



# **Technical Standards and Safety Authority**

**Water Slide Accommodation Guideline &**

**Requirements for Regulatory Documentation Updates**

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# Water Slide Accommodation Guideline



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## 1. Background

The Technical Standards and Safety Authority (TSSA) has become aware of instances at waterparks in Ontario where patrons with disabilities or accessibility requirements have experienced exclusion from participating in waterslide ride activities.

The primary reason for exclusion from participation was due to the patron's failure to meet:

- Physical requirements specified in the technical dossier or
- Requirements specified in the device manual or operating instructions.

To address the more frequently occurring accommodation requests from various patrons, a group of Ontario Waterpark owners met with the TSSA in October 2015 to discuss initiatives that could be undertaken to:

- expand accessibility options for currently prohibited patrons
- maintain an equivalent or acceptable level of safety, while offering accommodation solutions.

## 2. Overview

The intent of this document is to establish basic guidelines for owners to follow when devising accommodation strategies and to set expectations about the process and documentation. This guideline provides high-level direction that intends to capture or require;

- that a level of due diligence has been applied,
- the accommodation strategy is sound and built on accepted practices, and
- the outcomes are appropriately documented.

## 3. Accommodation Guideline

In developing strategies related to enhanced accommodation, it is advisable to utilize a comprehensive methodology, such as a risk assessment framework, that

- addresses various scenarios,
- identifies hazards and their mitigations, and
- ensures that residual hazards are minimized to their lowest consequence to maintain safety.



Utilizing a structured approach ensures equivalent safety is maintained while ensuring compliance with regulatory requirements.

The following is a series of issues that waterpark owners / operators should consider when developing an enhanced accommodation strategy.

### **3.1 Communication**

It is essential that waterparks develop a communication strategy (print, digital, social media, etc.) to inform the required persons about the accommodation options that the waterpark has undertaken.

The communication strategy should consider the needs of both the public and park staff.

#### **3.1.1 Park Personnel**

Park personnel, including ride attendants, ride operators, and other park personnel should be aware of the waterpark's accommodation plan.

These persons should know the park protocol for enacting an accommodation request or alternatively should know where to direct patrons to have their special accommodations needs heard and managed.

Staff should undergo training on these processes and should know where to obtain the written operating procedures of the park as related to handling accommodation requests.

#### **3.1.2 Visitors/Guests/Patrons**

Ideally, guests of the waterpark, upon their arrival should be able to ascertain that the water park has provisions for enacting alternative accommodation arrangements.

From the implemented communication strategy, visitors to the park should be able to glean a basic understanding of:

- how to connect with park personnel to understand the park's alternate accommodation strategies, or
- what options or guidelines are available for alternative accommodation (via printed materials, park signage, ride signage, social media, web site information) that visitors can already follow without needing to directly speak with park personnel upon their arrival.

Additionally, and as summarized in 3.2.2 and 3.2.3, guests should be able to understand the expectations, abilities and requirements needed to successfully partake in a given ride.

### **3.2 Accommodation Strategy**

In developing accommodation strategies, park owners need to consider the various limitations or barriers that may hinder some patrons from openly participating with the waterpark attractions. The barriers may include:



- physical barriers,
- barriers imposed via technical dossiers, technical manuals and or operating procedures
- barriers imposed by physics or ride dynamics
- disabilities or limitations related to the park guest

### 3.2.1 Access to the Ride

The most basic barrier to participation would be that related to physical access to the ride. Park owner/operators could address access issues by:

- Removing existing barriers to access or
- Providing additional means of access for the rider.

The additional means provided could be in the form of physical changes to access such as;

- stairs,
- ramps,
- lifts or elevators

or access may address operational changes, such as;

- front of the line permissions, or
- alternate paths of access

### 3.2.2 The Ride Experience and Ride Expectations

In devising rider accommodation strategies, the default approach tends to head toward defining the attributes required of an ideal rider (i.e. the required mental & physical attributes). This however may not be the most effective way forward.

It may be more desirable to specify the challenges or the demands that the ride will impose on the rider, and extract from those requirements, the skills, abilities and mental attributes that are needed to ride.

Park operators should consider creating a description of the ride, the experience, the challenges and demands that will be placed on the rider. The rider (or possibly the caregiver) should understand what elements would be experienced, such as:

- physical forces
  - G forces, upper body forces, head/neck forces,
- forces which require the rider to brace themselves
  - what to brace and a general idea of how hard to brace
- inversion,
- darkness,
- wet, heat, cold,
- immersion in deep water(splash down pool)
- etc.



In making this type of information available, riders can self-assess their abilities to determine if the ride is suitable for them.

### 3.2.3 Abilities or Requirements to Ride

Each ride requires an individual assessment. Consideration must be given to any demands created by the ride experience, as described above (3.2.2), that have implications for safety.

To respond to the demands of the ride experience and to ride safely, riders may rely on attributes such as:

- physical abilities,
- physical attributes (height, weight, girth),
- mental or cognitive abilities

For instance, fitting a restraint device, tolerating the dynamic ride forces, resisting temptation to self-extract are abilities riders may use to avoid serious injury due to bodily injury, ejection, or falling. However, often there are alternate ways to meet the demands of the ride, either as a common alternate mode of participation, or as a specific accommodation, for instance:

#### Alternate Options to Accommodate:

- alternate procedures or sliding positions
- supplementary restraint devices
- differently sized or shaped tubes, rafts or mats
- allowing tandem rider if appropriate
- allowing caregivers or additional attendants into the splash down area
- permitting the use of a lifejacket

Identifying these alternate options is the core of an accommodation plan. The resulting assessment and devised accommodation plan will clearly communicate to the riders who would like to ride which abilities they:

- **must possess** (absolute requirements), because there are no alternate options that safely respond to the demands of the ride experience, or
- **should possess** (more subjective requirements) to maintain a reasonable level of comfort.

Where a rider's limited ability infringes more on rider comfort than safety, the patron should be afforded input related to their threshold for discomfort.

If certain mental or cognitive ability is being sought as a prerequisite to safe participation, and this level of skill is typically associated with a certain age, but the current operating restrictions are using height as a proxy for age (and no other requirements for height exist), the accommodation plan should consider specifying a height requirement for "children". This would afford participation of adults who cannot meet the stature requirement, without any negative effect on safe participation.



### 3.2.4 Essential Safety Requirements (ESR's)

After completing the necessary risk assessments and their mitigations, the conclusions may require the application of specific safety requirements. It may be possible that certain parameters have a justifiable rationale for their adherence to and consequently must be strictly observed to safely take part in the ride experience.

For example:

- riders height must fall within a given range
  - rider not to exceed a defined clearance envelope
  - rider to be certain size to be properly restrained within the ride or PCU
- riders weight must fall within a given range, or above or below a specific threshold
  - ride dynamics / ride physics necessitate a defined mass to safely ride

### 3.2.5 Operational Requirements

Beside the already discussed rider abilities, some accommodation strategies may need to include provisions to deal with other **operational constraints**, such as;

- Loose articles
  - Devise means to deal with storage and return of artificial limbs / other medical devices/aids to the rider
- Number of attendant(s) / lifeguard(s).
  - Assign additional staff to address the needs of an accommodated rider
- Dispatching Times
  - Change dispatching times or loading procedures to accommodate riders who may need uninterrupted use of the device for the duration of their ride

In developing an accommodation, it is possible that the accommodation may have some negative impacts on the “enjoyment” of other riders (for the duration of the accommodation) but do not affect safety. Some operational requirements may have been scripted more as operational efficiency requirements or customer service experience requirements, rather than have roots in safety. In this case other means or communications should be developed to address the consequences of the accommodation.

## 4. Accommodation Conclusions

In the development of accommodation strategies, ride owner/operators should work with other knowledgeable professionals, and use generally accepted methodologies such as risk analysis, to develop, test and validate their proposed accommodation strategies and to ensure that items such as ESR's are not overlooked or assumed non-essential.





### 5. Requirements for Updated Documentation

After developing and vetting any alternative accommodation strategies, the conclusions of these accommodations should form part of

- the operational manuals and/ or
- the technical dossier (if required per the table below)

for a given ride/device.

The updating of the operational documentation and technical dossiers is necessary to;

- capture the defined practices and
- to maintain documentation in compliance with the regulations.

To facilitate the process of regulatory documentation update, the following table outlines the submission types based on the level of accommodation changes that need to be introduced. In all cases, the operational manuals at a minimum will require updates to reflect the implemented accommodation. The listed requirements for updating a ride’s documentation is the minimum required to maintain regulatory needs while managing or minimizing regulatory burden.

Type of Submission		Summary of Proposed Change / Proposed Accommodation
Operational Change	Level 1 change No Submission	<ul style="list-style-type: none"> <li>• Change to dispatching times / headway between riders during an accommodation</li> <li>• Access to the device (excluding lift or elevator)</li> <li>• Additional attendants</li> <li>• Addition of communication</li> </ul>
	Level 2 change Submission by Owner	<ul style="list-style-type: none"> <li>• Allowance of tandem rider (as appropriate per device – ride path and ride dynamics are not affected)</li> <li>• Allowance of person in splash down (attendant/caregiver)</li> <li>• Change to rider position (laying, sitting)</li> <li>• Wearing lifejackets</li> </ul>
	Level 3 change Submission by Engineer	<ul style="list-style-type: none"> <li>• Allowance of Tandem Rider, change affects riders path / ride dynamics</li> <li>• Wearing lifejackets, if change affects riders path / ride dynamics of a body slide</li> </ul>



Type of Submission		Summary of Proposed Change / Proposed Accommodation
Design Change	Alterations and Dossier Amendments by Engineer - Inspection required	<ul style="list-style-type: none"> <li>• Design related change to ride / device</li> <li>• Change to PCU</li> <li>• Change to height or weight criteria</li> <li>• Changes to water flow rates</li> <li>• Changes to depth of splash down areas</li> <li>• Changes in runout design, layout, orientation</li> </ul>

## 6. Summary

The amusement devices industry as a whole is experiencing a greater ask for accommodation.

While the issue of designing accommodations directly into new rides is not yet fully addressed in the amusement devices codes, manufacturers are aware of these accommodation requests and are starting to take measures to design for such needs into new rides / devices.

For existing rides, owners are finding themselves in a position to develop accommodation strategies after the fact. This guideline brings awareness to some of the issues that require consideration, and defines what documentation is necessary to capture an accommodation plan.

While some accommodations can be very basic and simple to implement, others can be complex and require the input of professionals to ensure safety is inadvertently not over looked.

This document serves as a guideline to the amusement devices industry in Ontario and outlines requirements for the industry to follow to ensure uniform application of regulatory requirements.