodically for completeness and accuracy.
- 2.2 The analyst is responsible for assembling the data package and delivering it to the assigned reviewer in a timely manner.

3.0 Procedure

- 3.1 Upon successful completion of analysis, the analyst must perform a primary data review of their package prior to submitting the complete package to the assigned reviewer for technical review.
- 3.2 The complete data package includes:
 - 3.2.1 ALC_F103_1_Blood Alcohol Data Review Checklist.
 - 3.2.2 All chromatograms generated during the analytical process.
 - 3.2.3 The ethanol calibration line graph and data.
 - 3.2.4 The analytical run schedule.
 - 3.2.5 The FA worksheet.
 - 3.2.6 A VFL report for each sample.
- 3.3 Analyst Review
 - 3.3.1 Review the calibration line for a correlation coefficient of at least 0.99x, a percent error of less than 10% and the individual calibration standards for recoveries within $\pm 10\%$ of their known values except STD A which must be within $\pm 20\%$ of its known value.
 - 3.3.2 Review the timing mix chromatogram for retention time separation of the timing mix compounds from ethanol. All compounds should be represented by separate peaks with no coelution.
 - 3.3.3 Ethanol in the Blank must show quantitation of $<0.005\text{g/dL}$.
 - 3.3.4 Review the percent recovery of the whole blood ethanol control for recovery within $\pm 10\%$ of its defined value.
 - 3.3.5 Review individual analytical results of submitted samples. Ensure that each result is within $\pm 5\%$ of the mean of the two replicates for that sample. If not, an additional two aliquots of the sample are analyzed. The number of samples used to report the result will be determined on a case by case basis.

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- 3.3.5.1 If two or more dilutions are prepared for a single sample (i.e. for beverage alcohol analysis), the replicate average for each dilution shall be calculated. Each replicate average must be within 10% of the mean of the overall average. If not, an additional two aliquots of the diluted sample are analyzed. The number of samples used to report the result will be determined on a case by case basis.
- 3.3.6 Ensure that all samples are quantified against the correct calibration version as listed on the calibration report.
- 3.3.7 Review all calibration check sample data. Each result should be within $\pm 10\%$ of the mean of the two replicates. An exception to this is if one replicate has recovery of less than 10% or greater than 150%, which would be indicative of preparation error. In this case, the remaining replicate can be used as a valid calibration check.
- 3.3.8 Ensure that the surrogate compound concentrations for each sample are between 0.900 and 1.100, inclusive.
- 3.3.9 Perform all calculations and ensure that proper rounding rules have been followed.
- 3.3.9.1 Individual sample results are recorded to three decimal places in the report.
- 3.3.9.1.1 Beverage results are reported to three significant figures.
- 3.3.9.2 If the fourth value to the right of the decimal is 7 or greater, round up. If it is less than 7, truncate.
- 3.4 Technical Review:
- 3.4.1 The assigned reviewer must perform a review of the complete data package as described in Sections 3.3.1 to 3.3.9.
- 3.4.2 Ensure that the forms are complete and accurate.
- 3.4.3 When data review is complete and no data quality issues have been identified, the reviewer notes on ALC_F103_1_Blood Alcohol Data Review Checklist his/her initials and the date reviewed.
- 3.4.4 If data quality issues have been identified during data review, the reviewer must attempt resolution through discussion with the analyst and/or program supervisor. If issues can not be resolved, it may be necessary to prepare and analyze new aliquots of the submitted sample.
- 3.4.5 Upon completion of the technical review, an administrative and director review will be completed by the Alcohol Program Supervisor, or their designee using ALC_F103_1_Blood Alcohol Data Review Checklist.

4.0 Emergency or High Priority Situations

- 4.1 The Commissioner of Public Safety, Laboratory Director or Alcohol Program Supervisor may designate samples as high priority.

