Health & Safety Standard

Document Title:	Dropped Object Prevention Standard
Approver:	
Document Owner:	
COIMS Element:	9 Safe control of work
Document Number:	0003-000115
Review Cycle (years):	3
Issued Date:	September 26, 2024
Reissue Date:	October 22, 2025
Effective Date:	December 31, 2026

Version	Description
1.30	Added clarification on hardhat securement

For interim version details see section 5 Revision history.

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1 Purpose

This standard defines Cenovus dropped object prevention requirements, and provides the operational framework to identify and eliminate or mitigate the potential risks associated with dropped objects.

2 Application

This standard applies to all staff and suppliers performing work at a Cenovus site, covering all work activities with the potential to expose workers to dropped objects. Any site level or supplier programs shall meet or exceed the minimum requirements outlined in this standard.

3 Requirements

Entities shall eliminate the risk or implement controls to reduce the potential for dropped objects, in accordance with the hierarchy of controls shown in the Risk Management standard.

3.1 Introduction

3.1.1 Dropped object definition

A dropped object (also referred to as “drop” or “drops”) is any item that falls from its previous position. This covers all items, materials, or objects of any mass/density. If an object falls from height and either causes or has the potential to cause an injury, asset damage, or a spill or release, it shall be reported, and the incident management process shall be followed.

Cenovus employs a system of safeguards designed to prevent or minimize serious incidents, this concept is known as the “capacity to fail safely.”

When an incident involving a dropped object occurs, the investigation will assess the effectiveness of the existing safeguards to determine the incident’s significance classification. If the investigation has determined the system of safeguards has proven to be effective, the incident shall not be classified as a potential serious injury or fatality (PSIF).

When a dropped object deflects from or contacts objects (pipes, etc.) enroute to grade, the potential consequence of the dropped object is always measured from the initial drop point.

3.1.2 Dropped object classifications

Dropped objects are classified as either:

- static – any dropped object whose failure may be attributed to gravitational or natural forces, i.e., without an applied force, unsecured items, or failure of fixings
- dynamic – any object that falls from its previous fixed position due to the application of applied forces, i.e., from the impact of equipment, severe weather, manual handling

3.2 Training

Drops awareness training shall be completed by all personnel identified by the entity who are:

- working at heights,

- performing hands-on tasks with potential exposure to risks from dropped objects

Training can be accessed through both the internal and external Learning Management Systems.

3.3 Engineering design and equipment selection

Design of equipment to eliminate dropped object exposures should be considered in the process of equipment selection. Exposure is eliminated by minimizing the number of parts utilized in design, encapsulating parts within the assembly where possible, and incorporating recognized secondary retention methodology (see section 3.6.1.2). Equipment and equipment systems are easily accessed to perform maintenance and inspections, and critical components are easily assessed to complete condition-based monitoring. Design considerations include but are not limited to:

- equipment system interaction and anti-collision measures, e.g., anti 2 block system, anti-collision sensors, etc.
- inherent reliable securing
- safety factors of equipment and reliable securing methods
- effects of corrosion
- limiting equipment mass where feasible

3.4 Hazard and risk assessment

As part of the scope of work and field-level hazard assessment process, personnel shall assess the risk of potential dropped objects in alignment with the Safe Control of Work standard.

Before starting work, consider the potential for applied and ambient dropped object hazards. Even if the scope of work does not involve working at heights, evaluate the worksite and surrounding activities to:

- conduct a visual inspection of the area to identify pre-existing dropped object hazards
- verify the proper securement of all equipment and structures in the vicinity, including fastenings, bolts, covers, panels, hatches, removable guardrails, etc.

Any affected workers shall be included in the hazard assessment process and fully participate in identifying, assessing, eliminating, or controlling the hazards.

Scopes of work shall be risk-ranked by utilizing the Dropped Object Calculator and the Cenovus Risk Matrix or supplier equivalent. The Dropped Object Calculator includes a list of all additional information for how to use the calculator.

3.5 Dropped object potential

Identifying potential dropped objects is crucial for assessing the associated risks and implementing control and mitigation measures. This shall be accomplished through a variety of pre-work planning activities and prevention programs.

3.5.1 Planning

When preparing a scope of work whereby the hazard identification process has identified the potential for dropped objects to occur, the tools and activities in Table 1 shall be used to mitigate the risks of dropped objects. Any tools or checklists completed during planning activities shall be made available to workers performing the scope of work.

Table 1: Dropped object planning tools

Tools	Descriptions
Pre-job planning checklist	• standardized checklist used to identify risks and hazards associated with potential dropped objects
Equipment and structure reliable securing guideline	• permanent, temporary, or third-party equipment that is not an integral (welded) part of the structure on which it is mounted, shall be assessed for proper securing methods based on Reliable Securing best practices
Drops calculator	• used to determine the potential severity of dropped objects • the potential outcome is always measured from the initial height from which the object fell to grade level • used during work planning/risk assessment to determine potential severity rating, and in reporting processes to determine potential outcome of an actual dropped object incident • measure to solid deck/ground level; do not subtract the height of an individual, or measure to the height of an individual • may also be utilized during design and manufacture to address requirements for positioning, fixtures, and fittings for items to be secured at height
Dropped object exclusion zone tool	• used to predict the horizontal distance (radius) and associated probability where a dropped object will strike the ground following a static drop and deflection

3.5.2 Prevention programs

The programs in Table 2 assist with dropped objects prevention and control. Entities shall utilize the following programs as part of their routine maintenance and operational activities as defined by their program.

Table 2: Programs to assist in the prevention of dropped objects

Programs	Descriptions
Equipment and structural integrity program	• entities shall have a reliability and integrity program to verify the integrity of their equipment and structures as they pertain to dropped object risks • e.g., light fixtures, valves, monitors, fireproofing material, etc.
Winterization program	• entities shall inspect and maintain facilities to prevent the buildup of overhead snow/ice hazards • mitigations and controls shall be put in place where overhead snow/ice hazards are found

3.5.3 Cranes, hoisting, and lifting

Lifting activities such as the use of cranes, hoists, rigging, etc. can create opportunities for potential dropped objects. The Cranes, Hoists, and Lifting standard sets requirements to manage risk associated with performing lifts with cranes, hoists, and rigging.

3.6 Safeguarding against dropped objects

When a potential for dropped object has been identified, safeguards shall be implemented in alignment with the hierarchy of controls. If there is a potential for objects to fall at heights due to dynamic forces such as gravity, motion, etc., additional measures shall be taken to ensure securement.

When dropped object potential is identified during the planning stage, the securement methods expected to be in place shall be communicated to the workers involved in the work. Workers must ensure the object is secure prior to work commencing, and supervision must verify the effectiveness during execution.

Additionally, mitigating controls shall be implemented to reduce the consequences of a dropped object in case preventive measures fail.

3.6.1 Reliable securing methods

In the absence of original equipment manufacturer (OEM) recommendations for securing, Reliable Securing best practices are recommended to be used to mitigate and control identified PSIF risks associated with dropped objects.

3.6.1.1 Primary fixing

Primary fixing refers to the method of installing, mounting, and securing an item to prevent it from falling. This includes bolted connections, screws, pins, buckles, clips, welds, and other methods that mate or unite surfaces.

In dynamic operations and working environments, flexing, vibration, shock loading, and thermal cycling can cause disengagement, fatigue, and failure. Therefore, the use of a reliable secondary retention method should be used.

3.6.1.2 Secondary retention

Secondary retention is the engineered method to secure the primary fixing, and prevent loss of clamping force or displacement of fastening components, such as locking washers, locking wire, split/cotter pins, etc.

Equipment installed at heights or in areas where objects could potentially drop to lower levels should integrate secondary retention wherever possible. In cases where integration isn't feasible or when the equipment faces collision risks, additional safety securing measures are required.

After applying the appropriate torque to a bolt connection, workers should use a paint marker to mark the position of the bolt head relative to its counterpart. This allows periodic quick visual inspection of the bolt connection. Matching the marks also enables visual inspection of securement methods without other visual checks for connection integrity. This marking approach applies to non-through bolted connections.

3.6.1.3 Safety securing

Safety securing is a mechanism selected to restrain an item or its components from falling in case the primary fixing fails. This includes rated steel or synthetic nets, lanyards, baskets, chains, slings, etc.

Some equipment items may feature “keeper wires” to prevent smaller components such as pins from being dropped during assembly or removal.

3.6.1.3.1 Portable Tools & Equipment Restraint System

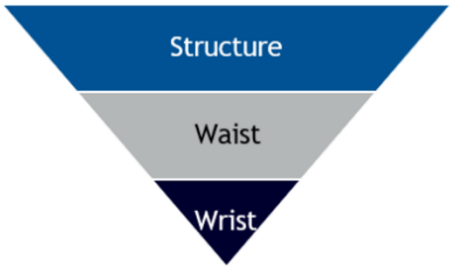
To prevent dropped objects from occurring while working at heights, all tooling that has the potential to fall to a lower level shall be securely attached using an approved lanyard system to one of the following:

- a designated tool bag
- the waist/wrist of the person
- a secure point on the structure

The following tool tethering criteria applies:

- tools with removable attachments, e.g., ratchets with sockets, shall have a positive-locking system to prevent dropped objects
- lanyards, tethers, carabiners, tethering tape, and/or shackles used for tethering shall be adequately rated to support the weight of the object, used according to manufacturer specification, and prevent dropping if released during work at heights
- carabiners or snap hook-type connectors utilized for securing portable tools and equipment shall have locking gates and captive eyes

- radios & gas detectors, shall be secured when working at heights
- hardhats must be secured by the wearer using a chinstrap, tether, or engaged earmuffs in the following situations:
    - when working at heights of 40 feet or more
    - when a dropped hardhat could generate more than 40 joules of impact energy
    - when there is a significant risk that a dropped hardhat could cause injury to workers below



Tether attachment points should follow the hierarchy depicted at left, where attachment to structures is preferred and attachment to the worker's body is less desirable.

When tools are anchored to a worker's body, maintain the weight below approximately 2 kg (4.4 lbs) so if the tool is dropped it does not harm or destabilize the worker. Ideally, tethering should be attached to the worker's harness with a carabiner to minimize entanglement hazards.

Figure 1: Tether attachment point hierarchy

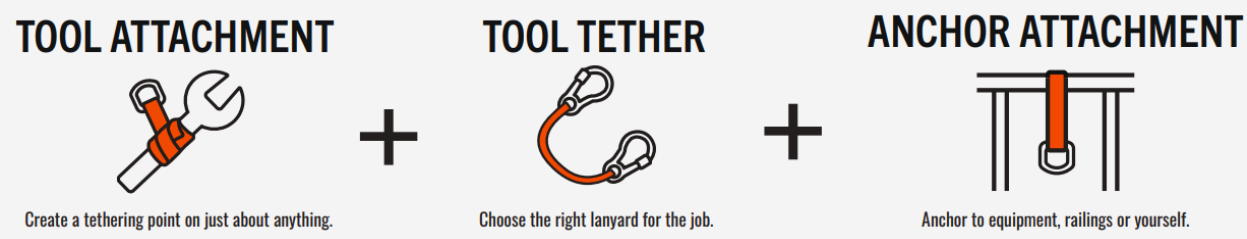


Figure 2: Tool fall prevention system

3.6.1.3.2 Passive Drop System

Passive drop systems are utilized to prevent damage from a dropped or falling object after it has fallen. These may include systems such as:

- debris netting
- safety nets/mesh
- drop safe barrier
- certified carrying pouches
- catch platforms/bulkheads
- toe boards
- safety blankets
- plywood decking

When the tool and equipment restraint system is insufficient to mitigate the risk to an acceptable level, passive drop systems shall be utilized strategically when working on scaffolds, permanent platforms with handrails, stairs, grating, in confined spaces, and any other work associated with heights or with concurrent or SIMOPS scopes.

3.6.1.3.3 Mobile Elevated Work Platforms

Mobile elevated work platforms shall always be equipped with toe boards, with additional measures such as protective screens around the platform rails required when performing SIMOPS or over/under work.

Protective screens should be inspected both prior to use and on completion of the task for any openings, gaps or damage that may affect the integrity of the screen. The protective screen shall be affixed to prevent objects from slipping through, such as at the top or at the base. Additionally, it must be fit for purpose to not create any unacceptable risk. Reliable Securing provides additional guidance on mobile elevated work platforms.

3.6.2 Exclusion Zones

An exclusion zone shall be established whenever an area is identified as having potential for dropped objects. Exclusion zones are considered the last line of defense and shall not be relied upon as the sole safeguard in preventing dropped objects. A minimum of two independent safeguards must always be maintained to effectively prevent dropped object incidents.

Cenovus recognizes two types of exclusion zones pertaining to dropped objects found in Table 3. An exclusion zone requires ongoing monitoring and verification of effectiveness.

Table 3: Exclusion zones

Zone	Description
No-entry (no-go)	• an area where dropped object potential has been recognized, with moving equipment present, and/or with personnel working at heights • personnel are not permitted while the hazard is present or active • no-entry zones are identified in the permit-to-work • unauthorized access is controlled using barricades, red flagging (chains, tape, etc.), and signage
Restricted access	• an area where dropped object potential has been recognized • restricted access areas are identified within the permit-to-work • authorized entrants are limited to the personnel needed to perform the work • physical barricades, yellow flagging (chains, tape, etc.), and signage shall clearly identify the covered area and the specific risk of the zone

3.7 Monitoring and review

Performing verification activities is vital to ensuring the risks associated with dropped objects are controlled and mitigated. On-going reviews of the effectiveness of control measures is necessary as part of a successful dropped objects prevention program. Corrective actions shall be entered into Intelex and tracked to completion.

Examples of verification activities include but are not limited to:

- dropped object inspection:
  - shall be performed following any event which may cause a change in the structure or securing of equipment at height, e.g., excessive vibration, impact, or a severe storm
  - conduct worksite field verifications at regular frequencies to eliminate or mitigate dropped objects exposure risks
  - periodic review of inspection results to determine systemic trends
  - implement action plans to address negative trends
- on-going equipment and structural integrity inspections

4 References

Table 4: Internal governing references

Document title or link	Relevance
Safe Control of Work Standard	COIMS Standard - COIMS-000006
Cranes, Hoists, and Lifting Standard	Health and Safety Standard - 0003-000055
Incident Management Process	COIMS Process - COIMS-000013
Cenovus Risk Matrix	
Exemption and Deviation Process	Health and Safety Process - 0003-000110
Risk Management Standard	COIMS Standard - COIMS-000003
Cenovus Supplier Policies	

Table 5: Other references

Document title or link	Relevance
Recommended Practice Rev 02 › DROPS Online	DROPS Online recommended practices
Energy Safety Canada - ESC	Energy Safety Canada dropped objects
DROPS Reliable Securing	DROPS Online Reliable Securing
DROPS Online Resources	Drops Online Resource Page

5 Revision history

Table 6: Revision history

Version	Date	Description
1.00	September 26, 2024	Issued for use
1.10	January 13, 2025	Updates to: • 3.6.1 reliable securing methods changed from required to recommended in the absence of OEM recommendations for securing • 3.6.2 exclusion zones shall be used anytime there is an area where dropped object potential has been recognized • 3.6.1.3.1 hard hat tethering requirements updated to 40ft • 3.6.1.3.3 mobile elevated work platform netting requirements updated to when SIMOPS or over/under work are being performed
1.20	September 10, 2025	Updates to tool tethering requirements and exclusion zone requirements
1.30	October 22, 2025	Added clarification on hardhat securement