3 Terms and Definitions

The purpose of this section is to provide a list of commonly used terms. It is intended strictly to aid personnel in the understanding of laboratory policies and procedures; however, it is not intended as an exhaustive list of possible terms and definitions. It does not have the authority to supersede definitions provided or implied in actual laboratory documents.

These terms and definitions were compiled from a variety of sources including ANAB, FBI Quality Assurance Standards, ANSI, and other authoritative references.

A - Terms and Definitions

Accreditation

The act whereby a nationally recognized body approves an organization to operate an audit and registration program.

Accreditation Bodies

Member countries have organizations that are chartered to accredit Registrars. In the US, it's the Registrar Accreditation Board (RAB); in Canada, the Standards Council of Canada (SCC), and in the Netherlands, the Raad Voor Accreditatie (RvA).
These ISO Accreditation Bodies publish the requirements that they set forth for Registrars to become accredited. These requirements generally follow other ISO documents. The Accreditation bodies regularly audit registrars' procedures, systems and audit practices to ensure they meet and maintain systems to the requirements.

Administrative Documentation

All case related documents that are not examination documentation. Records such as case related conversations, test item (evidence) receipts, description of evidence packaging and seals, incident reports, service request documentation, correspondence received/sent, and other pertinent information.

Administrative Error

A clerical error such as a typographical error in a report.

Administrative Personnel

Staff who provide administrative/clerical support.

Administrative Review

A procedure used to check that case documentation is complete and that the analysis report complies with laboratory policies.

Administrative Reviewer

A Unit Supervisor or designee who conducts an administrative review.

American Society for Quality

(ASQ) established the Registrar Accreditation Board (RAB) in 1989. In 1991, ANSI and RAB joined forces to establish the American National Accreditation Program (NAP) for Registrars of Quality Systems. On January 1, 2005, RAB and the ANSI-RAB NAP was replaced by the ANSI-ASQ National Accreditation Board (ANAB). In 2018, ANSI purchased the remaining partnership in ANAB from ASQ.

Analyst / Examiner

An individual who conducts and/or directs the analysis of forensic casework samples, interprets data and reaches conclusions.

Analytical/Interpretative Error

An error in the examination process that produces an incorrect result or conclusion.

Annual

Once per calendar year, typically at or around the same time each year.

Approved Test Provider

A proficiency test provider that has complied with the test manufacturing guidelines established by the ASCLD/LAB Proficiency Review Committees.

Association

A determination that a relationship exists between individuals and/or objects.

Audit

A systematic, independent, documented process of obtaining records, statement of facts or other relevant information of the Michigan State Police's Laboratory system and assessing them objectively to determine the extent to which specified requirements are fulfilled.

Audit Standard

An authentic description of essential characteristics of audits, which reflects current thought and practice.

Audit Team Leader

An experienced auditor who is assigned the responsibility of leading a team of auditors to conduct a portion of an audit.

Auditor

A person who conducts audits.

ANAB

ANSI **N**ational **A**ccreditation **B**oard. **ANSI**-American National Standards Institute. An accreditation program in which any crime laboratory may participate to demonstrate that its management, technical

operations and overall quality management system meet ISO 17025 requirements and ANAB Accreditation Requirements.

Auditee

The organization being audited.

Auditors

Auditors work for or contract to Registrars to perform registration assessments and surveillances. They are the "front line" in the process. Registrars are responsible for ensuring Auditors meet qualification requirements. Their requirements include training in auditing, ISO 9001 training, and at least one member of the audit team must have experience in the industrial sector of the company being audited. Auditors collect the objective evidence demonstrating the effectiveness (or lack thereof) of the company's quality management system and make registration recommendations to the Registrar. The Registrar has the ultimate decision however.

ANSI

The American National Standards Institute or ANSI is a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system.

Auditing Organization

A unit or function that carries out audits through its employees. This organization may be a department of the auditee, client or an independent third party. (See Auditors).

B - Terms and Definitions

Biology (forensic science discipline)

The identification and comparison of genetic markers from biological fluids and latent cellular material (and includes subdisciplines such as DNA and Body Fluid Identification).

Breath Alcohol Measuring Instrument

An instrument that measures the concentration of alcohol in an exhaled sample of human breath. NOTE: Alcohol may be ethanol only or a broader class of compounds based on a legal requirement.

C- Terms and Definitions

Capability

Ability to perform designated activities and to achieve results, which fulfill specified requirements.

Calibration

The adjusting or standardizing of any instrument and/or equipment to ensure agreement with a reference standard or working standard of known value.

Case Documentation

All administrative and examination documentation for a given case.

Case File

See Case Record

Case Record

Files containing administrative and examination documentation generated or received by a laboratory pertaining to a particular case.

Casework

MSP laboratory activities concerning the examination of evidence and/or crime scenes.

Certified Reference Material

Reference material accompanied by a certificate, one or more of whose property values are certified by a procedure, which establishes its traceability to an accurate realization of the units in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence.

Certification

The authoritative act of documenting compliance with agreed requirements.

Certification Body

An impartial organization possessing the necessary competence to operate a certification program.

Characteristic

A physical, chemical, visual functional or any other identifiable property of a product or part or material.

Class I Inconsistency

The nature and cause of the inconsistency raises immediate concern regarding the quality of the laboratory's work product. (Also known as a Nonconformity, Level 1)

Examples of a Class I inconsistency may include an erroneous identification, false identification, or false positive.

Class II Inconsistency

The inconsistency is due to a problem which may affect the quality of the work but is not serious enough to cause immediate concern for the over-all quality of the laboratory's work product. (Also known as a Nonconformity, Level 2)

Examples of a Class II inconsistency may include a missed identification or false negative.

Class III Inconsistency

The inconsistency is determined to have only minimal effect or significance, be unlikely to recur, is not systemic, and does not work significantly affect the fundamental reliability of the laboratory's work.

An example of a Class III inconsistency may include an administrative or transcription mistake.

Repeated instances of Class II or Class III (or a combination of Class II or Class III) inconsistencies occurring in the same laboratory over time (or at one time) may be viewed as raising to the level of Class I.

Client

The person or organization requesting the audit. Depending on circumstances, the client may be the auditing organization, the auditee or a third party.

Combined Standard Uncertainty

A result of the combination of the standard uncertainty components.

Company

Term used primarily to refer to a business first party, the purpose of which is to supply a product or service.

Competency Test

A test used to evaluate an individual's knowledge, skills, and/or ability to perform work in a forensic discipline prior to that person performing independent casework.

Competent

Confirmation that a person possesses sufficient knowledge, skills, and/or ability to perform work.

Complaint

Any concern raised by a contributor, employee or other party that suggests 1) a lack of service, 2) a misconduct or technical deficiency by a FSD employee or 3) an issue within the quality assurance system of the FSD.

Compliance

A judgment that a product or service meets the requirements of a specific standard.

Confidence Level

A probability statement that a particular measurand lies within the quoted range of uncertainty.

Conformity

The fulfillment of specified requirements. Same as compliance.

Contract
The agreement between the forensic service provider and the customer. A fee for service is not required.

Contract Review
The systematic activities carried out before signing the contract, to ensure that requirements for quality are adequately defined, free of ambiguity, documented and realizable by the supplier.

Contributor
Any agency with law enforcement authory that delivers evidence to an MSP forensic laboratory for purposes of analysis. (see Customer)

Contractor
The provider.

Control
A sample analyzed in parallel with test samples that is designed to demonstrate that a procedure worked correctly.

Controlled Substances (forensic science discipline)
The identification of controlled drug substances either in pure, legal or illicit dosage forms.

Corrective Action
An action taken to eliminate the causes of an existing nonconformity, defect, or other undesirable situation, to prevent recurrence. The distinction between correction such as repair, rework or adjustment and corrective action is that the former relates to the disposition of an existing nonconformity, whereas, corrective action relates to the elimination of its causes.

Crime/Forensic Laboratory
A laboratory (with at least one full-time scientist) which examines physical evidence in criminal matters and provides opinion testimony with respect to such physical evidence in a court of law.

Crime Scene
An area, object or person, external to a laboratory facility, from which evidence is identified, documented, collected, and/or interpreted.

Crime Scene (forensic science discipline)
The identification, documentation, collection, and/or interpretation of material at a location external to a laboratory facility. Scene reconstruction is also a part of this discipline.

Crime Scene Personnel

In a MSP laboratory, this term will apply to all employees who perform the identification, documentation, collection, and/or interpretation of material at a location external to a MSP Laboratory.

Critical Measurement

A measurement having a significant effect on the accuracy or validity of the result of the test.

Critical Reagent

A reagent used during analysis that has a significant effect on the validity of the result of the test.

Custody

The care and control of an item implying responsibility for its protection and preservation.

Customer

A person or organization that could or does receive a product or a service that is intended for or required by this person or organization. A customer can be internal or external to the forensic service provider.

D - Terms and Definitions

Defect

The non-fulfillment of intended usage requirements. The departure or absence of one or more quality characteristics from intended usage requirements.

Degree of Demonstration

The extent to which evidence is produced to provide confidence that specified requirements are fulfilled.

Dependability

The collective term used to describe the availability of performance and its influencing factors: reliability, performance, maintainability performance and maintenance support performance. Dependability is used only for general descriptions in non-quantitative terms and is a time-related aspect of quality.

Decision Rule

Rule that describes how measurement uncertainty is accounted for when stating conformity with a specified requirement.

Deviation

An authorized variance from a documented policy, practice, or procedure. A deviation can be major or minor depending on the circumstances.

Digital & Multimedia Evidence (forensic science discipline)

Digital Evidence: The analysis of evidence stored or transmitted in binary form. Multimedia Evidence: Analog or digital media, including, but not limited to, film, tape, magnetic and optical media, and/or information contained therein.

Director

The highest ranking manager.

Discipline

A major area of forensic science for which a laboratory may seek accreditation.

Discrepancy

A failure to meet the specified requirement, supported by evidence (Also can be called Nonconformance, Deficiency or Finding).

Disposition of Non-conformity

The action to be taken to deal with an existing nonconforming condition in order to resolve the nonconformity.

Document

Something written or printed that provides factual information or proof; any object used as evidence; to prove or support by means of documents. Information in any medium including, but not limited to, paper copy, computer disk or tape, audio or video tape, electronic file, compact or digital video disc, photograph, overhead, or photographic slide.

Document Control

The process of ensuring that controlled documents prescribing quality-affecting activities or specifying quality requirements, including revisions, are reviewed for adequacy, approved for release by authorized personnel, and distributed for use to the personnel performing the prescribed activities.

Drug Evidence

Illegal substances, drug paraphernalia, prescription and nonprescription drugs.

E - Terms and Definitions

Electronic Equivalent of Initials or Signature

An Electronic Equivalent of Initials or Signature means to indicate that a person approves the contents of an electronic record. For example, a signature of an analyst is applied to the test report via FSD's Laboratory Case Management System (LCMS).

Any work documented in the Forensic Advantage software automatically implies an electronic signature, since the use of the software requires a unique user name and password combination known only to that employee.

Environment

The conditions, circumstances, influences and stresses surrounding and affecting the product during manufacturing, storage, handling, transportation, installation and use.

Environmental Conditions

Any characteristic of the facilities that could reasonably be expected to impact the quality of the MSP Laboratories' work product.

Evidence

An item submitted for examination(s). Equivalent to "test item" as described in ISO/IEC 17025 / Section 7.4.

Examination

An analysis of an item or comparison of items.

Examiner / Analyst

An individual who conducts and/or directs the analysis of forensic casework samples, interprets data and reaches conclusions.

Examination Documentation (See also Notes)

Documents that support the results and/or conclusions presented in a Laboratory Report. Includes reference to procedures followed, test conducted, standards and controls used, diagrams, printouts, audioradiograms, photographs, observations and results of examinations.

Expanded Uncertainty

An expression obtained by multiplying the combined uncertainty by a coverage factor (usually 2 or 3).

Expert Testimony

Testimony given in relation to some scientific or technical matter by examiners trained to competency in a forensic discipline.

Expression of Uncertainty

The mean measured value +/- uncertainty at a given confidence level.

External Proficiency Test

A test provided by a source external to a MSP Laboratory(s). In the case of a laboratory system, a test for each laboratory in the system shall be provided by a source external to the laboratory system.

External Proficiency Test Response

A proficiency test where test answers are provided to an external test provider.

F - Terms and Definitions

Facilitating

To assist a contributor by transferring evidence to an entity, external to the MSP Laboratory, that will perform examinations outside the scope of accreditation of the MSP Laboratory.

Fault Tree Analysis

The process of identifying potential design weaknesses using a highly detailed logic diagram depicting basic faults and events that can lead to system failure and/or safety hazard.

Finding

A nonconformity or inconsistency identified during an audit with documented requirements.

Fire Debris/Explosives (forensic science discipline)

Involves the examination and analysis of materials associated with fire and explosion investigations.

Firearms/Toolmarks (forensic science discipline)

Examination and comparison of evidence resulting from discharge and/or use of firearms; comparison of marks made by various tools.

Footwear/Tire (forensic science discipline)

Involves the detection, documentation, recovery, examination and comparison of footwear and tire evidence.

Forensic Audio

A subdiscipline of digital & multimedia evidence, which involves the examination, analysis, comparison, and/or evaluation of audio.

G - Terms and Definitions

Good Laboratory Practice

Operating practices and procedures for promoting quality and ensuring the integrity of the work product.

I - Terms and Definitions

Image Analysis

A subdiscipline of digital & multimedia evidence, which involves the application of image science and domain expertise to examine and interpret the content of an image and/or the image itself.

Impartiality

Not prejudiced towards or against any particular side or party; fair; unbiased; presence of objectivity.

Individual Characteristic Database (ICD)

A computerized, searchable collection of features, generated from samples of known origin from which individual characteristic information originates (e.g. DNA profiles, friction ridge data, or firearm bullet/cartridge case images).

Individual Characteristic Database Sample

A specimen of known origin from which individual characteristic information originates (e.g., reference blood or biological specimens, fingerprints of known individuals, electronic fingerprint records, test fired ammunition.)

Interlaboratory Comparison

Organization, performance, and evaluation of measurements or tests on the same or similar items by two or more laboratories in accordance with predetermined conditions.

Internal Proficiency Test

A proficiency test prepared by MSP Laboratory personnel.

Internal Proficiency Test Response

A proficiency test where test answers are not provided to an external test provider.

Intralaboratory Comparison

Organization, performance, and evaluation of measurements or tests on the same or similar items within the same laboratory in accordance with predetermined conditions.

ISO

The International Organization for Standardization or just ISO.

ISO Member Body

Countries that have joined the ISO initiative and have organizations that are chartered to accredit Registrars in their country.

Item Identifier
An alphanumeric designator assigned to an item submitted to the MSP Laboratory.

L - Terms and Definitions

Laboratory

Body that performs one or more of the following: Testing; Calibration; Sampling, associated with subsequent testing or calibration.

Laboratory Case Management System (LCMS)
The electronic case management system utilized by personnel within the Forensic Science Division.

Laboratory Director
The highest ranking manager within an individual laboratory which includes an appointed designee during an absence of the Laboratory Director.

Laboratory Operations Manager
An individual designated by top management who, irrespective of other responsibilities, has the defined authority and obligation to ensure that policies and procedures governing laboratory operations are implemented and maintained.

Latent Prints (forensic science discipline)
Development and/or comparison of latent print impressions.

Laboratory Worksheet
A form that may contain both examination and/or administrative information including descriptions of the items of evidence.

Lead Auditor
The individual appointed by the registration organization to be responsible for the quality audit.

M - Terms and Definitions

Major Deviation
A deviation that has the potential to impact the quality system, may affect multiple cases, or is applicable over an extended period of time.

Management
Technical and Executive management.

Management Review

A formal quality evaluation, by top management, of the status and adequacy of the quality system in relation to quality policy and new objectives resulting from changing circumstances.

Management System

The organizational structure, responsibilities, procedures, processes, and resources for implementing quality management; includes all activities which contribute to quality, directly or indirectly.

Manager

A person with the responsibility for directing and controlling an organizational unit or program.

May

A word used when an element of the quality system is optional or discretionary.

Measurand

The quantitative expression of that which is being measured.

Measurement Uncertainty

A parameter associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the measurand. Also known as uncertainty of measurement.

Media

Objects on which electronic data can be stored.

Method

The course of action or technique followed in conducting a specific analysis or comparison leading to an analytical result.

Metrology

The scientific study of measurement.

Minor Deviation

A deviation that is not expected to impact the quality system and generally will not have an extended duration.

MSP

In this manual, an abbreviation for Michigan State Police.

MSP Laboratory

In this manual, this term refers to units of the MSP Forensic Science Division that are responsible for evidence receiving, inventorying and examination.

MSP Laboratory File

An official file containing MSP Laboratory documents. Requests for examinations, acknowledgment letter file copies, Laboratory Report file copies, and supporting documents or attachments, which contain administrative and examination documentation, will be included.

Must

A word used when an element of the quality system is required.

N - Terms and Definitions

National Accreditation Program

In 1991, ANSI and RAB joined forces to establish the American National Accreditation Program (NAP) for Registrars of Quality Systems. On January 1, 2005, RAB and the ANSI-RAB NAP was replaced by the ANSI-ASQ National Accreditation Board (ANAB). In 2018, the ASQ partnership within ANAB was obtained by ASQI.

National Measurement Standards

May be primary standards, which are primary realizations of the SI units or agreed representations of SI units based on fundamental physical constants, or they may be secondary standards which are standards calibrated by another national metrology institute such as the National Institute of Standards and Technology (NIST).

Natural science

A science, such as biology, chemistry, or physics, that deals with the objects, phenomena, or laws of nature and the physical world.

NIST

The National Institute of Standards and Technology is a non-regulatory federal agency within the U.S. Commerce Department's Technology Administration. NIST's mission is to develop and promote measurement, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life.

Non-conformance

A condition of any product or component in which one or more characteristics do not conform to requirements. Includes failures, deficiencies, defects, malfunctions and inconsistencies.

Nonconformity, Level 1

A situation or condition that directly affects and has a fundamental impact on the quality of the work product or the integrity of the evidence.

Nonconformity, Level 2

A situation or condition which may affect the quality of the work but does not, to any significant degree, affect the fundamental reliability of the work product or the integrity of the evidence.

Nonconformity, Level 3

A situation or condition that is determined to have only minimal effect or significance, be unlikely to recur, is not systemic, and does not significantly affect the fundamental reliability of the laboratory's work.

Repeated instances of Level 2 or Level 3 inconsistencies occurring in the same laboratory over time (or at one time) may be viewed as raising to the level of Level 1.

Notes (See also Examination Documentation)

The documentation of procedures, standards, controls and instruments used, observations made, results of tests performed, charts, graphs, photos, and other documents generated which are used to support the analyst's conclusions.

O - Terms and Definitions

Objective

A measurable, definable accomplishment which furthers the goals of the organization.

Open Proficiency Test

A proficiency test, known to the participant as such, prepared to evaluate the participant's competence related to casework.

Organization

A company, corporation, firm, enterprise or institution, or part thereof (whether incorporated or not, public or private) that has its own function(s) and administration that supplies products or services to other organizations. See supplier.

Organizational Structure

The set of formal and informal responsibilities, authorities and relationships, arranged in a pattern, through which an organization performs its functions.

Originating Laboratory

The laboratory that first receives a case from a submitting agency.

P - Terms and Definitions

Peer Review

See Technical Review

Performance Check

A verification that the equipment, instrument, or process is working as expected. Analysis of a control may be used as a performance check.

Policy

(1) A definite course or method of action to guide and determine present and future decisions. It is a guide to decision making under a given set of circumstances within the framework of corporate objectives, goals and management philosophies.

(2) A directive that embraces the general goals and acceptable practices of the MSP Laboratory and/or procedures of the units.

Practices

In this manual, a term used to describe Division-level quality affecting processes that are used by the MSP Laboratory.

Preventive Action

An action taken to eliminate the causes of a potential nonconformity, inconsistency, defect or other undesirable situation, to prevent occurrence.

Primary Standard

A standard designated or widely acknowledged as having the highest metrological qualities and whose value is accepted without reference to other standards of the same quantity.

Procedure

A particular way of accomplishing something, an established way of doing things, a series of steps followed in a definite regular order. It ensures the consistent and repetitive approach to actions. Quality Procedures are procedures that meet or exceed ISO 9000 requirements.

Process

A set of interrelated resources and activities that transform inputs into outputs with the aim of adding value. Resources include personnel, facilities, equipment, technology, methodology and finances. The aim of adding value if quality related.

Product

The result of activities or processes. A product can be tangible or intangible, or a combination of both.

Product Liability

A generic term used to describe the responsibility on a producer or others to make restitution for loss related to personal injury, property damage or other harm caused by a product or service. Liability is defined by law so that it may vary from country to country according to national legislation.

Production Permit

A written authorization for a product, before its production, to depart from originally specified requirements; also known as deviation.

Proficiency Review Committee (PRC)

An ANAB, whose role is to evaluate the performance of accredited laboratories in proficiency tests.

Proficiency Test

A test used to evaluate the continuing capability of examiners and technicians and the performance of the MSP Laboratory. The expected results of the test are unknown to those individuals taking the test.

Proficiency Testing

Evaluation of participant performance against pre-established criteria by means of interlaboratory comparisons.

Proper Seal

A container is 'properly sealed' only if its contents cannot readily escape and only if entering the container results in obvious damage/alteration to the container or its seal. A compliant seal may include a heat seal, tape seal (evidence tape only), or a lock with the initials of the person creating the seal being placed on the seal or across the seal onto the container when possible. The proper seal provision only applies to evidence in storage.

Purchaser

The customer.

Q - Terms and Definitions

Qualification

A documented determination that a product (and its associated software), component, packaging or labeling, meets all prescribed design and performance requirements.

Qualified

A term used to identify personnel who successfully complete a unit's training program, pass a competency test and participate in the MSP Laboratory Proficiency Testing Program.

Qualitative Analysis

Procedures that use visual, microscopic, or instrumental methods to determine the characteristics or constituents of a sample or specimen without regard to quantity.

Quality

The composite of all the characteristics, including performance, of an item, product or service that bear on its ability to satisfy stated or implied needs. In a contractual environment, needs are specified, whereas, in other environments, implied needs should be identified and defined. In many instances, needs can change with time; this implies periodic revision of requirements for quality. Needs are usually translated into characteristics with specified criteria. Quality is sometimes referred to as "fitness for use", "customer satisfaction", or "conformance to the requirements."

Quality Assurance (QA)

A planned and systematic pattern of all actions necessary to provide adequate confidence that the product, its components, packaging and labeling are acceptable for their intended use. Those planned or systematic actions necessary to provide sufficient confidence that the MSP Laboratories' product or service will satisfy given requirements for quality.

Quality Assurance Manager (QAM)

An individual designated by top management who, irrespective of other responsibilities, has the defined authority and obligation to ensure that the quality requirements of the management system are implemented and maintained.

Quality Audit

A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

The quality audit typically applies, but is not limited to a quality system or elements thereof, to processes, to products, or to services. Such audits are often called a "quality system audit", "process quality audit", "product quality audit" or "service quality audit."

Quality audits are carried out by staff not having direct responsibility in the areas being audited but preferably, working in cooperation with the relevant personnel.

One purpose of a quality audit is to evaluate the need of improvement or corrective action. An audit should not be confused with surveillance or inspection activities performed for the purpose of process control or product acceptance. Quality audits can be conducted for internal or external purposes.

Quality Audit Observation

A statement of fact made during quality audit and substantiated by objective evidence.

Quality Auditor

A person who has the qualification status to perform quality audits.

Quality Control

The operational techniques and activities that are used to fulfill requirements for quality. All that is done to be sure that the product is what it should be. Quality control involves operational techniques and activities aimed both at monitoring a process and at eliminating causes of unsatisfactory performance at all stages of the organization's operation in order to result in economic effectiveness.

Quality Document

A document that contains requirements for quality system elements for products or services. The results of activities such as inspections or quality audits.

Quality Evaluation

A systematic examination of the extent to which an entity (part, product, service or organization) is capable of meeting specified requirements. A quality evaluation may be used to determine supplier quality capability. In this case, the result of quality evaluation may be used for qualification, approval, and registration or accreditation purposes. A quality evaluation examines potential quality capability, whereas, a quality audit additionally examines effective implementation.

Quality Improvement

The actions taken to increase the value to the customer by improving the effectiveness and efficiency of processes and activities throughout the organizational structure.

Quality Losses

The losses caused by not realizing the optimum potential of resources in processes and activities. Some examples of quality losses are the loss of customer satisfaction, loss of opportunity to add customer value, loss to the organization or society, as well as waste of resources and materials.

Quality Management

All activities of the overall management function that determine the quality policy, objectives and responsibilities, and implements them by means such as quality planning, quality control, quality assurance and quality improvement. The responsibility for quality management belongs to all levels of management but must be driven by top management. Its implementation involves all members of the organization.

Quality Management Principles

Used by management as a guide towards improving performance. The Quality Management Principles were derived from the experience of experts on the technical committees and represent the main elements that a good quality system must have.

The eight principles are: Customer Focus, Leadership, Involvement of People, Process Approach, Systems Approach to Management, Continual Improvement, Factual Approach to Decision-making, and Mutually Beneficial Supplier Relationship.

Quality Manual (QM)

A document stating the Quality Policies and Objectives. and describing the quality system of an organization. The Quality Manual may relate to the totality of an organization's activities or only to a part of it.

A quality manual will normally contain, or refer to, the quality policy, the responsibilities, authorities and inter - relationships of personnel who manage, perform, verify or review work affecting quality, the quality system procedures and instruction, a statement for reviewing, updating and controlling the manual.

A quality manual can vary in depth and format to suit the needs of an organization.

It may be comprised of more than one document in some instances. When its only purpose is for demonstration, it may be called a quality assurance manual.

Quality Plan

A document setting out the specific quality practices, resources and sequence of activities relevant to a particular product, project or contract. A quality plan pertaining to a specific application and usually references the quality manual.

Quality Policy

The overall Quality Objectives, intentions and direction of an organization regarding quality, as formally expressed by top management.

Quality Records

Documents pertaining to the quality system such as audit reports, corrective actions requests, deviation requests, and testimony evaluations.

Quality Requirements

A translation of customer needs into a set of quantitatively or qualitatively stated requirements for the characteristics of a product or service to enable its realization and examination. The requirements for quality should be initially expressed in functional terms and documented.

Quality System

The organizational structure, responsibilities, procedures, processes and resources for implementing quality management; includes all activities which contribute to quality, directly or indirectly. This term is equivalent to "management system" as used in ISO 17025. The quality system should only be as comprehensive as needed to meet the quality objectives. The quality system of an organization is designed primarily to satisfy the internal requirements of the organization and is not limited to the quality assurance requirements of a particular customer. For contractual or mandatory quality assessment

purposes, demonstration of the implementation of identified elements of the quality system may be required.

Quantitative Analysis

Analysis of a substance that determines the amount or proportion of its constituents.

Questioned Documents (forensic science discipline)

Examination of printed, typed or written material for the purpose of identifying the source, determining alterations or other means of gaining information about the item or the circumstances surrounding its production.

R - Terms and Definitions

Registrar Accreditation Board (RAB)

The U.S. organization for accreditation of Environmental Management Systems ISO 14001, Quality Management Systems ISO 9000 registrars, and auditor training course providers. On January 1, 2005, RAB and the ANSI-RAB NAP was replaced by the ANSI-ASQ National Accreditation Board (ANAB). In 2018, ASQ partnership was obtained by ANSI.

Reagent

A substance used because of its known chemical or biological activity. Any substance which (takes part in a chemical reaction) is used in detecting, examining, measuring or analyzing other substances. Solvents and their mixtures as well as buffers are not applicable to this definition.

Receiving Laboratory

The laboratory that receives a case for analysis from another laboratory.

Record

A document that furnishes objective evidence of activities performed or of results achieved. A quality record provides objective evidence of the extent of the fulfillment of the requirement for quality or the effectiveness of the operation of a quality system element. Some of the purposes of quality records are demonstration, traceability and corrective actions. A record can be written or stored on any data medium.

Reference Collection

Data or materials of known origin or property, which are maintained for identification, comparison, or interpretation purposes (e.g. mass spectra, motor vehicle paints or headlamp lenses, drug samples, wood fragments, bullets, cartridges, DNA profiles, laboratory developed population databases).

Reference Material

Material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

Reference Standard

A measurement standard designated for the calibration of other measurement standards for quantities of a given kind in a given organization or at a given location.

NOTE Working measurement standard – measurement standard that is used routinely to calibrate or verify measuring instruments or measuring systems.

Registrar

Organizations that issue ISO certification. Also called "certification bodies" or "registration bodies".

Their place in the system is to verify companies meet the requirements of ISO 9001:2000 and certify or register companies that do. Registrars must meet the requirements of the Accreditation Bodies. These requirements include things such as independence; Registrars cannot consult for instance. This system ensures uniformity in the registration process.

Registration

A formal verification process by an accredited body that an organization has been audited and shown to comply with ISO 9000.

Reliability

The characteristic of a product, or any component thereof, expressed as a probability that it would perform its required functions under defined conditions for specified operating periods.

Reliability Assessment

A quantitative assessment of the reliability of a product, system or portion thereof. Such assessments usually employ mathematical modeling, directly applicable results of tests on the product, failure data, estimated reliability figures, and non-statistical engineering estimates.

Request

The process utilized by a customer when seeking services from the Laboratory.

Root Cause

The fundamental reason, or reasons, for a condition adverse to quality, that, if corrected or precluded, would minimize or prevent that condition, and/or similar conditions, from occurring.

Routine Process/Procedure

A process or procedure that is performed on an on-going basis.

S - Terms and Definitions

Sample

Portion drawn from a whole or population for the purpose of examination/testing, not necessarily representative of the whole.

Sampling

Taking a part of a substance, material or product to provide for testing of a representative sample of the whole. Two key factors are (1) the report shall state conclusions about "the whole" based on testing only a portion, and (2) from the start, there shall be a statistically based or reasonable assumption of homogeneity (or made so by the analyst) of the whole.

Sample Selection

A practice of selecting a sample(s) of the whole based upon training, experience and competence. There is no assumption of homogeneity of the whole. Testing is carried out on the selected sample(s) and the report is clear that the results are based only on the portion(s) tested.

Sampling Method

The method used to collect a sample or samples from the larger whole, to ensure that the result obtained in the analysis is representative of the whole.

Sampling Plan

A statistically valid approach to determine the number of sub-items that must be tested in order to make an inference about the whole population.

Scientist

A person who employs scientific methods in the examination of evidence in a forensic laboratory.

Secondary Evidence

Material derived from an item of evidence.

Secured Area

Locked or otherwise limited access space under MSP Laboratory control that has access restricted to personnel authorized by the Laboratory Director or designee.

Self-Inspection

Inspection of the work performed, by the performer of that work, according to specified rules. Self-inspection is used for process control by the operator.

Serology

A sub-discipline of biology, which is concerned with the identification of biological materials through the use of various tests.

Service

The results generated by activities at the interface between the supplier and the customer and by supplier internal activities, to meet the customer requirements. Delivery or use of tangible products may form part of the service. A service may be linked with the manufacture and supply of tangible products.

Severity

The consequences of a failure mode. Severity considers the worst potential consequences of a failure, determined by the degree of injury.

Shall

A word used when an element of the quality system is required.

Should

A word used when an element of the quality system is recommended, but not required.

SI Units

The International System of Units consisting of seven base units that have been adopted by the General Conference on Weights and Measures.

Specification

Documented detailed requirements with which a product or service has to comply.

Standard (Reference Standard)

See reference standard

Standard Operating Procedure (SOP)

A document that specifies the steps, methods, equipment, and materials necessary to perform a task properly. SOPs are written to provide instruction and standardization for activities affecting quality.

Standard Procedure

A method that specifies the steps necessary to perform a test, contains documented performance characteristics, and is published by a standards producing organization such as ASTM International (formerly known as the American Society for Testing and Materials) or ASB (American Standard Board).

Standard Uncertainty

The estimated standard deviation.

Subcontractor

A non-MSP entity that conducts examinations for the MSP Laboratory that are within the scope of the MSP Laboratory's accreditation.

Subcontracting

Engaging the services of a subcontractor.

Sub-Discipline

A specific type of analysis within an accredited discipline of forensic science.

Subdivided Evidence

Multiple items of evidence that were originally inventoried as a single item and have subsequently been assigned a unique identifier.

Submitting Agency

The investigating agency that submits the evidence for analysis.

Supervisor

A person directly responsible for overseeing the work in an organizational unit.

Supplier

The organization that provides a product or service. Same as subcontractor.

Supporting Documents

Case-related administrative and examination documents.

System

The principal functioning entities comprising the product, e.g. hardware, software. Also an organized and disciplined approach to accomplish a task, e.g., a failure reporting system.

T - Terms and Definitions

Technical Leader

A Quality Assurance Officer that reports directly to the Quality Assurance Manager and is responsible for the following:

- Perform as Subject Matter Expert (or with the assistance of a Subject Matter Expert) and represent their respective discipline as a member of the Forensic Science Division QA Team and assist the Forensic Science Division QAM in his/her responsibilities.

- Monitor the overall QA effort of their discipline, provide advice concerning quality assurance, and keep respective Laboratory Directors and Unit Supervisors informed concerning QA matters.
- Conduct annual audits in their respective discipline.
- Identify and facilitate opportunities for employee technical development

Technical Management

The Quality Manager, Technical Leaders and Supervisors of the MSP Laboratories.

Technical Review

Review of notes, data and other supporting documents which form the basis for a scientific conclusion. This review consists of determining whether the appropriate examinations have been performed, the conclusions are consistent with the documented data and are within the scope of the discipline or sub-discipline. Also may be referred to as a 'Peer Review'.

Technical Reviewer

A person who is qualified in a specific discipline or sub-discipline that conducts a technical review in that discipline or sub-discipline.

Technical Support Personnel (Technician)

An employee who is qualified by a MSP Laboratory and who works under the direction of an examiner/analyst in conducting examinations within a particular discipline or sub-discipline.

Tender

The response to the customer request for services. This may include an automated notification.

Testing

The determination by technical or scientific means of the properties or elements of a product or its components, including functional operation, and involving the application of established scientific principles and procedures.

Tolerance

The maximum permissible error of a weight.

Toxicology (forensic science discipline)

Analysis of biological samples for the presence of drugs and other potentially toxic materials.

Trace Evidence (Materials) (forensic science discipline)

Examination and interpretation of physical evidence that may result from the transfer of small or minute quantities of materials (e.g., fibers, paint, glass)

Traceability

The ability to trace the history, application or location of a product and, in some cases, service by means of recorded identifications. Traceability may refer to: a product, a calibration and its relationship to the measuring equipment and the national or international standards, primary standards, basic physical constants, properties or references materials. Traceability requirements should be specified for some stated period of history or to some point of origin. Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties.

U - Terms and Definitions

Uncertainty Measurement

An estimate of the range of values within which a measurand is likely to be found.

- Type A Uncertainty: Type A measurements are randomly scattered and, therefore, conform to a Gaussian-shaped distribution. They are divided by the square root of the number of observations (i.e.√ 2).
- Type B Uncertainty: Type B measurements may arise due to errors in the measurement system and are evaluated by non-statistical means. They may be considered to conform to a Rectangular Distribution (defined as a measurement that has an equal chance of being any value within a given range (-a to +a)) and divided by the square root of 3 (√ 3).

Uncontrolled Document

A document that is not maintained or updated. Uncontrolled documents do not have a traceable distribution. Uncontrolled documents should be current at the time of issue and marked appropriately, at least with the words "uncontrolled".

Unique Identifier

For purposes of Administrative and Examination Documentation, the laboratory number is the unique identifier. The unique identifier for evidence includes the laboratory number and the container and/or item number.

V - Terms and Definitions

Validated

The state of being confirmed by examination and provision of objective evidence that the particular requirements for a specific intended use have been met. Validation is normally performed on the final product under defined operating conditions, and when necessary, performed in earlier production stages. Multiple validations may be carried out if there are different intended uses.

Validation

The confirmation by examination and the provision of objective evidence that the particular requirements for a specific intended use are fulfilled.

Verification

Confirmation by examination and provision of objective evidence that specified requirements have been met. In design and development, verification concerns the process of examining the results of a given activity to determine conformity with the input requirement for that activity.

Video Analysis

A subdiscipline of Digital & Multimedia evidence, which involves the examination, comparison, and/or evaluation of video.

W - Terms and Definitions

Waiver

A written authorization to release a product, which does not conform to the specified requirement. Also called concession.

Will

A word used when an element of the quality system is required.

Witness Evaluation (FSD-12 and FS-047)

A form used to document the evaluation of an employee's testimony.

Working Standard

Used routinely to calibrate or check material measures, measuring instruments or reference materials.