

Administrative Structure and Operating Guidelines

1 Introduction

The Explosives Unit (EU) is assigned to the Terrorist Explosive Device Analytical Center (TEDAC) section of the FBI Laboratory.

1.1 The EU is composed of a Unit Chief, a Management and Program Analyst, a Senior Explosives Scientist, a Supervisory Chemist-Forensic Examiner, Chemist-Forensic Examiners, Physical Scientist-Forensic Examiners, Supervisory Special Agent Forensic Examiners, Chemists, Physical Scientists, an Explosive Safety Specialist, and contract staff as necessary.

1.2 This document describes the work conducted by EU personnel in explosives chemistry, fire debris and ignitable liquids, and explosives and hazardous devices, defines chain-of-command, and establishes general responsibilities and duties. This document also specifies procedures for personnel matters, post-qualification training and continuing education requirements, services and supplies purchasing, and equipment calibration and maintenance.

2 Scope

These procedures apply to EU personnel conducting work in explosives chemistry, fire debris and ignitable liquids, and explosives and hazardous devices analysis.

3 Explosives Unit Mission Statement

The EU provides forensic-based technical and operational support for the examination of evidence associated with bombing matters through application of case experience, education, specialized training, and research.

4 Explosives Unit Organizational Structure

The EU is administratively divided into two sub-groups: Explosives Chemistry Analysis and Explosives and Hazardous Devices Analysis.

The Explosives Chemistry Analysis sub-group is composed of a Supervisory Special Agent Forensic Examiner, a Supervisory Chemist-Forensic Examiner, Chemist-Forensic Examiners, and Chemists. Personnel in this sub-group may also become qualified in fire debris and ignitable liquid analysis. This sub-discipline and its associated procedures are maintained by the Chemistry Unit (CU).

The Explosives and Hazardous Devices Analysis sub-group is composed of Supervisory Special Agent Forensic Examiners, Physical Scientist-Forensic Examiners, Physical Scientists, and an Explosive Safety Specialist.

Additional positions that do not fall into a previously listed sub-group include the Unit Chief, a Management and Program Analyst, and a Senior Explosives Scientist.

The current EU organizational chart is posted on the FBI BUNET.

5 Responsibilities

5.1 Unit Chief

A Unit Chief is responsible for the overall coordination of case examinations occurring within his/her unit, and ensures the management of programs, budget, and staffing. Each Unit Chief ensures adherence to FBI Laboratory policies, practices, and procedures for quality assurance, case reviews, and personnel matters.

5.2 Management and Program Analyst

A Management and Program Analyst is responsible for administrative tasks and the management and assessment of unit program operations and projects. In addition, this position plans, develops, and conducts program analyses, identifies inefficiencies, evaluates performance measures, and provides recommendations to management, when necessary. A Management and Program Analyst also manages the unit budget and financial matters by developing budget estimates and justifications and ensures unit funds are used appropriately. A Management and Program Analyst may also assist with time and attendance records, travel logistics, property inventory, and other duties as assigned.

5.3 Senior Explosives Scientist

A Senior Explosives Scientist is also referred to as Senior Scientist. The duties and responsibilities of the position include providing technical guidance to forensic examiners, reviewing technical documents pertaining to explosives and hazardous devices, and coordinating, planning, directing, and managing research, development, testing, and evaluation (RDT&E) programs in the field of explosives; and serving as a liaison with outside organizations. The Senior Explosives Scientist may also testify to issues involving the science of energetic materials and their behavior, as appropriate.

5.4 Chemist Forensic-Examiner/Physical Scientist-Forensic Examiner/Supervisory Special Agent Forensic Examiner/Supervisory Chemist-Forensic Examiner

A Chemist-Forensic Examiner, Physical Scientist-Forensic Examiner, Supervisory Special Agent Forensic Examiner, and Supervisory Chemist-Forensic Examiner are also referred to as a Forensic Examiner or Examiner. Examiners are responsible for examining evidence, reporting results, and testifying to results. Examiners also manage programs and personnel, participate in operational deployments, and provide training.

5.5 Chemist/Physical Scientist

Physical Scientists are also referred to as technicians. Chemists and Physical Scientists are equivalent to a technician as defined in the *FBI Laboratory Operations Manual (LOM)*. Technicians are responsible for assisting examiners in the examination and processing of evidence and assisting in unit program initiatives.

5.6 Contract Staff

Contract staff, also referred to as Contractors, are employed on a contractual basis based on unit needs. These individuals can perform examiner, technician, research, or administrative personnel functions. Contractors conducting casework must work in accordance with the FBI Laboratory's quality system including successful completion of an appropriate FBI Laboratory training program and annual proficiency testing.

5.7 Technical Leaders

A Technical Leader is designated for each of the following explosives-related sub-disciplines: explosives chemistry and explosives and hazardous devices. Each Technical Leader is responsible for his/her sub-discipline across units and/or laboratory locations. Each Technical Leader is accountable for all technical operations within his/her sub-discipline.

5.8 Program Managers

Program Managers are examiners who coordinate and are responsible for designated programs in addition to their examiner duties. Programs include quality assurance, proficiency testing, research, and various training programs, among others.

6 Post-Qualification Training Requirements

Additional training is required of qualified personnel who have already met their initial training requirements under the following circumstances:

6.1 The employee has been on extended leave and re-training will be deemed necessary at the discretion of the employee's Unit Chief, immediate Supervisor, or the appropriate Technical Leader.

6.1.1 Employees will be required to review the training materials for his/her sub-discipline(s) and pass a requalification test prior to resuming casework. The review may include supervised laboratory work.

6.2 A deficiency has been identified that could affect the quality of an employee's work. Deficiencies requiring remedial training may be identified during technical and/or administrative reviews, audits, quality control checks, or in the process of proficiency testing.

6.2.1 The Unit Chief and Training Program Manager will develop a remedial training plan. Employees will be required to review the training materials for his/her sub-discipline(s) and pass a requalification test prior to resuming casework. The review may include supervised laboratory work. In addition, the practices described in the LOM – Practices for Open Proficiency Testing and/or the LOM – Practices for Addressing a Nonconformity must be followed, as appropriate.

6.3 A new procedure is being implemented. This includes use of a new instrumental technique or analysis procedure and not necessarily new methods on existing instrumentation.

6.3.1 When a new procedure is put in place, the standard operating procedure (SOP) must be reviewed by the applicable employees. As needed, training can be provided by vendors of newly acquired instrumentation, equipment, or software. All appropriate employees must pass a competency test that includes the new procedure prior to using it in casework.

6.4 An employee is training to become qualified in an additional sub-discipline.

6.4.1 The appropriate Technical Leader and Training Program Manager will inform the employee of the training requirements and the types of testing that the employee must successfully complete to become authorized to perform examinations in the additional sub-discipline.

7 Continuing Education

Continuing education and associated recordkeeping are required of qualified individuals and individuals that maintain equipment. These requirements supplement the FBI Laboratory Quality Assurance Manual (QAM).

7.1 Continuing Education Requirements

A minimum of eight hours of continuing education is required each fiscal year. These requirements may be met by attending an in-person or virtual training, conference, or seminar,

completing web-based training, reading a book, participating in a workshop, attending a course provided by an instrument or equipment manufacturer, visiting an explosive manufacturing plant or other forensic laboratory, or any other option approved by the Unit Chief or an immediate Supervisor. For individuals who are proficiency tested in the explosives chemistry, fire debris and ignitable liquid analysis, or explosives and hazardous devices sub-discipline, it is recommended that at least four of the eight hours be technical in nature and relate to job performance.

7.2 Continuing Education Records

7.2.1 Virtual Academy (VA)

The VA is the single, official, centralized recordkeeping system for all FBI employee training completion records. Training records for the continuing education requirement will be stored in Virtual Academy when practicable.

8 Purchasing Services and Supplies

These requirements supplement the FBI Laboratory QAM.

8.1 Approval and Purchasing of Services, Supplies, Equipment, and Instrumentation

The Unit Chief will ensure that all requests for services, supplies, equipment, and instrumentation are reviewed and approved prior to ordering for the unit. The request will be forwarded to individuals with purchasing authority who will prepare a *Requisition for Supplies and Equipment* (FD-369), Automated Requisition Tool (ART) entry, or other appropriate records for all services and supplies. Supplies (to include reference materials) must comply with specifications defined within a specific SOP.

8.2 Receipt of Supplies, Equipment, and Instrumentation

When supplies, equipment, and instrumentation are received, the individual receiving the supplies will compare what was received against the original *Requisition for Supplies and Equipment* or other appropriate records to ensure that the correct item(s) was received. Invoices and/or receipt will be provided to the purchasing individual as necessary.

The packaging of the supplies, equipment, or instrumentation received will be inspected to note damage or tampering.

Upon receipt of a newly purchased chemical reference material, the date and receiver's initials will be recorded on the Certificate of Analysis (or equivalent), if available, and placed in the validation file.

Upon receipt of newly purchased equipment or instrumentation, the individual responsible for the item will ensure that the item is entered into the FBI's property inventory system and assigned a unique tracking number, as appropriate.

8.3 Storage of Supplies

Supplies will be stored in appropriate storage locations (e.g., acids are stored in an acid safe storage cabinet). Specialized storage conditions (e.g., refrigeration), as required by the manufacturer of the item, will be met when practicable.

8.4 Evaluation of Critical Suppliers

A new supplier of critical consumables, supplies, and services will be evaluated upon first use in the unit. The *Explosives Critical Supplier Assessment Form* (Appendix A) will be used to record the evaluation. The completed forms will be maintained in the unit file.

A list of approved suppliers of critical consumables, supplies, and services will be maintained by the unit. If a critical consumable, supply, or service does not meet requirements, the Technical Leader will be notified.

If a critical supplier, whether new or already approved, consistently fails to meet the requirements of the analysis SOP, a new critical supplier will be identified and evaluated. A critical supplier that demonstrates a history of unacceptable performance will be removed from the approved suppliers list.

9 Equipment Calibration and Maintenance

These requirements supplement the FBI Laboratory QAM and the LOM – Practices for the Calibration and Maintenance of Equipment. Approximate measurements of physical characteristics (e.g., mass, length, diameter) serve as descriptors and may be reported without measurement uncertainty.

Although infrequent, the specific mass of a crude material may be requested by the contributor. When requested, the crude material will be weighed by Chemistry Unit (CU) personnel using a traceable balance with known measurement uncertainty. All associated examination records, including measurement uncertainty and applicable calculations, will be provided by the CU for inclusion in the case file.

9.1 Equipment Requiring Calibration

The following equipment utilized by EU personnel requires calibration, as the equipment calibration has been deemed to be significant to the measurement results and when applicable, associated measurement uncertainty:

- Balances
- Calipers and micrometers
- Pipettes
- Weights used in intermediate checks

Only calibrated EU equipment (e.g., calipers, micrometers) will be used for examinations at a non-FBI Laboratory controlled space. The examinations performed and the equipment used will be recorded in the examination records.

The following equipment and instrumentation do not require calibration, as the calibration has been demonstrated to not be significant to the measurement result and associated measurement uncertainty:

- Volumetric glassware (e.g., volumetric flasks)
- Multimeters
- Oscilloscopes

9.2 Reference Standards

Mass reference standards (i.e., weights) are used for intermediate checks of balance calibrations. In this usage, the weights will be referred to as working measurement standards. These weights are not used to calibrate balances. Refer to the Performance Monitoring Protocol (PMP) for balances for more information.

Non-significant measurements on balances do not require a calibration check.

9.3 Calibration Interval

Calibrations are performed as required in the LOM – Practices for the Calibration and Maintenance of Equipment at the following intervals:

<u>Equipment</u>	<u>Calibration Interval</u>
Balances	Annually
Calipers and micrometers	Annually
Pipettes	Annually
Weights used in intermediate checks	Annually

Calibrations are performed to manufacturer's specifications by a service provider that is ISO/IEC 17025 accredited for the specific calibration type, to include field calibrations, as appropriate.

9.4 Maintenance Interval

Maintenance of equipment and instrumentation is performed as required according to the LOM – Practices for the Calibration and Maintenance of Equipment. The following maintenance is performed on a predetermined schedule:

<u>Equipment</u>	<u>Maintenance Interval</u>
Microscopes	Annually

Maintenance of explosives chemistry equipment and instrumentation is described in the appropriate Instrument Maintenance Protocol or PMP.

10 Data Archiving Procedures

The Chemnet Instrument Data Archiving Protocol will be followed for archiving data files from networked computers and instruments.

10.1 Computers Not Connected to Chemnet

All data may be maintained on computer hard drives until space has become too limited to allow additional files to be stored. Periodic checks will be made by personnel to review remaining hard drive space and to remove and archive data files older than six months if necessary. Data files may be archived to an external hard drive, DVD, or Blu-Ray discs (or equivalent).

11 Minor Deviations

All minor deviations will be approved and recorded. Refer to the LOM – Practices for Authorizing Deviations and the Explosives Quality Assurance Manual – Developing and Validating Technical and Chemical Procedures section on Minor Deviations for additional information.

12 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.

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

Chemistry Unit Quality Assurance Manual, Federal Bureau of Investigation, Laboratory
Division, Chemistry Unit, latest revisions.

Rev. #	Issue Date	History
5	07/15/2020	Updated sections 1, 2, 3, 4, 5, 8, and 9. Removed Fire Debris Technical Leader from approval lines.
6	04/01/2021	Updated 1.2 and scope to include ignitable liquids. Updated 7.1 to include virtual continuing education opportunities and added ignitable liquid. Added Explosive Safety Specialist to section 1.1 and section 4. Replaced category of testing with sub-discipline throughout document.

Approval

Redacted - Signatures on File

Explosives Chemistry
Technical Leader

Date: 03/31/2021

Explosives and Hazardous
Devices Technical Leader

Date: 03/31/2021

Explosives Unit Chief

Date: 03/31/2021

QA Approval

Quality Manager

Date: 03/31/2021

Appendix A: *Explosives Critical Supplier Assessment Form*

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