

# AFSN Quality, Standards & Ethics Committee (QSEC)

## SURVEY 2026

### (Trace Evidence Discipline)

30 mins estimated time to complete

---

Forensic laboratories play a crucial role in the criminal justice system. To ensure the accuracy and reliability of their analysis results, laboratories must adhere to strict protocols, procedures, and standards.

This survey aims to gather information on the implementation of the quality framework within the **trace evidence discipline**. The data collected will help us better understand the state of quality assurance practices in the trace evidence laboratories/units/teams among AFSN member institutes. This will enable us to identify good practices and areas for improvement, allowing us to align our future activities to our needs.

We greatly appreciate your participation in this survey. **Each AFSN member institute should submit only one survey form**. All responses will remain **anonymous and confidential**, and only aggregated results will be shared during the 18<sup>th</sup> AFSN Annual Meeting in November 2026. We encourage you to participate to the best of your knowledge and submit your responses by **30 June 2026**. Thank you for your contribution to this survey.

### General Information

1. Which of the following best describes your laboratory?  
Note:  
"Regional" means associated with or belonging to multiple cities or towns.  
"Municipal" means associated with or belonging to a city or town.  
    - (a) National/federal laboratory
    - (b) Regional laboratory
    - (c) Municipal laboratory
    - (d) Others (please specify): \_\_\_\_\_
  
  2. How long has your trace evidence laboratory/unit/team been established?  
    - (a) Less than 10 years
    - (b) 10 to 19 years
    - (c) 20 to 29 years
    - (d) 30 to 39 years
    - (e) 40 years or more
  
  3. Which of the following are included in the scope of service of your trace evidence laboratory/unit/team? (You may choose more than one answer.)  
    - (a) Paint and Coatings
    - (b) Glass
    - (c) Fibres and Textiles
    - (d) Soil and Minerals
    - (e) Hair
    - (f) Plastics and Polymeric Materials
-

# AFSN Quality, Standards & Ethics Committee (QSEC)

## SURVEY 2026

### (Trace Evidence Discipline)

30 mins estimated time to complete

- 
- (g) Chemical Analysis of Unknowns
  - (h) Gunshot Residues
  - (i) Physical Comparison
  - (j) Fire Debris and Ignitable Liquids
  - (k) Explosives
  - (l) Others: (please specify) \_\_\_\_\_

#### Personnel and Training

4. Which of the following item(s) is incorporated in your training programme for **technical support personnel**? (You may choose more than one answer.)

Note:

**Technical support personnel** are persons who assist or carry out trace evidence examination processes. They support the work of Reporting Scientists but do not issue report.

- (a) Knowledge (theory) and practical skills (practical) needed to perform casework
- (b) General knowledge of forensic science
- (c) Ethical practices in forensic science
- (d) Knowledge of criminal law and testimony
- (e) Others (please specify): \_\_\_\_\_

5. Which of the following item(s) is incorporated in your training programme for **reporting scientists**? (You may choose more than one answer.)

Note:

**Reporting scientists** are persons who analyse and interpret findings, provide opinions and issue test reports.

- (a) Knowledge (theory) and practical skills (practical) needed to perform casework
- (b) General knowledge of forensic science
- (c) Ethical practices in forensic science
- (d) Knowledge of criminal law and testimony
- (e) Others (please specify): \_\_\_\_\_

6. What form(s) of training does a trace evidence trainee go through in your laboratory? (You may choose more than one answer.)

Note: In **flipped classroom**, trainees are introduced to the content at their free time, usually through online, pre-recorded lectures, videos, or readings (self-directed learning and self-reading). Trainer will use the time with the trainee for more active discussion, or practical applications of the materials. The trainer's role shifts from being the primary source of information to guiding trainees through interactive, collaborative activities and discussions.

- (a) On-the-job training
- (b) In-house lecture by laboratory personnel
- (c) Flipped classroom, self-directed learning or self-reading
- (d) External courses, workshops or conferences
- (e) Others (please specify): \_\_\_\_\_

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

- 
7. What are the requirements for trace evidence examiners before starting casework? (You may choose more than one answer.)
- (a) Complete the required trace evidence training modules
  - (b) Complete on-the-job training (i.e., assisting in cases with supervision)
  - (c) Complete a competency test
  - (d) Authorisation by management
  - (e) Others (please specify): \_\_\_\_\_
8. What is included in the competency test? (You may choose more than one answer.)
- (a) Written/theory test
  - (b) Oral test
  - (c) Examination of unknown/questioned sample(s)
  - (d) Use and operation of instrument
  - (e) Observation by trainer on performing the procedures
  - (f) Not applicable, competency test is not required before starting casework.
  - (g) Others (please specify): \_\_\_\_\_
9. Does your laboratory have any form of continuing education for trace evidence examiners to stay abreast of scientific advancement and development in the field? (You may choose more than one answer.)
- (a) Yes, encourage examiners to attend international or regional conferences
  - (b) Yes, encourage examiners to attend local or virtual seminars, courses or webinars
  - (c) Yes, encourage examiner to go for attachment in other forensic laboratories
  - (d) Yes, examiners are given access to scientific literatures and books
  - (e) Others (please specify): \_\_\_\_\_

#### Equipment, Reference Materials & Databases

10. Which **microscopy** and **chemical/elemental profiling instrument** are currently operational for trace evidence casework in your laboratory? (You may choose more than one answer.)
- (a) Stereomicroscopy
  - (b) Polarising Light Microscopy (PLM)
  - (c) Fluorescence Microscopy
  - (d) Comparison Microscopy
  - (e) Fourier Transform Infrared Spectroscopy (FTIR)
  - (f) Raman Spectroscopy
  - (g) Microspectrophotometry (MSP)
  - (h) Scanning Electron Microscopy with Energy Dispersive Spectroscopy (SEM/EDS)
  - (i) Micro X-ray Fluorescence Spectroscopy (Micro-XRF)
  - (j) Glass Refractive Index Measurement
  - (k) Gas Chromatography
  - (l) Liquid Chromatography
  - (m) Others (please specify): \_\_\_\_\_
-

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

---

11. What is the current status of the **external calibration or preventive maintenance (PM)** for your primary trace evidence instrumentation you have listed above?
- (a) Mostly current (e.g., for a yearly calibration/PM, completed within the last 12 months)
  - (b) Mostly pending (scheduled within the next 30 days)
  - (c) Mostly overdue (expired > 30 days ago)
  - (d) No external calibration or maintenance schedule exists
  - (e) Others (please specify): \_\_\_\_\_
12. Are most of the **reference materials** used for instrument performance checks (e.g., polystyrene films, glass refractive index oils) traceable (e.g., to a national metrology institute such as NIST)?
- (a) Yes, most reference materials are traceable with valid certificates
  - (b) Yes, but some certificates have expired
  - (c) No, we use reference material without traceability documentation
  - (d) No, but we evaluate the suitability of the reference material before use
  - (e) Others (please specify): \_\_\_\_\_
13. Does your laboratory maintain **in-house reference collections** for trace evidence (e.g., local glass, paint, fibre, ignitable liquids) and if so, what is the primary methodology used to populate and validate these entries? (You may choose more than one answer.)
- (a) No, we do not use reference collections
  - (b) No, we rely solely on commercial/external collections (e.g., PDQ for paint, NIST, ILRC for ignitable liquid)
  - (c) Yes, populated using previous casework samples (unknowns) that have been categorised but not traced to a known manufacturer
  - (d) Yes, populated using known reference materials, relying on the manufacturer's provided data (e.g., safety data sheets without re-analysis)
  - (e) Yes, populated using known reference materials, where every entry is instrumentally analysed and verified by the lab before inclusion
  - (f) Others (please specify): \_\_\_\_\_

#### Nature of Request & Handling of Atypical Trace Evidence

14. What are the common objectives of trace evidence requests submitted to your laboratory? (You may choose more than one answer.)
- (a) **Identification:** Determination of the composition (chemical, elemental) of substances and materials to identify the source(s)
  - (b) **Association:** Comparison of the questioned and known items based on class characteristics to determine if they share a common source of origin
  - (c) **Reconstruction:** Determination of the manner/sequence of event occurring based on the composition and properties of trace, i.e. deposition, transfer, persistence of trace
  - (d) Others (please specify): \_\_\_\_\_
-

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

---

15. What other “**atypical**” trace evidence have you encountered in the past 3 years?  
Note: Atypical trace evidence includes those other than paint, glass, fibre, soil, hair, plastics, GSR, fire debris and explosive (e.g., lubricant, detergent, dust, glitter etc.)
- (a) Please specify: \_\_\_\_\_  
(b) ~~None encountered in the past 3 years~~
16. What is your laboratory’s standard procedure when an atypical trace evidence type, which is not covered by a validated method, is submitted? (You may choose more than one answer.)
- (a) **Reject:** We do not accept evidence types without a pre-validated method  
(b) **Outsource:** We refer the case to another laboratory or university partner  
(c) **Ad-hoc Validation:** We perform a “mini-validation” or literature review for that specific case, then proceed.  
(d) **General Approach:** We apply general trace methodologies (e.g., FTIR, SEM, PLM).  
(e) Others (please specify): \_\_\_\_\_

#### General Handling of Trace Evidence & Reporting

17. An examiner is assigned to examine trace evidence. How would the examination be conducted to prevent **contamination**? (You may choose more than one answer.)
- (a) Questioned and known items are examined at different space (e.g., different examination rooms or benches)  
(b) Questioned and known items are examined on the same bench with cleaning of bench in between.  
(c) Questioned and known items are examined at different time  
(d) Examine questioned item first followed by known item  
(e) Others (please specify): \_\_\_\_\_
18. In general, how does your laboratory handle the recovered trace evidence of limited quantity (e.g. paint smear on pedestrian’s clothing of a hit-and-run case, red nylon carpet fibre found on the victim’s clothing) after the examination is completed?
- (a) Return to customer  
(b) Keep the recovered trace evidence in the lab  
(c) Dispose of the recovered trace evidence  
(d) Others: (please specify) \_\_\_\_\_
19. Which type of reporting format does your laboratory use? (You may choose more than one answer)  
Note:  
**Verbal scale reporting** is where the evaluation of evidence is expressed in conventional language based on certain characteristics of the evidence (e.g. class and/or individual characteristics).
-

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

---

**Evaluative reporting** is a thought process that leads to expressing the value of the forensic evidence by evaluating the scientific findings given (at least) two competing propositions. It can be applied in the evaluation of comparative (associative) evidence, where an opinion has to be made based on the observations. This is carried out by assigning the probability of the findings given each of the propositions, which in turn generates the likelihood ratio. This likelihood ratio can either be expressed numerically or by using a verbal scale.

Please list down the types of cases which use verbal scale and/or evaluative reporting under "Others".

- (a) Verbal scale reporting
- (b) Evaluative reporting
- (c) Others (please specify): \_\_\_\_\_

20. What are the case records and reports subjected to before the reports are released to the customer? (Please choose the most appropriate option.)

Note:

A **technical review** is a detailed review of the report and case records by another qualified examiner to verify the scientific accuracy, completeness and compliance with established methods and procedures.

An **administrative review** is a detailed review of the report and case records, to ensure completeness, consistency and compliance with quality assurance or laboratory policies, including editorial correctness of the reports.

- (a) Reports are released directly to customers without technical or administrative review
- (b) Reports are technically reviewed before releasing to customers
- (c) Reports are administratively reviewed before releasing to customers
- (d) Reports are technically and administratively reviewed before releasing to customers

21. When a reviewer of a test report disagrees with the reporting scientist on the conclusion of his/her report, does your laboratory have a policy to handle this kind of dispute?

- (a) Yes
- (b) No
- (c) Not applicable, technical or administrative review of reports are not required

22. Please describe briefly how the laboratory handles such disputes when there are disagreements in conclusions between the reviewer and reporting scientist.
- \_\_\_\_\_

#### Procedures, Protocols, Validation

23. Which of the following method(s) does your laboratory use for case examination? (You may choose more than one answer.)

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

- 
- (a) Methods published by standard development organisations (e.g., ASTM)  
(b) Methods published in reputable technical workgroups/organisation (e.g. OSAC, ENFSI)  
(c) Methods published in relevant scientific journals (e.g., Forensic Science International, Journal of Forensic Sciences)  
(d) Laboratory-developed methods  
(e) Others (please specify): \_\_\_\_\_
24. How does your laboratory ensure the methods adopted from external are fit for use?  
Note:  
**Methods adopted from external sources** include methods published by standard development organisations, methods from reputable technical workgroups/organisations or scientific journal.
- (a) Regardless of the source, verify/validate all methods before using in case examination  
(b) Depending on the source, verify/validate some methods before using in case examination  
(c) There is no need for verification/validation for the method adopted  
(d) Others (please specify): \_\_\_\_\_
25. How often does your laboratory review and update **Quality Manual**?
- (a) Annually  
(b) Every two years  
(c) Every three years  
(d) As and when required  
(e) Not applicable. My laboratory does not have Quality Manual  
(f) Others (please specify): \_\_\_\_\_
26. How often does your laboratory review and update **Technical Manual or Standard Operating Procedure**?
- (a) Annually  
(b) Every two years  
(c) Every three years  
(d) As and when required  
(e) Not applicable. My laboratory does not have Technical Manual or Standard Operating Procedure  
(f) Others (please specify): \_\_\_\_\_

#### Quality Management

27. Is the trace evidence discipline accredited by an accrediting body?
- (a) Yes, accredited under ISO/IEC 17025:2017 by a national accreditation body  
(b) Yes, accredited under ISO/IEC 17025:2017 by an overseas accreditation body  
(c) In the process of seeking accreditation  
(d) May consider seeking accreditation in the near future  
(e) No
-

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

---

28. What is the reason(s) for not seeking accreditation?  
\_\_\_\_\_
29. How does your laboratory monitor the proficiency of trace evidence examiners? (You may choose more than one answer.)  
Note:  
**Interlaboratory comparison** is the evaluation of performance of two or more laboratories on similar test items in accordance with predetermined conditions, in which the results are unknown to the examiners or laboratories. It can include tests from external proficiency test providers e.g., Collaborative Testing Services (CTS) or test organised by scientific working groups e.g., ENFSI/EPGT, ENFSI/ETHG, AFSN TEWG.  
**Intralaboratory comparison** is the evaluation of performance of two or more examiners within the same laboratory on similar test items in accordance with predetermined conditions, in which the results are unknown to the examiners. The test is usually prepared internally by the laboratory.
- (a) Interlaboratory comparison  
(b) Intralaboratory comparison  
(c) Others (please specify): \_\_\_\_\_
30. How many proficiency test(s) (including both interlaboratory comparison and intralaboratory comparison) does each trace evidence examiner takes per year?
- (a) 0  
(b) 1 to 2 proficiency test (s) per year  
(c) 2 or more proficiency tests per year  
(d) 1 proficiency test every 2 years  
(e) Others (please specify): \_\_\_\_\_
31. Does your laboratory use tests from an external proficiency test provider that is accredited to **ISO/IEC 17043** (e.g. Collaborative Testing Services (CTS), Forensic Assurance)  
Note:  
**ISO/IEC 17043 "Conformity assessment – General requirements for the competence of proficiency testing providers"** is an international standard that specifies general requirements for the competence and impartiality of proficiency test providers and consistent operation of all proficiency testing schemes.
- (a) Yes  
(b) No  
(c) Not sure
32. Does your laboratory have a **Quality Manager** (however named), who has the authority, resources and obligation to carry out their duties?  
Note:  
Duties of a **Quality Manager** include, but are not limited to:
- Implementation, maintenance and improvement of the management system
  - Identification of deviations from the management system or from the procedures for performing laboratory activities
-

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

---

- Initiation of actions to prevent or minimise such deviations
- Reporting to laboratory management on the performance of the management system and any need to improvement
- Ensuring the effectiveness of laboratory activities

(a) Yes

(b) No

(c) Others (please specify): \_\_\_\_\_

33. Does your laboratory perform internal audit and how often is it carried out?

(a) Yes, annually

(b) Yes, every two years

(c) As and when required

(d) No, my laboratory does not perform internal audit

(e) Others (please specify): \_\_\_\_\_

34. Does your laboratory have policies/procedures on **maintenance of records** in the following areas? (You may choose more than one answer.)

(a) Staff training, competency, responsibilities and continual development

(b) Handling and movement of evidence to ensure the integrity of all evidence

(c) Maintenance and calibration of instrument/equipment

(d) Records of all casework

(e) Other (please specify): \_\_\_\_\_

35. Does your laboratory have a policy/procedure for **handling non-conforming work** (e.g. error in test results or test reports, use of faulty equipment)?

(a) Yes

(b) No

36. Which action(s) below will be carried out by your laboratory to handle non-conforming work? (You may choose more than one answer)

(a) Take action to control and correct it

(b) Review and analyse the non-conformity

(c) Determine the cause(s) of the non-conformity

(d) Implement corrective action to prevent recurrence

(e) Perform risks and opportunities analysis

(f) Make changes to the management system, if necessary

(g) Others (please specify): \_\_\_\_\_

37. Does your laboratory **seek feedback from customers** on the provision of testing service (e.g. conducting periodic survey or regular customer feedback)?

(a) Yes

(b) No

## AFSN Quality, Standards & Ethics Committee (QSEC)

### SURVEY 2026

#### (Trace Evidence Discipline)

30 mins estimated time to complete

---

38. Does your laboratory analyse and use the survey/feedback from customers to improve the management system, laboratory activities or customer service?

(a) Yes

(b) No

#### Feedback on Survey Questions

39. Do you have any feedback or comments relating to the above questions?

---