

# **Amusement Ride Evacuations**

## **“...Or this is not where I got on?”**

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- Safe and timely evacuations are very important these days.
- Proper preparation for these events will lead to the best results.
- Lack of preparation can lead to riders stranded for unnecessarily longer periods of time.

# Why is this so important?

- It has always been important that riders are safely returned to the ground because no one wants to see our patrons hurt.
- The popularity of social media and the use of it by the General Media has focused a lot of attention on unusual shut downs of rides. The adverse publicity is putting pressure on our business and wider industry.

You don't want to be doing this  
without planning.



# How do you have a successful evacuation?

- Plan
- Prepare
- Train



# Rule #1

- Ride Designers, Manufacturers and Owners all agree that the best place to get the riders off of a ride is in the location that they were originally intended to exit from it.
- Best measures and efforts must be taken to get the loaded vehicles back into the stations.
- Evacuations occur when that recovery process will take too long.





# Ride Design

- The planning starts with the ride Designer.
- He does a risk analysis to determine the likely places for the vehicles to stop.
- The Designer adds measures into the design that will easily evacuate the riders in these locations.



# The Ride Manufacturer



- The Manufacturer looks through the design and discusses modifications to the design to improve any potential evacuations.
- Agreed upon improvements are added to the ride as it is being manufactured.



# Control System Design

- How does the control system react when a problem is detected?
- The issues encountered could be ranked depending on their severity. The responses of the systems to these issues could be tailored to that severity as well.

# Examples

- An example might be a pressure sensor which stops a ride when it senses the brake pressure is at the minimum safe level.
- A wind speed anemometer could give a warning to unload the ride on the next cycle prior to a full shut down.

# Designer/Manufacturer Solutions

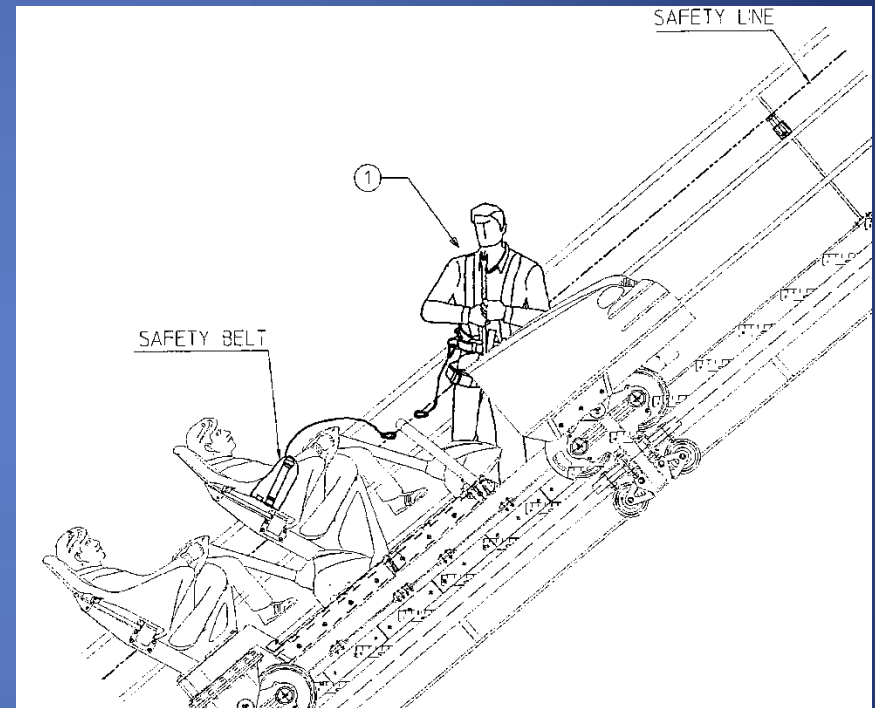
## What kind of solutions?

- Lift Stairs are an obvious example. If the ride stops periodically on the lift, these features are usually added to evacuate the riders.
- The Design must take into account the steepness of the lift and angles of the rider's seats for the evacuation.



# Lift Stair Planning

- This drawing shows the differences in the rider orientation to a person standing on the lift stairs.



# Other Solutions



## What about Block Brake Zones?

- These locations are very likely to have vehicles stop in them.
- They are often level track areas.
- They are usually equipped with catwalk and stairs to evacuate the riders to the ground.

# Catwalks to the Station

- Trim Brakes are also possible evacuation points and need to be considered in the risk analysis.
- Many of these will have catwalk access to the station for an easy evacuation.





# Recovery Solutions

- In some cases the Designer builds recovery solutions into the design.
- These can be solutions to the most likely evacuation scenarios and/or something more complicated.



# Multiple Recovery Solutions



- Multiple solutions may be needed for more complicated designs or extreme circumstances.

# Owner Input into the Design

- If the owner purchases the ride during the design/manufacturing phases, he can add input into the design.
- This can take into account the actual ride location and its challenges.



# Ride Purchase

- The owner of the ride studies the ride to prepare for likely evacuations .
- This evaluation starts when the ride is to be installed. The changes made at this point are the easiest to accomplish.





# Choices

- The owner also has to make decisions on things like ride positioning, fencing and gates.
- These decisions can greatly affect any future evacuations and need to be considered carefully.



# Clearances

- Midway size and configuration are important to consider.
- They will impact what size emergency equipment can be used.





# Equipment Access



# Water Locations

- The owner must understand how he will handle evacuating riders that are stopped over bodies of water.
- What provisions must be made to address this.
  - Shallow Water?
  - Removable Fences?
  - Special Equipment?





# What is the target?

- The Ride Owner sets a reasonable time for an evacuation to take place.
- This can vary from one ride to another.
- What is it? 30 minutes? 1 hour? 4 hours?
- What are the ramifications of making or ignoring this decision.



The Owner works with the Ride Designer/Manufacturer to incorporate changes and approve procedures.





Alterations to the ride are made to improve the process.



# Plan out the Evacuation Points

- Decide on the course of action.
- Make sure the vehicle is secure. In many cases, this means the vehicle must be tied off.



# Plan out the Evacuation Points

- Decide which riders will be evacuated first. How will this effect the ride as the unloading process takes place?
- How many park personnel are needed to perform the work?
- Do you have the correct staffing for this situation?



# More Planning

- Where will your employees be positioned?
- What will their duties be?
- What other hazards will the people be exposed to?
- Make sure that any fall hazard is minimized.





# Equipment Needs



- Straps, slings and clamps
- Ladders and Step Stools
- Rolling Scaffolding
- Man Lifts, Boom Trucks, Crane Trucks, etc.
- Cranes and Man Baskets



# Stage the Equipment



- Position the equipment so that you have the best chance of meeting your target.



- Dedicate Ladders to a particular job
- Make sure they do not disappear.





# Fall Protection



# Mitigate the risks for those involved.



- The best advice for Fall Protection – “Don’t Fall!”
- Eliminate the hazard.
- Tie off your participants so that they can not fall. This is a best use for Fall Prevention Systems.
- Go to Fall Arrest Systems when you have no other choice.

# Fall Protection Choices



- There are excellent fall protection systems for your employees.
- Full Body harnesses and short lanyards can easily eliminate fall hazards.



# Other Options



- Fall Protection for the riders take more consideration. Controlling the situation is the best advice.
- Mitigate and/or limit the hazard where ever you can.

# Command Structure

- It is important to decide in advance who will be in charge of the evacuation process.
- Park Duty Managers can be good choice provided they receive good council from Operations and Maintenance Managers that are present.
- It is important to discuss who will be in charge with the local safety services if the park is planning on having them participate in the evacuation.

# Special Medical Needs

- During the evacuation, the park personnel will need to evaluate how many riders will need special treatment.
- This may include those that are not well and the disabled.
- The riders may be scared of the process.
- You may have to adjust your plan accordingly.

# Special Medical Needs

- A berson's chair or backboard are examples of the type of equipment that could be employed.
- Training for these needs will give the Owner those options.

# Securing the Vehicles

- Make sure the vehicle can not move before unloading.
- Unexpected motion of the vehicles during the evacuation process can cause falls and injuries.
- Remember what the changing center of gravity can do as the passengers are unloaded. Even a coaster train stopped in a valley can move as the riders are unloaded.



# Lock Out/Tag Out

- Before people are in placed in harms way, make sure that energy sources are locked out.
- An example could be the electrical power which could energize and move the vehicles while the evacuation is occurring.
- Potential Energy Sources should also be considered. Vehicles that are stopped at high points could move and cause problems.

# Training

- Periodic training raises the level of experience of those that are doing the evacuation at any given time.
- Training will allow the parks to make decisions on staffing number and experience for potential evacuations.
- Periodic re-training will compensate for personnel turn over.

# “Real” Training



- Train for the evacuation with all the equipment that will be needed.
- Ask the local safety services to get involved if you are planning on using them.

# Lighting



- Practice in the conditions that could be encountered.
- Keep in mind that evacuations can occur at night. Make sure there are plenty of portable or fixed lights for the evacuation.

# Practice,





...Practice,



... and more practice





# Difficult Evacuations Need Practice



# Difficult Evacuations Need Practice





# What to do when the “it” happens.

- Let your training take over.
- Make sure you communicate with the riders.
- Adjust your planned evacuation if someone needs help.
- Think about the riders. What special needs can you accommodate?
- Watch the weather.





# Watch the Weather!



- How close will an owner allow bad weather to approach before he shuts a ride down?
- This could avoid an evacuation in tough weather conditions.

# And....

- Get their names and basic information as they come off of the ride.
- Make sure that you take care of your riders. Look for ways to give them back their lost time.
- Work through the command team to get the job done.
- Do the right thing. Ignore outside influences.

# Are you ready for the Press?

- Make sure that your PR department is aware of the situation and facts.
- Craft a statement that incorporates the facts.
- Make sure that the park gets its story across.
- Practice this process.



# After the dust settles...

- It is important to have a meeting after an evacuation to discuss the operation. An honest self evaluation is important is the park wants to improve the process.
- Include the major players involved.
  - This should include the local safety services if they helped in the process.

# After the dust settles...

- How did we do?
- What changes if any need to be made to the target, plan, equipment, training or personnel to make future evacuations better?



# Adjust the plan and keep practicing!



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# Questions

