

Explosives Chemistry Report Writing Guidelines

1 Scope

These procedures set forth guidelines for writing *FBI Laboratory Reports* for explosives chemistry examinations and supplements the requirements of the FBI Laboratory Quality Assurance Manual (QAM) and the FBI Laboratory Operations Manual (LOM). These procedures apply to caseworking personnel conducting work in explosives chemistry analysis.

2 Introduction

FBI Laboratory Reports issued by examiners conducting casework in explosives chemistry analyses are designed to summarize analytical findings during the routine analysis of evidence. Due to the wide variety of requests and evidence received, these procedures only provide general guidelines for report writing. It is not possible to anticipate every type of report that may be written and this document is designed to provide examples of common occurrences. It is acceptable to use other wording as long as the results of the examinations are accurately communicated, a description of the methodology used to reach the results is included, limitations are addressed, and wording is approved during the technical review process by an authorized technical reviewer in the category of testing.

3 Procedures

All *Laboratory Reports* generated by Explosives Chemistry Examiners will follow the requirements set forth in the FBI LOM and will contain the “Results of Examination” and “Remarks” sections.

3.1 Results of Examination

The Results of Examination section contains methods, results, opinions, limitations, interpretations, and/or conclusions of forensic examinations conducted by the examiner. Information about trade names or uses of specific compounds will also be stated, as necessary. Example wording for explosives chemistry results can be found in Appendix A. For results involving explosives and ignitable liquids, refer to the Chemistry Unit (CU) Fire Debris Report Writing Guidelines for reporting of ignitable liquids.

In addition to analysis of substances submitted as physical evidence, information provided in other formats (e.g., written, video, electronic) can also be assessed to provide opinions and interpretations such as potential use in explosives, opinion of viability, and theoretical calculations. References, if used, will be recorded in the examination records.

Limitations of the results, or limitations of the examinations based on the evidence received will be conveyed. This may include interpretative wording to aid the reader in understanding any significance of the Results of Examination section. Example wording for such limitations can be found in Appendix B.

Limitations may include the following:

- If examinations were limited based on limited specimen amounts, this will be stated.
- If examinations were limited due to the nature of the packaging of the material, this will be stated. This may result in no examinations being performed.
- If examinations were limited by the method used to collect the samples, this will be stated.

3.2 Remarks

The Remarks section will follow the requirements in the FBI LOM.

4 References

FBI Laboratory Quality Assurance Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

FBI Laboratory Operations Manual, Federal Bureau of Investigation, Laboratory Division, latest revision.

Chemistry Unit Standard Operating Procedures, Federal Bureau of Investigation, Laboratory Division, Chemistry Unit, latest revisions.

Rev. #	Issue Date	History
2	10/04/2018	Revised technical reviewer requirements. Added second paragraph in section 3.1 regarding analysis of information in other formats.
3	07/15/2020	Removed fire debris references throughout. Added CU Fire Debris Report Writing Guidelines to 3.1 Added CU SOPs to references. Removed fire debris and ignitable liquid report language from Appendix A and Appendix B. Removed SAU Chief, Fire Debris Technical Leader from approval lines.

Approval

Redacted - Signatures on File

Explosives Chemistry
Technical Leader

Date: 07/14/2020

Explosives Unit Chief

Date: 07/14/2020

QA Approval

Quality Manager

Date: 07/14/2020

Appendix A: Example wording for the Results of Examination section for Explosives Chemistry Laboratory Reports

Example of a high explosive residue:

Residues of the **Redacted** were identified on Item 1.

The following techniques were utilized during the analysis of the submitted item: visual and microscopic examination, gas chromatography with electron capture detection, and gas chromatography/mass spectrometry.

Example of a low explosive residue:

Redacted identified on Item 1, along with the potassium counter-ion. These ions are consistent with the deflagration products of a low explosive that contained a **Redacted**

The following techniques were utilized during the analysis of the submitted item: visual and microscopic examination and ion chromatography.

Example of bulk explosive analysis:

Redacted

The following techniques were utilized during the analysis of the submitted item: visual and microscopic examination, gas chromatography with flame ionization detection, X-ray diffraction, Fourier transform infrared spectroscopy, and scanning electron microscopy with energy dispersive X-ray spectroscopy.

Appendix B: Example wording for addressing limitations of Explosives Chemistry Laboratory Reports

Example limitation to explain that limited specimen precluded a complete chemical analysis:

Due to the insufficient amount of sample submitted for analysis, some analytical techniques were not performed.

Example limitation to explain a low explosive residue result:

While the presence of **Redacted** in Item 1 is consistent with the deflagration products of **Redacted** or other low explosive material, these ions are also commonly found in the environment.

Example limitation for a general unknown:

The terminology “consistent with” does not imply an identification of a specific chemical or product. A substance, including explosives, is termed “consistent with” a material when the analytical data does not support an identification of a specific chemical or product, but does provide reliable information to include the substance within a class of materials. The phrase “consistent with” is also used when an appropriate reference standard could not be obtained.

Example limitation to explain explosives analyzed for:

Redacted