



High Stakes: Taking Responsibility for our Resource Roads

THE LOG TRUCK'S TRACTOR WAS FACING STRAIGHT DOWNHILL; THE LOAD of logs had pushed the water tank forward into the cab, pinning the driver between his seat and the steering wheel before spreading out like a game of pick-up sticks. The trailer wheels were in the air, still turning slowly as the first witness scrambled over and under logs to get to the driver's door. The synopsis of this accident stated that the driver had lost control on a steep switchback.

The details, however, revealed some disturbing facts: Although design specifications stated a maximum grade of 8% for a switchback, this one was 35% at mid-curve. Survey notes indicated no effort was made at a vertical design for the road and the road crew built the road as it was designed.

Minimum curve radius specifications were based on actual measurements of unloaded logging trucks' minimum as taken in the shop yard—on a hard flat surface. This curve was not flat, the surface was loose gravel and the truck was being pushed by an 80 tonne load. This produced a slippage that dramatically increased the truck's actual turning radius.

There was nothing mechanically wrong with the truck. The driver did everything that could be expected of the best of his peers. This was not a case of failing to drive to the conditions of the road. It was a case of a road not being designed and built to consider the design and limitations of the vehicles meant to use it.

How many foresters, engineers or technologists consider the fact that the way they lay out a road could be a significant factor in a fatality? How many of those same professionals have been members of an accident investigation committee that has concluded that a rollover or runaway was primarily the result of a mechanical failure or driver error. Concluded this while oblivious to a physical attribute of the road that exceeded accepted design specifications and could have contributed to the accident?

How many log truck drivers acknowledge that a road is extremely steep, or too narrow, or so poorly aligned that it is a challenge to keep the trailer wheels on the road? But then drive on because that is "just the way the roads are?"

The ability to construct roads that optimize the concerns of access, safety, multiple resource objectives and economic efficiency is significant. The development of earth moving equipment since World War II has given the ability to precisely blast, excavate, sort, move and place material. Road builders do not, however, have a choice of where the road will be built.

Road builders are usually presented with a felled and bucked right-of-way that's 20 meters wide, with the road centerline at the middle. The road grade and alignment will be dictated by those boundaries. Cuts and fills will be balanced as best as possible. Road widths will be just enough for construction trucks and equipment. If widening is needed in a tight curve, or significant cuts or fills are needed for a switchback, that information must be communicated through plans or supervisors.

Steep grades, tight curves and insufficient width are three factors that are cited in most single vehicle incidents on resource roads. Is this because those features are absolutely essential? Or is something missing in the training, understanding, communication, responsibility or accountability of the people involved?

Roads are arguably the most significant alteration to a landscape. They are the feature that sets the pattern and sequence of all future resource planning. They can have a significant impact on present and future environmental concerns. They will be a ribbon of concentration of all human activities on the land base.

Roads also tend to be permanent features. Once they are built, they become part of the landscape and are accepted as they are. Any flaws in design or construction receive a live-with-it attitude at about the same level as a rock bluff or avalanche track.

Although WorkSafeBC, the BC Forest Safety Council, government, industry, and workers all have incentives to address road safety, the responsibility for creating the physical road falls on the professionals that plan, engineer, and supervise construction. Those entrusted with these positions must be confident in their

ability to produce a transportation network that is safe, efficient and environmentally integrative.

Workers in the forest industry live with hazards and risk. A major part of the job is identifying and managing that risk. While the natural risk will always be present, introduced risk of the flawed product of another worker can be the most insidious because it is a trap set by someone that is trusted.

Competence, due diligence and professional reliance: when applied to roads, the stakes are high. 🐾

Dennis Bendickson, RPF, worked in the forest industry from the age of 16 and is currently director of the forest operations program at UBC. He has been a Registered Professional Forester since 1973. He was the witness described in the first paragraph.

Concerned? A few suggestions:

- Review the Standards of Professional Practice.
- Examine standard operating procedures & road specifications. Question anything that seems to "push the limits."
- Consult with an appropriate professional whenever you know or suspect that you have a knowledge gap or just need some help.
- Have an experienced professional peer review your work.
- Inspect your roads during and after construction.
- Communicate any concerns and document the communication.



Steep grades, tight curves and insufficient width are three factors most cited in single vehicle incidents on resource roads.



Photos: By Dennis Bendickson, RPF