Nelchina Glacier Avalanche - Incident report
Eureka, Alaska

**Date:** 27 February 2016
**Time:** 12:30 pm AST
**Place:** Toe of Nelchina Glacier. 16.5 miles South of the Eureka Roadhouse (MP 137.4 Glenn Highway) as the Crow flies.
**Accident site coordinates:** 61° 42’ 00.43”N  147° 06’ 09.73”W
**State:** Alaska
**Borough:** Matanuska-Susitna Borough.
**Reporting Agency:** Chugach National Forest Avalanche Info Center (CNFAIC)
**Fatalities:** 1

**Synopsis:** Three snowmachiners were caught in an avalanche triggered by the party. Two were caught and carried while the third was overrun by debris as he sat on his snowmachine at the base of the slope. Of the two riders caught and carried, one came to rest on the surface uninjured and the other was shallowly buried but killed, likely from trauma. The third member of the party was partially buried (to his waist) and able to eventually dig himself out.

**Avalanche details:**
**Avalanche Code:** SS-AM-R2D3-I
**Avalanche Type:** Soft Slab
**Avalanche Character:** Persistent Slab
**Crown height:** 2-4’ Width: 250–400' (estimate). Vertical run: 1500’ -2,000’ (estimate)
**Trigger:** Snowmachine/ rider ascending slope.
**Weak layer:** Facets and surface hoar (weak layer unconfirmed).
**Slope angle:** 35*+
**Aspect:** East
**Elevation at crown:** ~5,000’ ASL
**Path character:** Channeled terrain trap.
**Debris:** 2’-10’ deep.

**Events leading to the Avalanche:** On Saturday February 27th, 2016 a group of three snowmachiners left the Eureka Roadhouse (MP 137.4 Glenn Highway) en route to a zone near the toe of the Nelchina Glacier. All riders have intermediate to advanced snowmachining abilities and have been riding in this zone for more than 10 years. All three members of the party were carrying avalanche beacons, shovels and probes. The victim (rider #3) had his avalanche beacon in his backpack and had been known to keep it there instead of wearing it on his body “because it was uncomfortable to wear.” No obvious red flags (recent avalanches, shooting cracks or whumphing) were observed by this party during the 20+ mile ride in to the toe of the Glacier. The party had been riding in this exact area and on the exact same slope one week prior. The party identified a small test slope they have been familiar with in the past (at the base of the slope that avalanched) and put several small climbs/ side-hills in with no discernable results. The
comment from Rider #1 was that there were "no obvious layers". The group of three then proceeded up to the base of the gully and stopped for a break. Rider #2 and #3 were changing out a clutch spring on Rider #3’s snowmachine (sled) when it was communicated that Rider #1 was going to climb the slope.

**Accident Summary:** At approximately 12:30 pm Rider #1 began climbing and unbeknownst to Rider #1, Rider #3 followed several seconds behind, “following his track” and gaining ground on Rider #1. Nearing the top of the gully, Rider #1 turned left out of the gully, and remotely triggered avalanche #1. Rider #1 looked to his left, back downhill and saw Rider #3 being overtaken by the leading edge of avalanche #1. It was about this time that Rider #1 triggered avalanche #2, which propagated above him. Rider #1 stayed on his sled for as long as he could until the wall of snow (avalanche #2) hit him from behind. At this point he jumped off his sled to create as much distance as he could between him and the machine. Rider #1 described being in the “washing machine” and was sucked completely under the snow several times. His helmet came off at some point (not buckled). His horizon was going from dark to light to dark to light. He continued to fight and keep moving until the avalanche stopped. When the debris stopped Rider #1 came to rest completely on the surface approximately 50 yards downslope from his sled. All the debris from avalanche #1 and some debris from avalanche #2 funneled into the gully and caught up with Rider #2 who was still stationary with his sled. The debris hit Rider #2 burying his sled (except for a ski loop) and him up to his waist.

**Rescue summary:** Rider #1 had a visual on Rider #2 and could tell he was okay even though they were separated by a substantial distance. Neither rider could see Rider #3. Several verbal callouts were not answered. Rider #1 turned his avalanche beacon to search and scanned the area toward the gully but did not pick up any signals. Rider #1 noticed his sled uphill of him and hiked back uphill to dig it out before riding over to rider #2. Rider #1 was able to get a signal with his cell phone from the location of his partially buried sled and placed a call to 9-1-1.

At least 2 other parties in the vicinity saw the avalanche and/or the powder cloud and both began heading toward the toe of the debris. From where responders were it was 20-30 minutes to get there based on deep snow, steep slopes and thick brush. The first responder got to Rider #2 within 20 minutes (estimate) of the avalanche. Rider #2 had nearly extracted himself and was uninjured. After determining there were three in the party and one still missing, the first responder began a beacon search. Fairly quickly the searcher saw Rider #3’s backpack partially buried. The backpack appeared to be undamaged (buckles and straps intact) and had Rider #3’s avalanche beacon inside. First responder confirmed with Rider #2 that this was Rider #3’s backpack and avalanche beacon. Rider #3’s sled was also spotted uphill of his backpack and his jacket (unzipped)/helmet were spotted a bit further up. By this time more people were responding and 5-7 people began spot probing likely burial spots near the surface clues for about 10 minutes. One rescuer noticed blood in the snow near the jacket. The responders decided to walk uphill a ways above where Rider #3’s jacket/helmet were found, and formed a probe line, walking back downhill. An organized probe line ensued
for roughly an hour before one member decided on a whim to walk further uphill than
where the probe line was started (approximately 150 yards above where Rider #3’s
backpack was found). It was this responder who noticed Rider #3’s boot above the
surface. He probed in this spot and got a positive strike immediately and with the help
of other responders extricated Rider #3. This was approximately 2 hours after the
avalanche.

Rider #3 was buried face down in an uphill orientation (head uphill) with a foot or less
of snow on top of him. Once on the surface it was clear rider #3 was deceased. At this
point the group on scene made a decision to extract the body from the mountainside. A
suitable landing zone was identified at the toe of the Nelchina Glacier where Alaska
State Troopers Helo 2 landed and flew the deceased out. Rider #1 returned the
following day to extract Rider #3’s sled. It’s also worth noting that the responders
recognized significant hang fire still above. They discussed this and made a conscious
decision to keep beacons and airbag packs strapped and armed during the search/
extraction.

**Avalanche forecast:**
There is no avalanche information or avalanche advisory for this region.

**Snowpack and Weather history:**
Due to the remote nature of this site, we were unable to get an avalanche specialist on
the ground to conduct a crown profile. Snowpack and weather history that follows is
based on interviews with members of the victim’s party, the rescue party and
supplemented by some remote weather data.

Individuals involved in this incident were riding sleds in the exact same drainage 1
week prior on Saturday, February 20th. They reported riding in 6-8” of loose snow on a
supportable crust. Daytime temps were around 0 degrees F with overnight lows
dipping to -9F (Eureka, Skeleton Airport). They were “chased out of this area on
Saturday night (Feb.20th) by an approaching storm”. The Moraine SNOTEL site
registered 1.5” of snow water equivalent (SWE) in 24 hours from approx. noon on the
20th to noon on the 21st. Light snowfall ensued throughout the week leading up to the
accident but no additional large loading events were recorded at the Moraine SNOTEL
site (Moraine is ~70 miles SE of accident site). Winds were moderate from the NNE all
week as recorded at 3235’ near Gunsight Mountain (~15 miles East of accident site).

Rescuers were adamant that the bed surface in this avalanche was the supportable
crust they experienced the week prior. Based on this, the above brief weather history
and crown thickness it is prudent to infer that the 6-8” of loose snow above the crust
was faceting during the cold, clear period preceding the February 21st loading event.
There may have been a layer of buried surface hoar deposited during the clear period as
well. Other parties in the area were experiencing whumping, shooting cracks and
triggering smaller slabs in smaller terrain that had similar depths and characteristics to
the fatal avalanche.
A special thanks goes to the rescue party and Rider #1 of the victim’s party for the openness, honesty and willingness to share this story for others to learn from.

Photo taken approx. 1 hour after avalanche. Notice probe line and snowmachines in lower left hand corner for scale.
Standing on toe of debris, looking up toward the crowns.

Wide angle view of terrain and avalanche.
Partial burial earlier in the day in the vicinity of the accident. Separate group.

Recent avalanches seen in the background. This photo and the next 2 were sent in by a separate party riding in the area on 2/27/2016.
Shooting cracks noticed from snowmachine. Screen capture of a short pov video.

Surface conditions on the day of the accident. Nelchina Glacier in the background.

Report compiled by:
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