

Appendix Q

Evacuation and Emergency Response

Pre-Evacuation Timeline

The activities leading up to the decision to evacuate were recorded and typed out for review. The cabin arm failure occurred at 9:20 am on March 10, 2025. By 9:37 am, the area manager had made the decision that the mountain should be closed for the remainder of the day.

At 9:40 am an attempt was made to move the remaining grip and hanger that was still connected to the haul rope to the next tower was made. This decision was made so that maintenance staff could attempt to remove the attached hanger arm piece, which would then allow for the lift to be run and the remaining passengers to be evacuated quickly (15–30 minutes as opposed to an estimated five to seven hours for manual evacuation). There was no risk assessment performed on this decision criteria as it was not a part of the KHMR process. However, it is typical to try and allow maintenance sufficient time to get the gondola back up and running as, if successful, it will result in a much faster and lower risk evacuation.

During the attempts to move the arm close enough to the tower for removal, the arm section made contact with the sheaves resulting in it becoming lodged. As it became clear that it could not be removed, the decision was made to proceed with a manual evacuation. The manual evacuation started at 11:19 am.

Lift Evacuation Log

A lift evacuation log was provided which provided time-stamped activities throughout the evacuation process. The log showed that a total of 184 guests were evacuated, with a total evacuation time of approximately five and a half hours. The evacuation was completed at 4:50 pm.

Lift Evacuation Manual

KHMR maintains a comprehensive lift evacuation manual. It states that the public should be notified as soon as breakdowns are identified, and what steps are being taken to rectify the problem. It also states that “Environmental conditions, daylight, temperature, and wind chill will be taken into account to determine the urgency of an evacuation.” However, the manual did not include an estimate of when the manual evacuation should be started; nor did it include the expected timeframe for an evacuation. When speaking with staff members after the incident, they indicated that a manual evacuation could take anywhere from 4 to 7 hours to complete for the GEE gondola.

Further, the manual states that KHMR maintains “a crew of paid on-call senior staff and has a system in place for call in and “pay extra” employees for gondola evacuations.”

However, it did not state the precise number of staff required broken down by task as required by the code.

Interviews and KHMR Communications

Additional information was gathered through an interview with the Mountain Safety Manager and additional email responses to questions posed through the investigation. It was found that although the lift evacuation went well, it was a best-case scenario and still took seven and a half hours from the time of shutdown to the last passenger getting off. Since there is no standardized or industry approach to determining the required staffing levels or maximum evacuations times, patron health and safety may be negatively impacted in less favourable conditions. It was also found that KHMR's integration with the local search and rescue likely contributed significantly to a successful evacuation.

Of note in this incident is that the lift was effectively fully loaded on the uphill side, but empty on the downhill side. The evacuations were also done in daylight conditions with relatively fair weather. No medical emergencies or concerns were noted during the evacuation.

KHMR has a total of 10 kits for performing rope rescues. This includes six cable riding kits. This is the safest and fastest method of rope evacuation. There are also two jugging kits and two Class-D fixed line kits. Jugging kits are used as a secondary evacuation method, while Class-D fixed line kits are a tertiary method used for high-risk spans such as those over the grizzly bear refuge or upper third (located above steep and rocky terrain).

The number of kits is largely based on staffing available to the hill. It takes at least one trained individual to run a kit accompanied by an additional staff member in a support role. On any given day, the mountain typically has about 18 people in the department who can operate or assist with rope rescues. Number of trained staff on site is not set out as a regulatory requirement but is instead determined by the resort's individual circumstances.

In this incident, at the peak of evacuations, the mountain had 35 people performing rescues. This was accomplished through call-ins of off-duty staff and partnership through a memorandum of understanding with the Golden Search and Rescue. It's important to note that many of the KHMR staff are also part of the Golden Search and Rescue team and are cross trained in gondola rope evacuation techniques. This made it possible to maximize the use of the evacuation kits and techniques, including helicopter slings.

KHMR representatives stated they were not sure whether additional rope rescue kits and trained staff would have assisted in a faster evacuation in this case, as much of the

bottleneck actually occurs getting people on the ground back to the main chalet. This is especially true in the upper third of the mountain where terrain is often too steep for passengers to traverse unassisted and they require separate transport. It was also mentioned that this issue worsens in summer conditions (when much of the mountain that is skiable terrain in the winter is not passable on foot in the summer).

Finally, KHMR indicated that it is standard practice to allow maintenance to try and get the lift operational again before beginning rope rescues. An operational lift is the fastest, and safest method of evacuation.

Analysis

The passenger ropeway code (CSA Z98-14, the Code), adopted in British Columbia requires that evacuation plans contain specific details to ensure appropriate responses to various circumstances. In this case, the manual had no details on when or how a decision to begin a manual evacuation should be made. The code requires that an estimate of the time before an evacuation begins after it becomes inoperable. In every situation when a gondola becomes inoperable, there is a tension between trying to restart the lift (requiring time for repair, but if successful, a very quick and low risk evacuation) and beginning a manual rope evacuation as soon as possible. Without a defined protocol for how that decision gets made, and how much time should be allotted to the attempt to return the gondola to operation, decisions had to be made under pressure in the middle of the emergent situation. In addition, the code requires that the number of people required for each task of a manual evacuation be defined in the written procedure and available at all times during operation. These must be defined such that the maximum “*reasonable*” time for evacuation can be met under various expected conditions. Since neither of these were listed, it’s unclear whether sufficient staff were present on site when the evacuation began to prevent bottlenecks, and whether adequate communication with passengers occurred. Although in this instance, no injuries were reported, and minimal complaints were lodged, there were very few complicating factors such as weather, infirm passengers, or darkness. Ensuring procedures account for these possibilities helps reduce risk and ensures maximum efficiency during evacuations.

Proper preparation for a manual evacuation is essential for smooth execution during an emergency. The Code requires that estimates for total evacuation timelines be written into the procedure. In addition, it requires that the number of personnel for each task of the evacuation be listed. This ensures that organizational leadership is accountable for providing sufficient resources to evacuate passengers in a reasonable timeframe under various conditions. Owners are reminded the maintaining procedures and training and operational readiness, in compliance with the Code, is a requirement for operating a passenger ropeway in British Columbia.