

Corrective and Improvement Actions (CIA)

NIST S 7101.27

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1. PURPOSE

This suborder establishes the requirements and associated roles and responsibilities for documenting and implementing:

- Corrective actions and abatements related to identified nonconformities² (NCs) of the NIST Occupational Health and Safety Management System (OHSMS); and
- Improvement actions identified to improve the suitability, adequacy, and effectiveness of the OHSMS.

2. BACKGROUND

As established by NIST P 7100.00, it is NIST policy to carry out all activities in a manner that protects employees, covered associates, and visitors from occupational injury and ill health due to NIST workplace hazards. To effectively carry out this Policy, NIST implemented an OHSMS as defined in NIST O 7101.00.

This suborder establishes the process to (1) develop and implement actions to address NCs to OHSMS requirements specified within NIST O 7101.00 and associated directives used to implement it and (2) identify continual improvement opportunities (collectively referenced as “occupational safety and health (OSH) issues”). This document was written to comply with the requirements of ISO 45001:2018, Clauses 10.2 and 10.3.

3. APPLICABILITY

a. The requirements of this suborder apply to planning for and implementation of:

- (1) Corrective actions and abatements required to address OSH issues identified during the course of regulatory inspections, internal and external OHSMS audits and assessments, and analyses and evaluations conducted using the process defined in NIST S 7101.13; and

¹ For revision history, see Appendix A

² This process is not intended to address isolated issues that are not found to be systemic in nature,

(2) Improvement actions identified during the same types of events and activities.

b. The requirements of this suborder do not apply to the following:

(1) Corrective actions and abatements identified through incident investigations governed by NIST S 7101.24, which shall be managed using the process defined in that Suborder;

(2) Abatement actions identified through workplace inspections conducted in accordance with NIST S 7101.26, which shall be managed using the process defined in that Suborder;

(3) Abatement actions identified through the investigation of possible unsafe working conditions governed by NIST S 7101.02, which shall be managed using the process defined in that Suborder; and

(4) Improvement actions identified during the conduct of management observations conducted in accordance with NIST S 7101.05, which shall be addressed according to OU policies or practices.

4. REFERENCES

a. ISO 45001:2018 *Occupational health and safety management systems — Requirements with guidance for use*.

5. APPLICABLE NIST OCCUPATIONAL SAFETY AND HEALTH SUBORDERS

a. NIST P 7100.00: [Occupational Safety and Health](#)

b. NIST O 7101.00: [Occupational Safety and Health Management System](#)

c. NIST S 7101.02: [Reporting of Unsafe or Unhealthful Working Conditions](#)

d. NIST S 7101.05: [Management Observation Process](#)

e. NIST S 7101.06: [Safety Culture Program](#)

f. NIST S 7101.13: *Monitoring, Measurement, Analysis and Performance Evaluation (under development)*

g. NIST S 7101.14: *Audits and Assessment Program*

- h. NIST S 7101.23: [*Safety Education and Training*](#)
- i. NIST S 7101.24: [*Incident Reporting and Investigation*](#)
- j. NIST S 7101.26: [*Workplace Inspection Program*](#)

6. REQUIREMENTS

a. General Requirements

- (1) OSH issues may be identified through a variety of processes, activities, or events, including but not limited to:
 - (a) Internal and External OHSMS Audits;
 - (b) Internal regulatory compliance evaluations;
 - (c) External regulatory inspections;
 - (d) Activities of NIST S 7101.13, including but not limited to:
 - i. Analyses of reports and data from OSH programs such as NIST S 7101.06, NIST S 7101.24, and NIST S 7101.26 (*e.g.*, trends); and
 - ii. OSH Program Assessment Reports.
- (2) Use of the corrective and improvement action (CIA) process shall be mandatory for NCs and accepted improvement opportunities identified during the activities, events, and processes identified in Section 6.a(1).
 - (a) Abatements may be necessary to address and/or mitigate immediate concerns related to any NC.
 - (b) Minor regulatory violations³ that do not result in a Notice of Violation or other official notification from a regulatory authority are exempted from this requirement.
- (3) An investigation shall be conducted for each NC identified.

³ Minor regulatory violations would generally be isolated issues and could include things like a damaged rigging strap or ladder found in service, an unlabeled chemical bottle, or a single prohibited discharge to a storm sewer.

(a) If designated by the Chief Safety Officer (CSO), a root cause analysis (RCA) shall also be conducted.

b. Documenting OHSMS NCs and Improvement Opportunities

(1) OHSMS NCs and improvement opportunities shall be identified and documented as part of the activities, events, and processes listed in Section 6.a(1).

(2) The CSO, CIA Program Manager (PM), or a qualified designee shall:

(a) Review each NC identified in the reports from the activities specified in Section 6.a.(1); and

(b) Verify the NC meets the definition of an OHSMS NC.

(3) The CSO, CIA PM, or a qualified designee shall:

(a) Review each improvement opportunity identified in the reports from the activities specified in Section 6.a.(1); and

(b) Determine if the improvement opportunity is accepted to be implemented.

(4) Individuals responsible for an activity, event, or process where a NC or improvement opportunity is identified shall record each item in the electronic Safety Event Logging System (SELS) application.

(a) A unique identifier shall be assigned to each NC and each improvement opportunity in the SELS application to facilitate tracking and reporting of subsequent activities and actions in NIST's electronic Action Tracking System (ATS) application.

c. Implementation of the CIA Process

(1) NCs - Initial Designations and Assignments

(a) The CSO shall designate whether the NC requires an investigation only or an investigation with an RCA.

(b) For each NC, the CSO, CIA PM, or designee shall assign an NC Investigator responsible for:

- i. Documenting abatement actions taken to address and/or mitigate impacts associated with the NC;
- ii. Conducting an investigation into the NC and documenting the results (and if required by Section 6.c(1)(a) an RCA shall be included);
 - (i) NC Investigators may form an investigation team at their discretion. For NCs involving OUs other than OSHE, this team will typically include representation from the impacted OU. The OU representation on the team will be coordinated between the NC Investigator and OU(s) line management.
- iii. Developing an action plan to address the NC, ensuring proposed actions address findings and any determined root causes and are designed to prevent similar issues occurring in other parts of the OHSMS and/or NIST operations and locations;
- iv. Ensuring the action plan is adequately implemented and effective within the approved time period and according to plan elements;
- v. Revising the action plan as necessary; and
- vi. Providing reports as requested on the status and accomplishment of the action plan until it is formally closed.

(c) NC Investigators will be OSHE staff who are qualified and designated as Lead Investigators under NIST 7101.24 Incident Reporting and Investigation. Exceptions to this requirement may be granted by the CSO on a case-by-case basis.

- i. For issues specific to a given OU or OUs, the NC Investigator will coordinate with the relevant OU line management to identify additional investigators from the impacted OU(s), if needed.

(2) NC Investigations

(a) The NC Investigator shall conduct an investigation, and if required, an RCA of the NC.

- i. The following shall be documented in NIST's electronic SELS application for each investigation:

- (i) A summary of the investigative approach or method (*e.g.*, 5-Whys or Fishbone);
 - (ii) A summary of the investigation findings; and
 - (iii) At least one root cause of the NC, if an RCA is required.
 - ii. Investigations shall be completed within 40 business days of the date the NC is entered into SELS.
 - (i) Extensions may be approved by the CSO or CIA PM and shall be documented.
- (3) Corrective Actions and Abatements Planning for NCs
 - (a) For each NC, the assigned NC Investigator shall document an action plan in NIST's electronic SELS application, consisting of:
 - i. One or more corrective actions as needed to eliminate the root cause (or NC if an RCA was not required) and prevent recurrence of the NC or prevent occurrence of the same or similar OSH issues elsewhere in the OHSMS and/or NIST operations; and
 - ii. Abatement actions as needed to immediately address and/or mitigate impacts of a NC.
 - (b) Corrective and abatement actions shall be developed in coordination with the line management of impacted OUs. Specifically, any corrective or abatement action developed that is specific to a given OU shall be developed in concert with that OU, to include concurrence that the proposed action(s) and assignee(s)/verifier(s) are appropriate. Assignees must have the authority and resources to implement actions assigned and verifiers should be in the chain of command of the assignee.
 - (c) Each corrective action or abatement shall include:
 - i. A description of each specific action, including interim actions as needed;
 - ii. Planned or actual completion dates for each action.

- (i) For actions expected to take more than 30 business days to complete, a plan shall be included, documenting milestones and associated completion dates;

- iii. Identification of the individual assigned to implement or facilitate each action through its completion (“Assignee”); and

- iv. For corrective actions only, identification of an individual in line management responsible for verifying the action is complete (“Verifier”). The Verifier for a given action cannot be the Assignee.

(4) Improvement Actions - Initial Designation and Assignment

- (a) For each improvement action, the CSO, CIA PM, or designee will assign an Improvement Action Owner who will be responsible for:

- i. Determining whether an action plan is needed;
- ii. If appropriate, developing an action plan to address the opportunity; and
- iii. If appropriate, ensuring proposed actions are designed to address similar issues that may occur in other parts of the OHSMS and/or NIST operations and locations.

- (b) Improvement Action Owners shall be OSHE staff members. Exceptions may be granted by the CSO on a case-by-case basis.

(5) Improvement Actions Planning

- (a) For each improvement opportunity, the assigned Improvement Action Owner shall document an action plan in NIST’s electronic SELS application, consisting of one or more improvement actions to implement the improvement opportunity. Any improvement action developed that is specific to a given OU shall be developed in concert with OU line management, to include concurrence that the proposed action(s) and assignee(s) are appropriate. Assignees must have the authority and resources to implement actions assigned and verifiers should be in the chain of command of the assignee.

(b) Each improvement action shall include:

- i. A description of each specific action, including interim actions as needed;
- ii. Planned or actual completion dates for each action.
 - (i) For actions expected to take more than 30 business days to complete, a plan shall be included, documenting milestones and associated completion dates;
- iii. Identification of the individual assigned to implement or facilitate each action through its completion (“Assignee”); and
- iv. Identification of an individual in line management responsible for verifying the action is complete (“Verifier”). The Verifier for a given action cannot be the Assignee.

(6) Action Plan Evaluations and Approvals

(a) The CSO, CIA PM, or qualified designee shall evaluate and approve all action plans within seven calendar days of submittal.

- i. Approvals shall be documented in NIST’s electronic SELS application.
- ii. The review shall assess the potential for the proposed actions to address risks and opportunities, to eliminate or mitigate specific hazards, and otherwise enhance the SMS.

(b) The Executive Safety Committee shall be informed of the action plan(s) as part of management review.

(7) Action Plan Implementation and Management

(a) NC Investigators and Improvement Action Owners shall monitor the progress of action plan activities to help ensure timely completion that positively advances safety at NIST.

- i. If revisions that materially impact any of the corrective or improvement actions are needed (*e.g.*, revisions of the specific actions to be taken, deadline

extensions), the NC Investigator/Improvement Action Owner shall document proposed revisions in NIST's electronic SELS application.

ii. The CSO, CIA PM, or a qualified designee shall review and approve proposed action plan revisions prior to their implementation.

iii. NC Investigators/Improvement Action Owners shall document approved revisions in NIST's electronic SELS application.

(b) Assignees shall use NIST's electronic ATS application to document the implementation of each corrective action, abatement, or improvement action they are assigned.

i. Until such time that an action time is completed, it's status shall be maintained as "Open".

ii. If the action has been fully addressed according to the approved action plan (including approved revisions), the Assignee shall designate its status to be "Implemented".

(c) After notification that a corrective action has been "Implemented", Verifiers shall review each action they are responsible for overseeing.

i. If the action is fully implemented and determined effective, the Verifier shall designate its status to be "Closed".

ii. If actions are determined to be incomplete or ineffective, the Verifier shall notify the NC Investigator/Improvement Action Owner and Assignee, return the action to the Assignee in an "Open" status, and provide details necessary to complete implementation.

(d) NC Investigators/Improvement Action Owners shall certify completion of the action plan once all planned, approved corrective actions are "Closed" by Verifiers.

i. If all actions are "Closed", the action plan status shall be designated as "Complete".

ii. If all actions are not "Closed", the action plan status shall remain "Open".

(e) The CSO shall have the authority to review each completed action plan and request additional actions if they deem it necessary to prevent recurrence/occurrence of an associated NC.

i. If additional action(s) are requested, the action plan shall be reopened and the new action(s) documented, assigned, and processed per the steps identified above.

d. Records Required by this Suborder

(1) NIST's electronic SELS and ATS applications shall be maintained to provide a record of each NC and improvement opportunity, associated reviews, revisions, and investigation results, and completed action plans. These records shall be maintained indefinitely.

(2) Metrics required by this Suborder per Section 6.e.

e. Monitoring and Reporting

(1) The CIA PM shall maintain the following metrics, by fiscal year:

(a) Number of NCs and Improvement Opportunities reported;

(b) Recurrences of NCs; and

(c) For corrective actions, abatements, and improvement actions:

i. Number identified;

ii. Number completed;

iii. Percent completed on time; and

iv. Number of overdue items.

(2) The CIA PM shall provide a quarterly summary of program activity to the CSO and an annual summary to the Executive Safety Committee.

(3) The CSO shall provide a summary of CIA Program metrics to the NIST Executive Board during OHSMS Management Reviews, including a summary of specific overdue corrective actions.

f. Training

(1) Training shall be conducted and recorded in accordance with the requirements of the NIST S 7101.23.

(2) NIST staff who function as NC Investigators or Improvement Action Owners shall receive general training on the requirements of this Suborder as a baseline for learning the process.

(3) NC Investigators who are required to conduct investigations/root cause analyses shall complete prior training on investigation principles and methods.

NOTE: This training can be provided by OSHE (course NIST S 7101.24: *Incident Investigation - Principles and Methods*) or an equivalent training provided by an external provider.

(4) Safety issues identified and the corrective actions implemented to address them shall be incorporated into “lessons learned” materials for use in NIST safety training and other safety communications.

7. DEFINITIONS

Definitions common to all NIST OSH suborders can be found in Section 6 of NIST O 7101.00. The definitions specific to this suborder are as follows:

a. Abatement – Actions taken to immediately address and/or mitigate impacts of a NC that support gaining control over the conditions, processes, and/or operations, and that address near-term impacts to workers including moving them away from the site of the nonconforming situations.

b. Corrective Action – Action taken to eliminate the cause(s) of an OHSMS NC.

c. Deficiency – A deviation from established requirements.

NOTE: A deficiency may be an unsafe or unhealthful working condition if it presents a hazard (e.g., unguarded pinch point) or an administrative deficiency if it does not (e.g., missing "emergency contact" sticker on telephone).

d. Material Revision – Any revision to an action plan that directly impacts an action to be taken or the timeframe in which it will be completed.

- e. Nonconformity – Systemic non-fulfillment of any requirement of the NIST OHSMS. This can include deviations from a Suborder requirement, safety standard, practice, procedure, legal requirement, or applicable regulation. This term can be used interchangeably with “nonconformance”.
- f. Improvement Opportunity – Identified opportunity to improve the suitability, adequacy and/or effectiveness of the OHSMS.

8. ACRONYMS

Acronyms common to all NIST OSH suborders can be found in Section 7 of NIST O 7101.00. The acronyms specific to this suborder are as follows:

- a. ATS – Action Tracking System
- b. CIA – Corrective and Improvement Action Program
- c. CSO – Chief Safety Officer
- d. NIST – National Institute of Standards and Technology
- e. NC – Nonconformity
- f. OSHE – NIST Office of Safety, Health, and Environment
- g. OHSMS – NIST Occupational Health and Safety Management System
- h. PM – Program Manager
- i. RCA – Root Cause Analysis
- j. SELS – Safety Event Logging System

9. RESPONSIBILITIES

Roles and responsibilities common to all NIST OSH suborders can be found in Section 8 of NIST O 7101.00. The roles and responsibilities specific to this suborder are as follows:

- a. NIST CSO is responsible for overall implementation of this Suborder, including carrying out specific duties established herein and maintaining the SELS and ATS applications.

b. OU Directors are responsible for:

(1) Ensuring effective participation in investigations as needed; and

(2) Ensuring corrective or improvement actions assigned to their OU are completed and are effective.

c. CIA PM is responsible for:

(1) Maintaining this Program and providing implementation guidance as needed;

(2) Carrying out duties as established in this Suborder.

d. NC Investigators are responsible for the following for each NC or they are assigned to address:

(1) Conducting and documenting a thorough investigation, and if required an RCA;

(2) Developing and documenting an action plan designed to prevent recurrence of a NC, and revising as necessary;

(3) Monitoring action plans to ensure timely, adequate, and effective completion;

(4) Maintaining case specific information in NIST's electronic SELS and ATS applications; and

(5) Certifying completion of action plans.

e. Improvement Action Owners are responsible for the following for each improvement opportunity they are assigned to address:

(1) Developing and documenting an action plan designed to implement an improvement opportunity, and revising as necessary;

(2) Monitoring action plans to ensure timely, adequate, and effective completion;

(3) Maintaining case specific information in NIST's electronic SELS and ATS applications; and

(4) Certifying completion of action plans.

- f. Assignees are responsible for implementing and documenting corrective actions, improvement actions, and abatements as assigned.
- g. Verifiers are responsible for reviewing and certifying implementation of corrective and improvement actions as assigned, and documenting completion.

10. AUTHORITIES

There are no authorities specific to this suborder alone. For authorities applicable to all NIST OSH suborders, see section 9 of NIST O 7101.00.

11. DIRECTIVE OWNER

Chief Safety Officer

12. APPENDICES

A. Revision History

Appendix A. Revision History

Version No.	Approval Date	Effective Date	Brief Description of Change; Rationale
Ver. 1	06/06/2025	06/06/2025	<ul style="list-style-type: none">• None – Initial document