AVALANCHE ACCIDENT-WEST FORK NORTON CREEK
SUBMITTED BY: Sawtooth National Forest Avalanche Center
LOCATION: 18 Miles west-northwest of Sun Valley, ID
DATE: April 5, 2009
SUMMARY: 1 snowmobiler caught, buried and killed

SYNOPSIS:
On April 5, 2009, a group of five backcountry snowmobilers were riding in the upper West Fork of Norton Creek. This area is approximately 18 miles west-northwest of Ketchum & Sun Valley and accessed by the popular Baker Creek trailhead. The group was highmarking one at a time on a very steep, rocky and sparsely treed slope at the head of the drainage. After they had made multiple passes on the slope and while one rider was on the slope, a large deep avalanche broke from above. It carried him downhill, across a bench and buried him on a lower slope. The party quickly located the victim's approximate burial site with a beacon, but because of the depth of burial and the subsequent difficulties pinpointing and shoveling, it took an estimated 30 minutes to excavate him. CPR was unsuccessful. The SS/HS-AMu-D3-R2 avalanche was 4 to 6 feet deep, approximately 250ft wide and ran 600 vertical feet. Although the Sawtooth National Forest Avalanche Center (SNFAC) had ceased daily operations by April 1st, the center was issuing general information and updates and had urged extra caution on steep rocky slopes due to persistent weak layers buried in the snowpack. The updates expressed concerns for these layers due to recent storms, warming temperatures and several slides reported in high alpine terrain during the course of the past week.

The coordinates for the accident:
N 43° 71'60.8"
W 114° 67'03.6"

AVALANCHE:
The avalanche occurred in high alpine terrain, sparsely treed with numerous rock outcroppings and ridgelines. It was classified as a SS/HS-AMu-D3-R2. It released on a north-northeast facing slope, (aspect 20°), broke an estimated 4 to 6 feet deep, and propagated in a very jagged manner around rock outcroppings, trees and terrain features as well as through wind drifted sections of snow. It was an estimated 250 feet wide and broke in two distinct fingers up towards the ridgeline but remained about 100ft below the top. These observations were made from the air and by photos taken by Sun Valley Heli-Ski, who performed the body recovery that afternoon. The slope was an estimated 40 degrees with steeper terrain in the upper reaches of the avalanche. The debris came to rest on a 20° slope and was estimated to be an average15 feet deep and deeper in places.

WEATHER & SNOWPACK:
Weather data is taken from the Galena Summit and Dollarhide SNOTEL sites and the Titus Ridge weather stations, all within a 10 to 15 mile radius of the Norton Creek site.

After an extended dry spell lasting from early-January to mid-February, the snowpack in south-central Idaho was 75% of average. During this period, a variety of weak layers formed, and given the length of the dry weather, considerable variability developed in the snowpack. Many slopes had avalanched during an extensive avalanche cycle earlier in the season, leaving them with only a few feet of snow on them. Strong winds during this period also stripped many slopes down to shallow snow cover.

When snow began to fall again on February 13th, it buried a weak snow surface that became known as the "Friday the 13th Layer." This weak layering was comprised of facets and crusts on the warmer aspects. Well developed facets and sometimes even depth hoar formed on the northern aspects.

In the seven weeks from this time and leading up to April 3rd, the area had experienced numerous smaller storms accompanied by strong wind events, and a variety of natural avalanche cycles and human triggered slides. An avalanche fatality and a broken femur occured on March 6th when a party of four skiers triggered a large slide in steep, rocky terrain on Gladiator Peak near Galena Summit. At this point in time the slab ranged from 1 to 3 feet of snow on the buried facet layers.

From February 13th to April 3rd, the Galena Summit SNOTEL accumulated 8.5 to 9" of SWE, and the Dollarhide SNOTEL had accumulated approximately 8" of SWE. The accident site lies roughly midway between these two stations. Two to three inches of that total accumulated in the two weeks prior to April 5th accident. Temperatures remained unseasonably cool, in many cases staying 10 to 15 degrees below average. Strong winds accompanied most of the storms through this time period.

Saturday April 4th marked the beginning of a change in the weather patterns and temperature regime. At 5AM, Galena Summit SNOTEL at 8,780ft showed a morning low of 14 degrees; by 11AM temperatures had climbed to a daytime high of 45 degrees. This day and the following day were the first days in some time that upper elevation temperatures climbed above 32 degrees more than briefly. Upper elevation, north facing snow stayed cool, but wet loose surface sluffs were visible on many of the steep, warmer aspects and mid to low elevation north facing slopes produced very moist rollerballs during the day Sunday.

EVENTS LEADING UP TO THE ACCIDENT:
A group of five local riders was spending the day riding in the Baker Creek area, terrain with which they were familiar. It is not known if they had checked the avalanche advisory. All of them were equipped with beacons, shovels and probes, and were high marking one at a time while others watched. They had adopted these safety practices because four of the five members of this group had been involved in an avalanche accident in nearby Apollo Creek in 2007.

The group had selected a steep, north-facing slope near the Norton-Apollo saddle, where a popular backcountry snowmobile route crossed into Apollo Creek and onto Brodie Gulch and Baker Lake. They were highmarking one at a time when at approximately 1:00 PM or slightly sooner, the avalanche broke out and swept the rider and his sled downhill. The sled hung up on the edge of a flatter bench and the rider was swept with the debris onto the lower slope and buried.

SEARCH AND RESCUE:
The group immediately began a beacon search and estimated it only took a couple minutes to get on top of the victim and begin to pinpoint him. Because of difficulties with a deeper burial and periods of probing and shoveling to locate the victim, it took an estimated 30 minutes to extricate him and begin CPR. CPR was performed for approximately one half hour with no success. The victim was buried face down, head downhill. Burial depth ranged from 4 and one half feet at his head and his feet were close to 7 feet deep.

The Blaine County Sheriff's office received a 911 call from the party via satellite phone at 1:15 PM. At 1:25PM Sun Valley Heli-Ski (SVHS), while operating with guests for the day, received a radio call from Sun Valley Ski Patrol about the accident and rescue needs. By 1:40PM, all of the SVHS guests were returned to the heli-base in Sun Valley and shortly after 2PM the helicopter with two guides aboard was able to reach the accident site. Once the guides were able to asses the scene and the safety of bringing additional people in, a sheriff's deputy was flown in. The body was flown out to Incident Command and Ketchum Fire Department paramedics at the Baker Creek parking area.

IN CLOSING:
We write these reports to ensure accurate information is available and to assist others who may encounter themselves in similar situations in the future. The Sawtooth NF Avalanche Center would like to acknowledge the skills, expertise and professionalism of those involved in this rescue operation.

MAP AND PHOTOS:

Figure 1: Map showing location of avalanche on the north-northeast aspect of the Norton-Apollo Ridgeline.

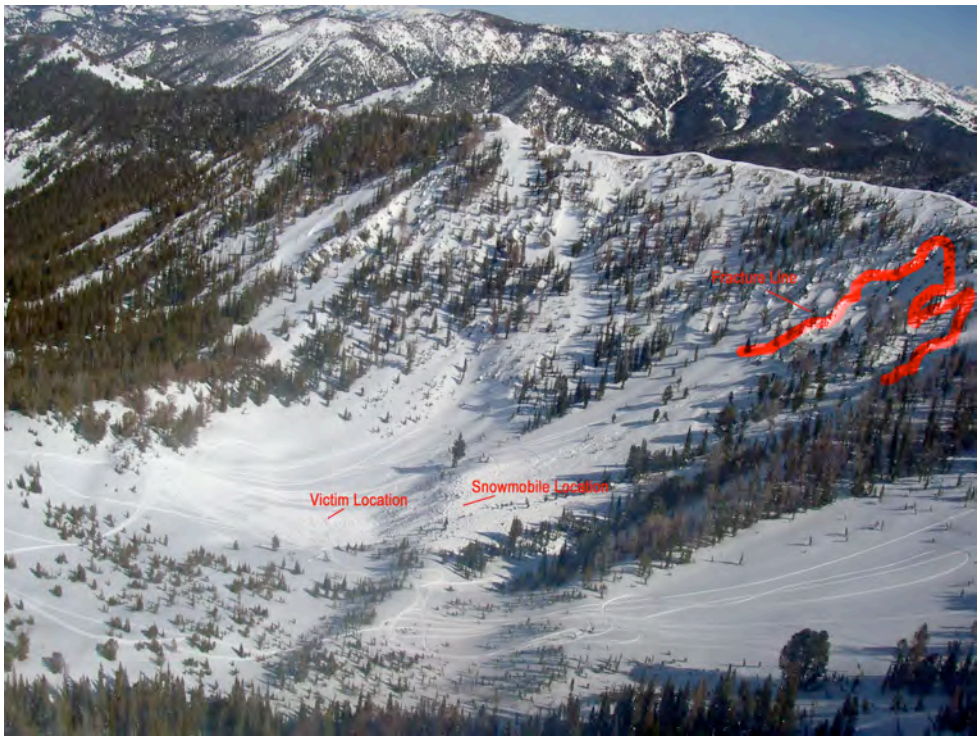

Figure 2: Overview of West Fork of Norton Creek and accident site

Figure 3: Looking up to fracture line from debris

Figure 4: Aerial view of fracture line

Figure 5: Overview of West Fork of Norton Creek basin, fracture line outlined