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Guiding Principles for

Scene Investigation and

Reconstruction

Crime Scene Investigation & Reconstruction Subcommittee
Scene Investigation Scientific Area Committee
Organization of Scientific Area Committees (OSAC) for Forensic Science



OSAC Proposed Standard

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Guiding Principles for Scene Investigation and Reconstruction

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Foreword

This standard was developed to provide guidance to scene investigators and scene reconstructionists a baseline for the guiding principles for scene investigation and reconstruction.

This document has been prepared by the Organization of Scientific Area Committees (OSAC) for Forensic Science Crime Scene Investigation and Reconstruction Subcommittee.

Keywords: *Crime scene, reconstruction, chain of custody, ethics, bias, safety, contamination, validity, reconstructionist, scene investigation*

Abstract: This document provides minimum standards and recommendations for practicing scene investigation and reconstruction. This document provides guiding principles for the identification, documentation, collection, preservation of physical evidence, and scene reconstruction.

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Guiding Principles for Scene Investigation and Reconstruction

1 Scope

This standard describes the minimum general standards of practice or guiding principles for practicing scene investigators and reconstructionists. These Guiding Principles establish a framework for expected behavior and for decision-making. These principles include legal considerations, personnel safety, scientific reliability and validity, preserving context, maintaining evidence integrity, transparency and ethics, and managing bias.

2 Normative References

There are no normative documents.

3 Terms and Definitions

For purposes of this document, the following definitions and acronyms apply.

3.1

cognitive bias

A set of influences that may affect the reliability and validity of one's observations and conclusions. [OSAC Preferred Terms]

3.2

crime scene investigation

CSI

A scene investigation that involves a potential criminal act.

3.3

crime scene investigator

CSI

An individual, however named, who is responsible for performing elements of a scene investigation that involves a potential criminal act.

3.4

crime scene reconstruction

CSR

A scene reconstruction that involves a potential criminal act.

3.5

crime scene reconstructionist

CSR

An individual, however named, who is responsible for performing elements of a scene reconstruction that involves a potential criminal act.

3.6

scene

A place or object that is subject to and/or requires forensic examination. (ISO/FDIS 21043-

1:2018[E])

NOTE A crime scene is a common description of a scene where a presumed crime has been committed. The scene can be a person or an animal.

3.7

scene investigation

An examination of a scene to locate, document, collect, and preserve items of potential evidentiary value.

3.8

scene investigator

An individual, however named, who is responsible for performing elements of scene investigation.

3.9

scene reconstruction

The utilization of information gathered from the investigative process to develop or eliminate possible explanations for how an incident occurred.

3.10

scene reconstructionist

An individual, however named, who is responsible for performing elements of scene reconstruction.

4 Guiding Principles

The goal of scene investigation is to provide information that will help criminal investigators, lawyers, and triers-of-fact ascertain what happened at a scene. The scene investigator endeavors to locate, document, collect and preserve all items of potential evidentiary value. Each scene is unique and requires scene investigators and reconstructionists to continuously evaluate how to proceed with processing in a manner that is safe and best preserves the evidence and its context. The scene investigator should take care to consider alternative hypotheses about what may have occurred, and proceed in a manner that is safe and that best preserves the evidence and context relevant to all plausible hypotheses. Thus, all decisions made by a scene investigator or reconstructionist before, during, and after a scene is processed should consider the following:

1. Legal Considerations
2. Personnel Safety
3. Scientific Reliability and Validity
4. Preserving Context
5. Maintaining Evidence Integrity
6. Transparency and Ethics
7. Managing Cognitive Bias

Scene investigation and reconstruction are led by general guiding principles. Though all the guiding principles listed in this document are important, some circumstances could require a scene investigator or reconstructionist to give greater weight to one principle over another. A decision to deviate from a guiding principle shall be documented and explained.

4.1 Legal Considerations

Scene investigators and reconstructionists shall conduct themselves with the expectation that their work may be used in every step of the legal process, and therefore shall ensure that they comply with applicable legal standards including those of search and seizure.

4.2 Personnel Safety

Scenes can present a wide variety of physical, biological, chemical, and situational hazards with a level of personal risk of injury, illness, or exposure almost always present. Personnel shall not be exposed to an unreasonable level of risk to personal safety and shall be provided with the equipment and training necessary to mitigate risks.

- a) Scene investigators and reconstructionists shall have appropriate personal protective equipment (PPE) to mitigate hazards presented by the scene and by any processing tools, equipment, or reagents used.
- b) Scene investigators and reconstructionists shall be trained in the proper use of PPE. Some forms of PPE may require fit testing or certification for safe use.
- c) PPE protocols shall include:
 - i) Hazard assessment and PPE selection.
 - ii) PPE cleaning, maintenance, decontamination, and storage.
- d) PPE considerations should include, but not limited to, protection of eyes and face, head, foot and leg, hand and arm, body (torso), respiratory system, and hearing; and protection against, falls, and drowning.

4.3 Scientific Reliability and Validity

Scene investigators and reconstructionists shall use scientifically reliable and valid methods, practices, and analytical procedures.

- a) Methods, practices and analytical procedures shall be based on best practices, peer-reviewed studies, and/or validated techniques prior to use on scenes.
- b) When applicable, methods, practices and analytical procedures published in the OSAC Registry shall be employed.¹

4.4 Preserving Context

Scene investigators and reconstructionists shall document a scene in such a way that it preserves the context of the evidence to ensure others can later understand not just what was collected, but also where, how, and in what condition it was found.

¹ <https://www.nist.gov/osac/osac-registry>

4.5 Maintaining Evidence Integrity

Scene investigators and reconstructionists shall take appropriate steps to maintain evidence integrity by preventing contamination, tampering, alteration, or loss of evidence. Procedures and documents shall be utilized to account for the integrity and possession of evidence by tracking its handling and storage from its point of collection to its final disposition.

4.6 Transparency and Ethics

The work of a scene investigator and reconstructionist generates the underlying basis for all subsequent analysis of the scene. The scene investigator and reconstructionist shall provide documentation and testimony of the scene that clearly represents its initial condition, their actions on-scene, and any other relevant factors.

- a) If an action by an investigator will intentionally deviate from, or set aside, one of the principles, the circumstances and justification shall be fully documented.
- b) Upon discovery of unintentional deviations, errors, omissions, or acts of nonconformance with the principles, the circumstances shall be fully documented and explained.
- c) While an enumerated Code of Ethics is beyond the scope of this standard, scene investigators and reconstructionists have professional duties that they are bound to and shall execute. These include, but are not limited to, the duty to:
 - i) remain competent in a wide range of scientific fields.
 - ii) be as objective as reasonably possible.
 - iii) act thoroughly and to produce results, conclusions, and testimony within the scope of the expertise of the individual practitioner.

4.7 Managing Cognitive Bias

Scene investigators and reconstructionists are uniquely positioned at the intersection of law enforcement and scientific investigations, and shall ascertain the facts, without regard to potentially biasing influences.

- a) Scene investigators and reconstructionists shall take steps to mitigate effects of cognitive biases on their work.
- b) In order to identify all relevant evidence, the scene investigator must consider various possible hypotheses about what happened and should endeavor to locate, document, collect, and preserve evidence relevant to all plausible hypotheses. The scene investigator must take care not to fixate too quickly on a particular hypothesis, as the tendency to prematurely adopt a theory of the case, and then seek confirmation for that theory, is a form of cognitive bias that can cause investigators to miss, ignore, or discount important evidence. When searching for relevant evidence, the crime scene investigator should consider both evidence that may support various hypotheses as well as evidence that might undermine or contradict those hypotheses. Both the presence and the absence of such items and traces should be documented and noted.

- c) A scene may be full of potentially biasing influences. Decisions made by scene investigators and reconstructionists depend on and require some contextual information and hypothesis formulation, which guide them in their search for evidence and/or analysis. It is critical that hypotheses are well-determined, as they can lead to identification and collection of important evidence or, alternatively, mislead the investigator.
- d) As with forensic laboratory analysis, the scene investigator and reconstructionist shall remain as independent as possible from non-scene-related and potentially biasing case information (e.g., suspect or victim criminal history).

Annex A (informative)

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- 7] U.S. Department of Labor Occupational Safety and Health Administration. *Personal Protective Equipment* [OSHA Publication 3151-12R], <https://www.osha.gov/Publications/osha3151.pdf>, 2004.
- 8] United States Department of Labor, Occupational Health and Safety Administration. *Standard 1910 Subpart I Personal Protective Equipment* [Occupational Health and Safety Standards]³

² Available free at <https://www.nist.gov/sites/default/files/documents/forensics/Crime-Scene-Investigation.pdf>

³ Available at <https://www.osha.gov/laws-regs/regulations/standardnumber/1910>