

Health and Safety Standard

PLANNING FOR LOAD HANDLING

1 PURPOSE

This standard establishes the requirements for safe load handling activities to reduce the frequency and severity of incidents. The purpose is to protect personnel from injury, the environment from harm, and equipment and property from damage.

2 SCOPE

The scope of this standard is the formation of considerations for planning, resourcing and executing load handling activities following the seven step process to establish safe and efficient load handling.

This standard applies to all load handling activities performed by workers on behalf of SaskPower.

This standard is not a comprehensive technical set of load handling procedures rather it identifies the essential principles and requirements for planning of load handling activities.

This standard excludes load handling activities using the following equipment:

- Elevators, fixed personnel lifts or medical lifts;
- Powered mobile equipment being used for excavation or pile driving activities;
- Bulk material handling equipment (e.g. conveyors, concrete pumpers, augers, pipelines, pumps, draglines, etc.);
- Engineered systems related to water conveyance structures (e.g. intake gates, spillway gates, etc.);
- Automated and or robotic material handling systems; and
- Aeroplanes.

This standard outlines the minimum requirements that shall be met or exceeded. Failure to comply may result in injuries, damage to equipment and property, environmental harm, performance management or any combination thereof.

The use of the word “shall” within this standard denotes a mandatory action, whereas the use of the word “should” or “may” denotes a recommended action.

3 DEFINITIONS

The following definitions apply to this standard:

Aerodromes - Any area of land, water (including the frozen surface thereof) or other supporting surface used or designed, prepared, equipped or set apart for use either in whole or in part for the arrival, departure, movement or servicing of aircraft and includes any buildings, installations and equipment situated thereon or associated therewith.

Note: This definition of "Aerodrome" includes water aerodrome and heliports.

Competent - possessing knowledge, experience and training to perform a specific duty.

Fall Zone - The area (including, but not limited to, the area directly beneath the load) in which it is reasonably foreseeable that the load when partially or completely suspended/elevated could fall in the event of a mishap.

Lift - Execution of the load handling activity.

Lifting - See Load Handling.

Lifting Accessories - Devices intended to be used directly or indirectly to connect the load to the load handling equipment and is not part of either the load or the load handling equipment, including rigging.

Lift Plan - Information, written or verbal, that, at a minimum, details how the load handling shall be undertaken, identifies the equipment to be used, how the load and lifting accessories shall be rigged up and the control measures to be implemented to manage risks.

Load - Object to be hoisted; may include materials, tools, equipment or workers with their accompanying tools and equipment.

Load Handling - Lifting a load vertically and or moving of a load horizontally or manipulating its configuration while in an elevated state using mechanical devices.

Load Handling Equipment - Mechanical device designed to move a load vertically, horizontally or otherwise manipulate the load.

4 REQUIREMENTS

Due to the inherent risks of load handling, the following seven step process shall be employed to establish safe load handling.

1. Define scope of the lift
2. Assess and categorize the lift (standard or critical)
3. Develop a lift plan (written or verbal)
4. Conduct a pre-lift review
5. Conduct preparations for the lift
6. Execute the lift
7. Conduct a post-lift review

4.1 DEFINE SCOPE OF THE LIFT

The first step is the determination of the scope of the load handling activity. Effective planning cannot be performed without the knowledge of details regarding, at a minimum, the:

- Load;
- Travel path
- Work site layout;
- Work site ground conditions; and
- Type and rated capacity of Load handling equipment (LHE) proposed.

4.2 ASSESS AND CATEGORIZE THE LIFT

An evaluation of the proposed load handling activity shall be performed to determine the classification of the lift and degree of associated risks that may adversely impact safety and operations. The classification assessment takes into consideration such categories as:

- Potential hazards to persons;
- Hazards in proximity to work area;
- Complexity of load handling activity;
- Adverse impact from environmental conditions;
- LHE capacity and or performance; and

- Adverse commercial impact.

All lifts shall be classified using the [Lift Classification Reference Guide](#). Each lift shall be classified as either standard or critical prior to performing the lift.

4.3 DEVELOP A LIFT PLAN

All load handling activities shall be planned and have a lift plan. The determination of a written or verbal lift plan shall be based on the [Determination of Written or Verbal Lift Plan Process](#).

The lift shall be planned and performed in such a manner that, if a failure occurs, exposure to people and critical equipment from the hoisted load should be minimized.

4.3.1 LIFT PLAN REQUIREMENTS

Every lift plan, regardless of lift classification, shall include (at a minimum):

- Scope of work (lift);
- Classification of lift;
- Information about the load, LHE, lifting accessories, and travel path;
- Site/Environmental conditions;
- Role assignments;
- Communication means;
- Site controls;
- Contingency plans; and
- Emergency response.

Confirm as part of the Site/Environmental conditions that the planned load handling activity will not compromise operational airspace in the vicinity of aerodromes thus impacting aeronautical safety and ultimately public safety. The following document may assist in assessing potential interference with airspace: *Guidance in Determining Potential Interference with Aeronautical Safety*.

The following roles and responsibilities shall be included in every lift plan:

- *Lift Planner* – responsible for developing the lift plan;
- *Lift Director (Person in Charge)* – responsible for verifying the category of the load handling activity and reviewing and implementing the lift plan;

- *LHE Operator* – responsible for directly controlling the LHE’s functions and fulfills the role of *designated operator* or *trained operator* for applicable LHE as per *The Occupational Health and Safety Regulations, 2020*; and
- *Site Supervisor* – responsible for overseeing the work site on which the LHE is used and the work that is performed on the site.

Multiple roles may be performed by the same individual or entity at the same time given the roles do not conflict and doing so will not negatively impact the safety of the load handling activity.

Where one work site has multiple crews working in close proximity or the separate work activities of one or more crews may impact other crews the Site Supervisor should be a distinct individual from the Lift Director.

The following additional roles and responsibilities may be identified in the lift plan:

- *Rigger* – responsible for performing rigging tasks associated with the load handling activity;
- *Signalperson* – responsible for directing the movements of the LHE by providing signal commands to the LHE Operator and fulfills the role of *designated signaller* as per *The Occupational Health and Safety Regulations, 2020*;
- *Spotter* – responsible for observing and reporting as directed on the movement of the LHE and the load;
- *Assembly/Disassembly Director* – responsible for directing the assembly/disassembly (erect/dismantle) of the LHE;
- *Engineer* – responsible for providing any required engineering documentation and support for the load handling activity; and
- *Transport Operator* – responsible for the operation of transport equipment used in support of the load handling activity.

For lifts that utilize lifting accessories the role of Rigger shall be a mandatory role.

If the LHE Operator does not have a clear line of sight throughout the entire travel path then a Signalperson shall be a mandatory role.

4.3.2 STANDARD LIFT PLANS

Standard lifts shall have lift plans developed in accordance with *Section 4.3.1 – Lift Plan Requirements* which may be verbal or written depending upon the [Determination of Written or Verbal Lift Plan Process](#).

The Lift Director shall ensure all components listed in *Section 4.3.1 - Lift Plan Requirements* are documented to form the written lift plan.

To assist in developing written lift plans, workers may use a lift plan template. Generic lift plan templates ([pdf](#) or word formats) are available for use though not mandatory.

4.3.3 CRITICAL LIFT PLANS

All lifts classified as critical lifts shall have written lift plans prior to executing the lift. Critical Lift Plans shall include at a minimum the components identified in *Section 4.3.1 - Lift Plan Requirements*.

Planning for critical lifts requires additional rigor, detail and consideration beyond that employed for standard lifts. The extent of planning for critical lifts should be scaled according to the level of risk and to the degree of complexity of the load handling activity. If the degree of complexity of a proposed load handling activity requires the application of engineering principles to sufficiently mitigate the associated risks to persons, environment, equipment or property, a lift plan shall be reviewed and certified by a professional engineer.

A Critical Lift Plan should consist of drawings, specifications and procedures necessary to accurately inform workers of all important load and site factors relating to the load handling activity. Calculations, elevation drawings, plan view drawings, rigging configuration, lift analysis and work procedures are some examples of additional documentation that may be part of a critical lift plan.

Test lifts with a test weight shall be part of the Critical Lift Plan when the load handling activity includes hoisting personnel with LHE that is not primarily designed to lift personnel.

Critical Lift Plans shall be reviewed by a competent worker, in addition to the Lift Planner, prior to being issued to the Lift Director for implementation.

4.4 CONDUCT A PRE-LIFT REVIEW

It shall be the responsibility of the Lift Director to lead a discussion (pre-lift review) among the load handling workers prior to conducting preparations for the lift.

The purpose of the pre-lift review is to ensure all load handling personnel are aware of the lift plan, the associated hazards, barriers to be implemented, and their roles and responsibilities associated to the load handling activity.

The pre-lift review shall include (at a minimum):

- A review of the lift plan;
- Assessment of the site/environmental conditions (includes such conditions as weather, ground/surface, lighting, clearances and proximity to surrounding activities);
- Determination if changes are required to the lift plan due to site survey, weather conditions and or new information;
- Assignment of roles and responsibilities for lift preparations and executing the lift;
- Completion of a Hazard/Aspect and Risk Assessment (HARA); and
- For repetitive lifts, determination of the frequency of pre-lift reviews and LHE/lifting accessories inspections.

If the pre-lift review identifies that changes are required to the lift plan, the changes shall be communicated to all load handling personnel and documented if a written lift plan is in use. Additionally, the changes shall be assessed to ensure that they have not created new hazards/aspects or have increased the risk beyond an acceptable level.

At the conclusion of the discussion, the Lift Director should confirm that workers understand the lift plan and their roles and responsibilities associated to the load handling activity.

4.5 CONDUCT PREPARATIONS FOR THE LIFT

The following activities shall be conducted as part of the lift preparations:

- Implement site controls;
- Conduct preoperational inspections;
- Inspect load;
- Test communication means; and
- Verify the functionality of safety devices.

Additional activities such as, but not limited to, assembling LHE, setup of LHE, configuring lifting accessories and conducting a test lift may become part of the lift preparations dependant on the scope of the load handling activity.

The implementation of site control measures shall be as per the lift plan. The purpose of site control is to ensure only essential personnel are allowed within the fall zone and a means of egress is provided for all workers within the fall zone. Ensure all non-

essential workers and public are removed from the fall zone prior to operating equipment.

Preoperational inspections shall be conducted on the load including the lifting point(s), LHE, lifting accessories and any other tools or equipment to be used during the lift. Inspections shall ensure, at a minimum that the LHE and lifting accessories are of adequate capacity for the load handling activity, deemed safe for use and meet all inspection and maintenance requirements.

Preoperational inspections shall include both visual and operational checks, when applicable, and should be conducted in accordance with manufacturers' recommendations. The inspection shall be recorded as per the requirements outlined in the Load Handling Equipment Record Keeping Standard.

The integrity and stability of the load shall be verified before lifting and the weight of the load shall not exceed the dynamic or static capacities of the LHE. The lifting points on the load shall be verified that they are designed and constructed for lifting the load in the manner intended in the lift plan. The load shall be interfaced with the LHE in such a manner as to ensure that the load stays balanced throughout the lift.

An effective means of communication shall be selected, and be understood and agreed upon by the load handling personnel. Prior to executing the lift, the communications method shall be tested; this may include a functional check (i.e. when using radios) and a review of the hand or word commands to be utilized to ensure understanding by the load handling personnel.

It shall be confirmed that the LHE and lifting accessories are outfitted with appropriate safety devices and, if possible, the safety devices' functionality shall be tested to ensure its effectiveness.

Test lifts with a test weight shall be performed prior to hoisting personnel with LHE that is not primarily designed to lift personnel. A test lift, without a load or with a mock-up load, should be carried out where clearance is limited or other hazards increase the complexity of the lift.

Any concerns or deviations from the lift plan that may impact the safety of the lift shall be communicated to the Lift Director.

4.6 EXECUTE THE LIFT

The load handling activity shall only commence after:

- The lift plan has been reviewed with all workers involved;
- The HARA has been conducted for the activity with all workers involved; and

- The Lift Director has confirmed that all preparations (including inspections of the load, LHE and lifting accessories) have been satisfactorily conducted.

Immediately prior to executing the lift, the Lift Director should determine that:

- The lift can proceed according to the lift plan; or
- A deviation exists and the lift shall not be initiated until the issues are resolved.

The LHE Operator shall obey a stop signal at all times regardless of who gives the signal. If the load handling activity is stopped for any reason, only the Lift Director shall initiate a restart.

In the event that it becomes necessary to deviate from the lift plan, the lift shall be stopped, re-evaluated and the lift plan revised. The lift shall not be restarted until the changes are communicated to all affected load handling personnel and if a written lift plan is required the changes shall be documented before resuming the lift.

If the lift is stopped prior to completion the load and LHE should be secured until the lift is re-initiated by the Lift Director.

Additional rigor, regardless of lift classification, shall be applied by all involved in load handling activities when the load is comprised of personnel.

4.7 CONDUCT A POST-LIFT REVIEW

It shall be the responsibility of the Lift Director to lead a discussion (post-lift review) among the load handling workers as soon as practicable after the completion of the load handling activity.

The purpose of the post-lift review is to identify opportunities for improvement for future load handling activities. The discussion should include, but not be limited to, the review of the lift plan, pre-lift meeting, preparations for the lift and the execution of the lift.

It shall be the responsibility of the Lift Director to assess the recommendations and determine which warrant further consideration. If the implementation of an acceptable recommendation is within the control of the Lift Director it shall be implemented in future lifts directed by the Lift Director. In addition, the Lift Director should, to the best of their ability, share the recommendation with other Lift Directors and Lift Planners working with similar load handling activities.

If the acceptable recommendations are outside the control of the Lift Director, the Lift Director shall communicate them to the appropriate supervisor for future consideration.

5 IMPLEMENTATION

The requirements of this version of the standard are to be met within three months of the approval date at which time the previous version will be superseded.

6 RESOURCES

6.1 INTERNAL RESOURCES

Related Policies:	Load Handling (Hoisting) Policy
References: (Located on SafetyNet)	Lift Classification Reference Guide Determination of Written or Verbal Lift Plan Process Guidance in Determining Potential Interference with Aeronautical Safety Generic Lift Plan Templates
Related Standards:	Load Handling Equipment Record Keeping Standard

6.2 EXTERNAL RESOURCES

Related Legislation:	<i>The Occupational Health and Safety Regulations, 2020</i>
Related Standards:	ASME P30.1-2019 Planning for Load Handling Activities
Additional Information:	Aeronautical Assessment Form for obstacle notice and assessment – Transport Canada Land Use Proposal Submission Form – NAV Canada TP1247E Aviation - Land Use In The Vicinity of Aerodromes, Transport Canada

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