



**BEST PRACTICES
FOR
TUBING OPERATIONS
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CANADA WEST
 **SKI**
AREAS ASSOCIATION

BEST PRACTICES FOR TUBING OPERATIONS

This Best Practices Guide is designed to provide information to ski areas that are considering the operation of a tubing park and to those who presently operate tubing areas.

This is a resource for ski areas to use as a general guide in all areas of tubing park development and operation. Each resort may operate differently and may adopt parts of the Tubing Operations Guide to use in their everyday operations. This resource covers certain aspects of tubing terrain design, operation, staffing, risk management, and practices that are currently used at resorts in Western Canada. The goal is to develop consistency and industry best practices in the development of tubing parks.

The Z-98 code governs the lifts associated with tubing. Clause 9 of the code covers ropeways for secondary carriers and clause 10 handles conveyors. This best practices guide will not cover information already covered by the code. Where the code specifically addresses something in this manual, the clause(s) will be noted.

Thank you to all the Ski Areas that participated in the development of this manual.

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This Guide is intended as a resource in your efforts to create a safe and enjoyable tubing environment for your staff and guests. It is a compilation of information from ski area personnel and other industry professionals.

This document is not intended to be dictate requirements and should not be interpreted as a standard. It contains “informational” resources and examples that may be updated, revised or withdrawn at any time. While thought to be accurate and functional, it is provided without warranty of any kind.

Operations will vary from area to area. Deviation from the information presented may be dictated by the circumstances of each unique situation and by the policies, procedures and protocols of each individual ski area. Laws, regulations and policies may also vary in different jurisdictions.

This document is for internal ski area use only and not for external circulation.

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CONTENTS

SECTION A - RISK MANAGEMENT	3
SECTION B – BUILDING A TUBE PARK	5
SECTION C – TUBE PARK DAILY OPERATIONS.....	7
SECTION D – POLICIES.....	10

SECTION A - RISK MANAGEMENT

1. **Signage:** The Z-98 code already addresses required signage for lifts (Clause 4.33). Some additional signage may be required around the tube park to educate guests and to serve as a risk management tool for resorts.
 - a. Directional signs at the bottom of lanes
 - b. Signs to indicate how guests are to ride in their tubes
 - c. Signs to indicate maximum group sizes
 - d. Waivers can be posted in various places

2. **Staffing:** Our employees are very important to the success of our operations. They are in constant contact with our guests and are the key to preventing incidents and accidents. Training must be thorough and documented (Clause 13.2).

3. **Lift Incidents:** The majority of lift incidents involve handle tows and guests detaching from the lift. This risk can be minimized by grooming the lift line so that passengers detaching from the lift move away from the lift line and into barriers placed to catch detached tubes. There are far fewer lift incidents involving carpets although they are much more expensive than handle tows and may not be an option for some areas.

4. **Collisions:** Collisions are another major source of incidents for tubing operations. Most collisions happen at the bottom of lanes when a faster tube overtakes a slow or stopped tube. Light people don't travel as far in the run-out as a heavier person. Care must be taken to space tubes out so that people have time to clear the run-out before the next tube(s) arrive.

Other collision risks are when people are crossing the bottom of lanes without looking uphill for oncoming tubes and are hit by tubes coming through the run-out area. Having a staff member in the run-out area to help clear lanes and prevent collisions is highly recommended.

5. **Slips and Falls:** Conditions in a tube park can change rapidly. Slips and falls due to icy conditions are common. Maintaining level load areas on lifts, grooming when necessary and putting mats or some non-slippery material down can help mitigate that risk.

6. **Incidents in General:** Any incident in a tubing park has potential for the operator/owner to be liable. Special care must be taken in the event of an incident to record every detail including, but not limited to:
 - a. Names and contact information of guests.
 - b. Names of staff involved and where they were situated.
 - c. Witness statements (including staff statements)
 - d. Pictures, video and/or diagrams
 - e. Description of the incident
 - f. First aid reports

SECTION B – BUILDING A TUBE PARK

1. **Site Selection:** The ideal tubing site will have a relatively short hill followed by a flat or slight uphill slope about twice as long as the hill. If the hill follows the fall line it is easy to make straight lanes without too much snow. If you would like to put curves in your tubing lanes, be very careful how you do it. Changing speed conditions can make any lane slow one minute and very fast the next. Curved lanes are also very labour intensive to maintain.
2. **Rollers:** If you build rollers into your lanes, keep in mind that visibility of the lane may be compromised. You may not be able to see the entire lane from each end.
3. **Grades:** Tubing lanes do not need to be steep. 15% is ideal for most conditions. As your grade increases, your run-out room should increase proportionally.
4. **Construction:** If you are building berms for your lanes in the summertime, ensure that they are smooth without exposed rocks or other debris that will encroach on the tubing lanes in winter and create a hazard.

5. Selection and Placement of Lifts:

- a. **Handle Tows:** The lift should be placed with enough room on the uphill tow path that your grooming machine will fit. If your area operates with limited snow, the ground should be shaped on the lift line to mimic the sag in the cable between bullwheels.

The lift should not be placed in a position where there is a risk of tubers sliding into it. If there is a risk, steps should be taken to mitigate that risk. A snow berm protecting the lift is one example (Clause 9.2.2).

As a rule of thumb, a handle tow can service approximately 3 lanes. If you are building more than 3 lanes, consider adding a second lift or a carpet lift.

- b. **Carpets:** The lift should be placed with enough room on both sides that snow accumulations on either side of the carpet can be removed by machine.

The lift should not be placed in a position where there is a risk of tubers sliding into it. If there is a risk, steps should be taken to mitigate that risk.

Regardless of the type of lift used, care should be taken to position the lineup for the lift to minimize the risk of collision with tubes coming from uphill.

- 5. **Storage:** Consideration should be given to a tube storage facility. Tubes take up a lot of space and a secure place to store them will prevent un-authorized use of the tubes.

SECTION C – TUBE PARK DAILY OPERATIONS

1. **Log Sheets:** Ski Area Operation Log sheets must be completed each day of operation. The log sheet should include all of the mandatory information required by the Z-98 code (Clause 13.18).

2. **Tube Park Log Sheet:** A Daily Operational Log for the tube park should also be completed. It can be incorporated into the lift log sheet or stand alone. It could include information such as:
 - a. **Lane information:** Such as lane conditions, open and closed times, lane inspection records, and weather conditions.
 - b. **Tube inspection record:** For areas with tube tows, every tube becomes a secondary carrier. In this case, each tube must be inspected before use each day for torn or frayed handles and tethers, knots in tethers, proper inflation, cracked or broken towing rings and general condition. If a tube is found with any deficiencies it must be removed from service for repair. In the case of conveyors used for tubing, the inspection can be limited to inflation and condition of handles.

3. **Staffing:** Tubing operations are staff intensive. The following is a minimum staffing level in a tubing operation. The number of operators for the lift is defined by the Z-98 code (Clause 13.5.1(c)(f)). Other staffing is not governed by any code. There should be a lane controller at the top of the lanes. There should be a lane controller at the bottom of the lanes that is able to control the out-run area. Depending on how spread out the lanes are, there may be more than one required.

There should be a supervisor or lead hand overall in-charge of the tubing operations that is able to make the necessary decisions in changing conditions and to handle other issues as they arise.

There should be reliable communication throughout the tube park. Communication between the top and bottom of lanes is crucial if the entire lane is not visible from each end.

Staff must be properly trained and the training documented. The staff are in constant contact with the guests so a strong customer service aspect to the training will be a benefit.

There should be first aid coverage while the tube park is in operation. They should be available for any incidents involving guests as well as for any staff injuries (Clause 13.19).

4. **Changing Conditions:** Changing conditions are the greatest challenge of any tubing operation. Conditions can change literally over the course of minutes. Being prepared for changing conditions is the key to avoiding incidents. If your run-out area is long enough for your fastest conditions then your lane controllers just move along with the tubes as they move farther down the lanes. If, like most, your run-out area isn't ideal, then you need something to slow the tubes down.

Operators should have policies in place for changing conditions such as when to decrease group sizes and when to close lanes completely.

- a. Decreasing group sizes can slow tubes down in fast conditions. A single tube typically doesn't travel as far as a group.
- b. Lowering the starting position may be an option in your tube park. Building a second starting area could be a valuable option in the long run.
- c. Deceleration materials are also an option. Various options exist such as Astroturf, textured rubber mats, burlap matting, hay and/or straw. Cost, availability and practicality are all determining factors.
- d. Some manufacturers have tubes with switchable bottoms. The regular smooth bottom works for regular conditions and you can attach a textured shell onto the bottom of the tube for fast conditions. It is also possible to have two or more sets of different types of tubes for different conditions. Care should be taken not to mix the tubes.
- e. Airbags and/or crash pads are used by some areas as a method for stopping tubes. They should only be used as a backup in case tubes get through other stopping measures.
- f. Grooming the lanes will usually slow them down somewhat. Operations should be suspended while grooming is in progress.
- g. Some areas have an uphill berm made of snow at the end of their run-out areas. Care should be taken when using these berms that tubes don't escape off the end of the berm.

- Grooming:** The grooming of the lanes and lift lines is important to ensure safe operation in the tube park. Safety berms must be in place to prevent tubes from escaping the lanes. The size of the berms will be dictated by the behavior of the tubes in the lane. If the lane has a curve then a very large berm will be required. If the lane is straight and the tubes stay in the middle of the lane, then smaller berms will be sufficient. Various types of equipment exist to help shape berms and lanes including purpose built attachments and specially functioning blades and tillers. Group sizes must be monitored so as not to encroach on the berms and have a tube escape the lane.

Grooming of tow paths for handle tows is also important. The Z-98 code (Clause 9.2.4) requires that there be a cross slope on the lift line such that tubes inadvertently detaching from the lift lines are carried clear of other uphill traffic and into required barriers (Clause 9.2.5) which will stop them. However, if there is too much cross slope, the tubes will swing out too far and either detach or pull the lift rope out too far. If there is not enough cross slope, detaching tubes will not move away from the lift line and may collide with another tube or handle.

The lift lines should be monitored continuously throughout the operating day. As traffic rides on the lift, it is possible that they will establish a trough such that a detaching tube may not move away from the lift line. This is particularly a risk when it is snowing heavily.

- Lift Loads and Unloads:** Lift load and unload areas for carpets are relatively simple. For wire rope tows they get a little more complicated.

The load area for a handle tow should be slightly inclined uphill (Clause 9.2.1). As the tube is attached to the handle there is a slight jerk on the tube. The uphill slope will keep tension on the tube tether preventing it from detaching.

The unload area should have a downhill slope that allows the tube to overtake the handle, slackening the tether and allowing the ring to fall off (Clause 9.2.8).

Permanent load and unload areas built with puck board or vinyl are one method for keeping the areas consistent.

Some areas are equipped with rope grippers that pass through a mechanism at the top that releases the gripper automatically.

SECTION D – POLICIES

Each area should have policies in place to enable staff to perform their duties under any circumstance. Staff must be educated on each operation's policies so as to be consistent in every circumstance. The following is a list of circumstances that each area should have a policy for.

1. **Group sizes and formats:** There should be a pre-determined maximum group size for each lane. Some lanes will not be suitable for large groups. Some lanes will be only suitable for single tubes. Format must also be considered. Some lanes will be good for 'chains' but not for 'rafts.' Changing conditions may dictate changing these policies on the fly at the supervisor or lead hand's discretion.
2. **Staff sending tubes:** Are staff allowed to push the tubes? Are staff allowed to spin the tubes? The answers to these will vary by area and even different lanes will have different rules.
3. **Riding positions:** Some areas require that the guests be seated in their tubes only. Others allow guests to ride on their bellies. The shape and behavior of the lane must be considered when making these decisions. If there are sharp transitions in the lane then belly riding may not be appropriate. Some areas allow running starts while other will only allow gravity starts.
4. **Small children policies:** It should be determined at what age or height a child may be allowed to tube. Some areas will allow children under 42" tall to ride on an adult's lap. Other areas require that smaller children ride in their own tube and raft with an adult. Most areas have a minimum height of 42" for a child to ride alone. Some areas will not allow children under 42" at all. Some areas use a minimum age policy.
5. **People with disabilities:** Policies should be in place for guests with physical or mental disabilities. A disabled person may have mobility restriction that can cause unsafe sliding. A user with a mental disability could put themselves or others in danger if they cannot use understand the regulations of the site as it was intended.

6. **Impaired people:** Alcohol or drugs and tubing should never mix. Each area should have a policy in place to deal with impaired people.

7. **Ski boots or hard-shelled boots:** Many areas do not allow hard-shelled boots to be worn while tubing. In addition to the difficulties associated with walking in such boots, hard-shelled boots can cause serious injuries in the event of a collision.

8. **Walking:** Some people will wish to walk uphill with their tube instead of riding the lift or waiting in a line. If the choice is made to allow walking, a designated area should be made available.

9. **Helmets:** Each area should have a policy on whether or not to require people to wear helmets.

10. **Tickets:** Some areas sell tubing tickets for specific time periods or blocks. Others sell tickets that expire after a specified amount of time. Others sell single ride tickets and/or all-day passes. Some operations only sell a fixed number of tubing passes at any given time.

11. **Tube rotations:** When there are too many guests for the number of tubes, it is possible to rotate tubes. As a guest finishes a tubing run, they are asked to pass their tube to the front of the lift line. The tubes are then re-issued prior to loading the lift. Using this method, it is possible to service a large number of guests with a lower number of tubes.

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