

## **Southern Bitterroot Avalanche Accident Report for October 24, 2009**

On Saturday morning October 24, 2009 Group A (2 skiers) departed Missoula at 0700 in route to the Gem Lake area of Trapper Peak. On arrival at the trailhead one other car with Missoula plates was also parked and was assumed to have arrived only 30-45 minutes prior to us.

After approximately 1.5 hours from the trailhead, we encountered one of the two people in Group B and confirmed that they were also skiers. We decided to take a break and give some distance between our groups thinking we would most likely meet this group again at the base of the Gem Lake couloir.

We resumed hiking and approximately 45 minutes later again encountered Group B, this time with both members boot packing the lower talus slopes leading to the base of the couloir above Gem Lake. We followed their track for approximately ten minutes until the base of the couloir was reached.

At this time, group A informally met both members of Group B and spoke about the objectives of each group and how best to manage risk with two separate parties. One member of Group B wanted to continue up the couloir with our group while the second member preferred a warm-up run on the apron climber's right of the couloir.

At this point both groups prepared to transition into climbing mode with Group A switching to crampons/axes/whippets with Group B transitioning out of hiking boots into ski boots. All parties had ski equipment attached to backpacks. The transition point can be best described at the approximate start of the ascent line in Figure 1 below.

I began leading up the apron of the couloir with my partner approximately 20-30 ft behind in the same boot pack. The member of Group B that chose to travel with us was in third position approximately 40 feet behind us with the last member of Group B roughly 100-150 feet behind us. It was assumed he was planning to use the boot pack to access the top of the apron for his run.

I dug two quick hand pits and discovered relatively poor bonds between the new snow/perennial snow interface. There was no significant stratigraphy within the new snow and the density was on the lower end for most windslabs. Climbing was moderate with foot penetration slightly above the knee to thigh deep at its maximum with high variability in depth. At this time I called to my partner and asked how he felt about stability. He replied that it felt like Styrofoam at depth. I then agreed with his observations and replied that it felt pretty slabby. We continued on.

There is a small safe zone on the climber's right side of the couloir at its base with a small, convex ridge feature leading to it. This was the planned line of ascent. When I was approximately 10 vertical feet from that spot, I weighted my left foot and felt a massive settlement. A very brief moment passed and the whole slope began to pull out. I could not feel the bedding surface and failed to self-arrest. Both my partner and I began to become entrained in the slide and focused on staying parallel with the fall line of the slope, not getting crampons caught on the bedding surface and tumbling. I remember it been surprisingly dark and AMAZINGLY powerful. The slide carried us approximately 50-60 feet (?) with the fourth member of Group B traveling the longest distance due to his proximity to the stauchwall of the slide.

The entire movement lasted only 5-6 seconds (?) and as the slide started to slow I tried to reach up through the snow. I came to rest slightly buried in the supine position and could easily self excavate myself. I immediately recognized we were in a rescue situation and moved to locate my partner. He described his entrainment in the slide similarly and also immediately began rescue upon self excavating himself. I first visually located him approximately 10 feet downslope from my position and we quickly confirmed we were ok. The third person in the boot pack (Group B) was also quickly visually located and was approximately 10-15 feet below my partner. The second member of Group B could not be visually located. At this time I asked the located member of Group B if they were wearing transceivers. He replied that they did not...scary. Within a few moments though the second member of group B self excavated and was observed approximately 100-125 feet downslope in the thick of the talus field.

The three of us quickly recovered gear (I recovered my axe, Group B member recovered only one of two ski poles, my partner lost no gear) and continued downslope to confirm if the second member of group B was ok. We all regrouped downslope and discussed the slide. The second member of group B had pain in his wrist and felt minor blood on his elbow. We confirmed that Group B felt they could walk out under their own power without any assistance and then left the site and headed to the trailhead.

We were pretty banged up, but in good shape considering the circumstances. My partner had significant pain in his wrist and ankle, but could walk under his own power. I had pain in my right shoulder and was bleeding from a rather swollen left knee.

### **Summary**

My partner and I discussed multiple "Red Flags" and human elements that were not properly interpolated prior to the accident that we feel contributed to this happening:

**1. Complacency.** We have skied this line close to a dozen times in early season conditions since the late nineties without incident though we both recognize it as serious avalanche terrain.

**2. Disregarding gut feelings.** We discussed stability, agreed it to be marginal but collected no addition information and continued on.

**3. Altered group dynamics.** No discussion of experience, rescue equipment, safety, or stability was communicated when meeting Group B. A simple plan of managing four people on the slope was loosely communicated prior to climbing.

**4. No previous slide debris.** This couloir slides out regularly after the first significant snow and/or wind event of the year. Poor bond at the new/old snow interface is typical...the couloir hadn't slide out this year and was primed. A red flag missed.

#### Figures and Photos

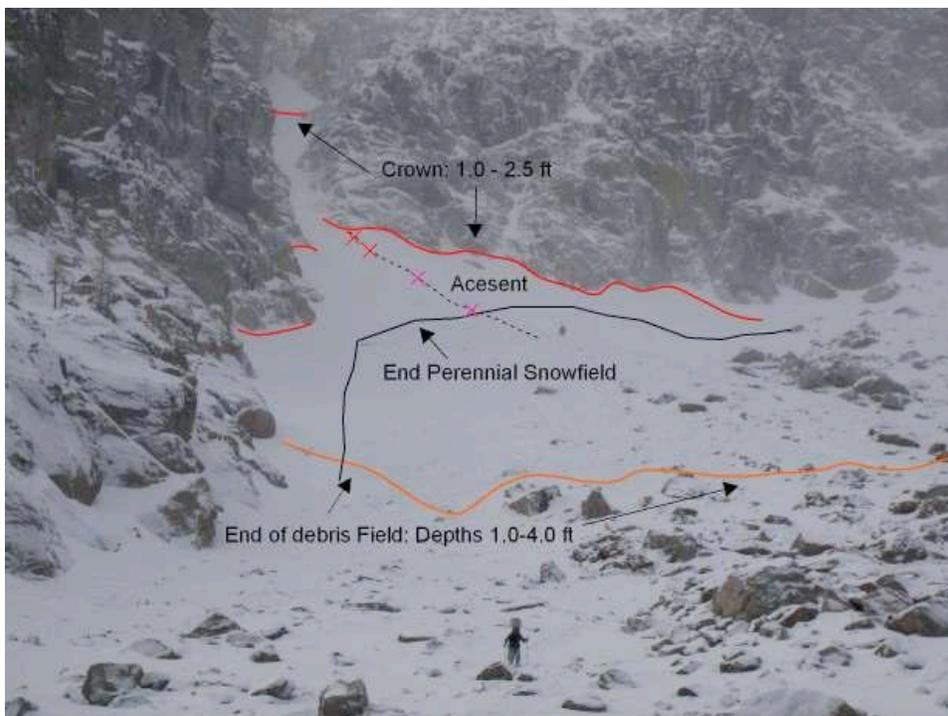


Figure 1; Annotated picture of avalanche site. "X" denotes approximate group members position at the time of the slide.



Photo 1; approximate location of member 2 of Group B and the terrain he was carried through.



Photo 2; the largest hazard of entrainment in the avalanche was the thinly covered talus slope below the perennial snowfield.



Photo 3; the debris field below the location of the last member of Group B. Depths ranged from a few inches to approximately four feet in small micro-sites behind larger boulders in the talus field. From the crown to the end of the debris field was estimated at ~800 vertical feet.



Group A ascending snowfield.