# Mt. Herman Avalanche Fatality, January 24th 2016 Report by the Northwest Avalanche Center

## Incident snapshot

Time and Date: 1:30 PM, January 24th 2016

Lat/Lon: 48.863268 -121.687949

**Location:** Mt. Herman (NE flank extending from false summit) Bagley Creek drainage,

Whatcom County, Washington State

Number in Party: 2 skiers

Number caught: 2 skiers (although victims were on foot when caught)

Number injured: 2 skiers Number killed: 1 skier

**Avalanche type:** Wet slab (Glide)

**Trigger:** Natural Size: R3-D3

**Start Zone Aspect: NE** 

**Start Zone Angle:** Estimated 60 deg **Start Zone Elevation:** 4850 feet

**Height of Crown Face:** 0.6 m avg to 1 m max Width of Fracture: 20 m avg to 25 m max

Vertical Fall: 320 m **Grain Type:** Melt Forms

**Grain Size and Hardness:** Unknown **Bed surface:** Ground (Rock slab)

Terrain Trap: Yes, gully

Party crossed start zone before avalanche: No Location of subject relative to Start Zone: Below

Avalanche occurred during: Descent

First Reported: Around 12:40 PM a call arrives to Whatcom County 911 dispatch of an injured skier

**Rescue/Recovery:** The surviving skier was air lifted out around 3 pm. The deceased skier was recovered the next day (1/25/16).

Avalanche safety gear carried by party: Both victims carried transceiver, shovel and probe Avalanche Training and Experience: Both victims had advanced avalanche training and were expert skiers

**NWAC Forecast zone:** West slopes of the Cascades North - Canadian Border to Skagit River NWAC Avalanche Danger Rating in effect for start zone (near treeline): Moderate

### Comments from NWAC Forecasters (Dennis D'Amico)

Special thanks are in order for the Mt. Baker Ski Patrol, Bellingham Mountain Rescue, Naval Base Whidbey Island and the Whatcom County Sheriff's Office who provided tremendous support to NWAC regarding this accident report.

The wet slab/glide avalanche that ultimately resulted in the death of one of the two skiers was associated with a heavy rain event that occurred several days earlier. About 7 inches of water was recorded at the Mt. Baker Heather Meadows NWAC station in less than 48 hours ending the evening of Friday 1/22/16. Almost all of this precipitation fell as rain at the station which has an elevation of 4210'. This station is extremely applicable to this accident in terms of location and elevation. Reports during the Jan 21st-22nd time period indicate the heavy rain caused a natural avalanche cycle in the Mt. Baker vicinity with water percolating about a meter down into the snowpack. Also, glide cracks were observed in the Mt. Baker area post storm, another signature of the heavy rain weakening the snowpack.

Glide avalanches are not predictable in the sense that they can release at any time. In the Accident Summary, NWAC professional observer Lee Lazarra details how the rain event from Jan 21st-22nd likely setup this specific slab failure.

# Accident Summary by Lee Lazarra and Jeff Hambelton (NWAC Professional Observers)

On January 24, 2016 two skiers from Bellingham, Washington were returning to their vehicle after a morning of backcountry skiing in the vicinity of Mt. Herman, west of the Heather Meadows parking lot/trailhead. This backcountry access point is at the end of Washington Highway 542 where it is plowed for the winter season.

The avalanche accident occurred on a NNE aspect of the NE flank of the false summit of Mt. Herman in the Mt. Baker-Snoqualmie National Forest. For the return route the pair chose to traverse below a known avalanche path in an area consisting of a steep fluted face characterized by numerous cliffs and steep faces above a series of undulating gullies and ridges in the semi-forested terrain below. The alternative return route of dropping down to Bagley Creek and back up to the Heather Meadows parking lot likely meant dealing with an open and difficult creek crossing.

They entered the slide path at 4650' and began traversing at about this elevation (See photos). Either during or after their traverse, Victim #1 sustained an injury that left him unable to ski and required to assistance of Victim #2 to move. Victim #1 may have fallen and hit a tree or been hit by initial snow blocks as a precursor to the 1<sup>st</sup> and 2<sup>nd</sup> avalanches. Traversing conditions were reported as difficult due to new snow hiding icy debris.

At about 12:40 hrs they contacted Whatcom County 911 via cell phone to request assistance. Whatcom Country 911 in turn contacted both Bellingham Mountain Rescue (BMR) and the Mt Baker Ski Patrol (MBSP).

At 12:49 hrs Justin Mitchell of BMR (who was already at the nearby Mount Baker Ski Area) contacted Naval Air Station Whidbey Island (NASWI) to alert them to the need for assistance with a rescue. Members of BMR and MBSP responded to the northwest corner of the Heather Meadows parking lot and were able to make visual and voice contact (via megaphone) with both victims shortly after.

Victim #1 was observed sliding feet first down a gully with the assistance of Victim #2. The latter indicated #1 had sustained injuries to his head and leg(s). Both were on foot at this point.

At about 13:05 hrs, Sam Llobet of MBSP observed two large blocks of snow fall past both victims. Immediately afterwards a small but fast moving avalanche fell from the cliffs above and swept both victims about 200 feet farther down the gully.

Neither victim was buried by the first avalanche and they continued descending the gully. Though they still had visual contact, attempts by BMR and MBSP personnel to reestablish verbal contact were unsuccessful. Rescuers began assembling a team to approach the victims and determine level of risk the terrain above posed to rescuers

At 13:25 hrs, a second much larger avalanche released from the cliffs above the gully and hit both victims. They were swept another 600 to 800 feet down the gully to where it joined the main gully of Bagley Creek. Victim #1 was observed moving in the debris and was able to self-extract while #2 had been swept down and out of sight of rescue personnel. Victim #1 did not respond to the rescue personnel above and was exhibiting signs of severe head injury.

After the second avalanche it was determined any ground based rescue would expose rescuers to unacceptable risk.

The helicopter from NASWI arrived on scene at 14:21 hrs. A Navy medic was lowered to the avalanche debris assessed that Victim #2 had died of his injuries. Victim #1 was assessed as critical and lifted to the helicopter with medic and was taken to St. Joseph's Hospital in Bellingham.

Victim #2 was recovered the following day (January 25th at around 13:30 hrs) by a helicopter and rescue team provided by the King County Sheriff's Department.

#### **Avalanche details:**

After the initial injury and call for assistance we know of two observed avalanches:

1. The first avalanche [@ 13:05] was observed by rescue personnel. It struck and carried the victims a few hundred feet down the gully. No one observed this avalanche initiate so the real origin is unknown. Sam Llobet from MBSP stated he saw a few large snow blocks strike the slope near the victims immediately before the first [13:05] avalanche.

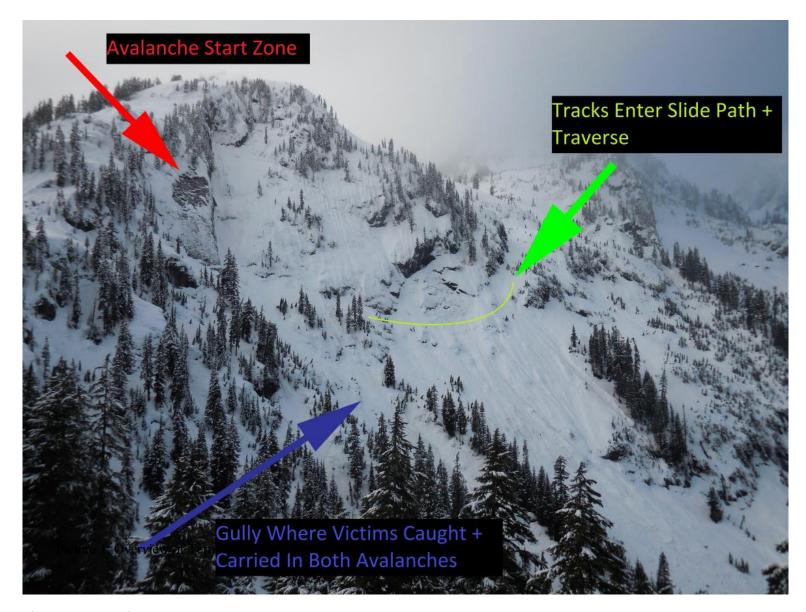
Between this statement and the fact weather and observer data from that afternoon points away from loose wet snow avalanches on shady aspects, we suspect the snow blocks and the first avalanche initiated from the lower portion or flank of the slab that caused the second, larger avalanche [@ 13:25]. Based on observations we feel it would be accurate to call this first avalanche size D1 or D1.5. All other statistics for this avalanche are unaccounted for but a potential classification would be (WS-N-R1-D1/1.5-G).

2. The second avalanche (WS-N-R3-D3-G) was observed @ 13:25. It released from a steep rock slab directly above the gully where the victims were located. As can be seen in photos 1, 3 and 5, only the upper portion of the rock slab has bare rock exposed. Below the exposed rock is a steeper portion of rock slab that is snow covered.

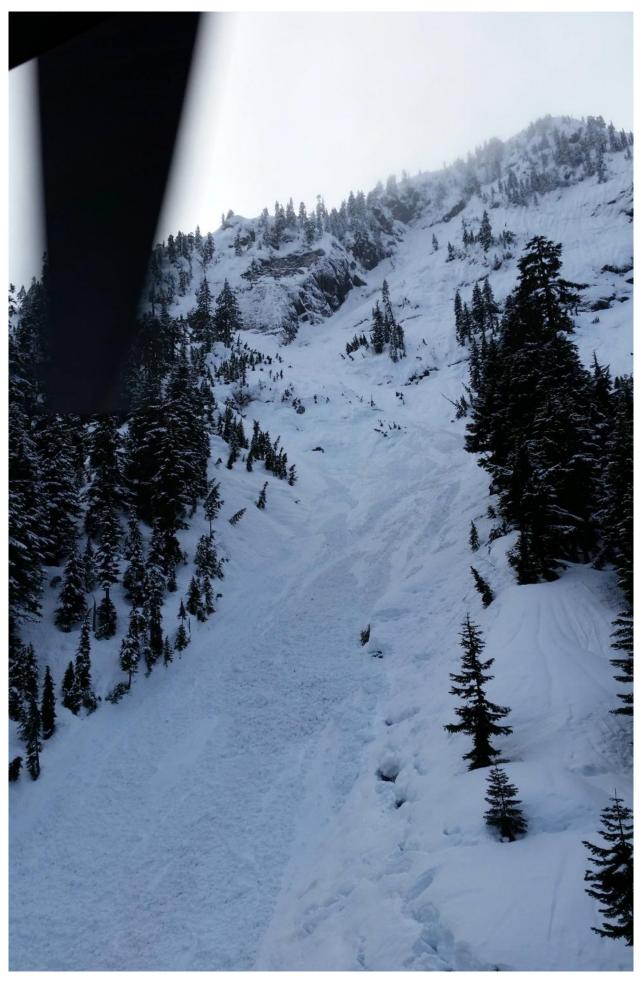
This lower portion of this rock slab is similar in appearance to other areas of the slide path which look to have released during the rain event of January 21st and 22nd. The bed surfaces (rock slabs) of these avalanches were most likely covered with snow on the afternoon of the 22nd as freezing levels lowered and/or on January 23rd with snowfall from a following system, also with lower freezing levels.

Our conclusion is the second avalanche was the upper remnant of a glide avalanche that released from lower on the rock slab during the January 21st-22nd rain event. This slab at 4850', severely weakened by the rain and unsupported from below, was slowly slipping downward and coincidently released while the victims were exposed in the gully beneath it. The debris from this avalanche reached the creek at the base of the path, traveling approximately 1000'.

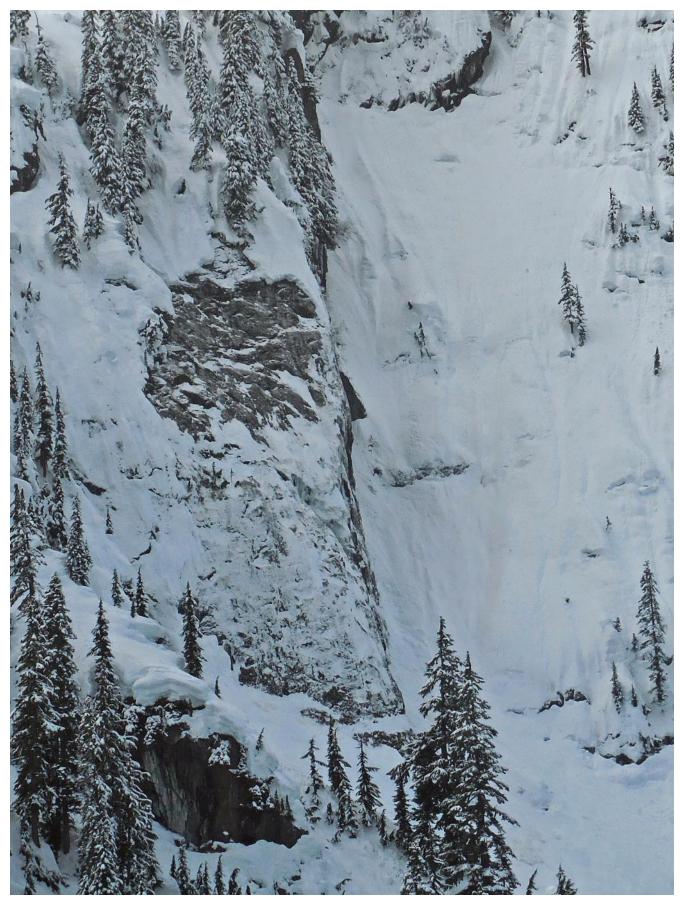
# Photos by Lee Lazarra and Jeff Hambelton (NWAC Professional Observers)



Picture 1: Overview



Picture 2: Looking Up into the Start Zone



Picture 3: 2nd Avalanche Crown Face and Rock Slab Zoomed in

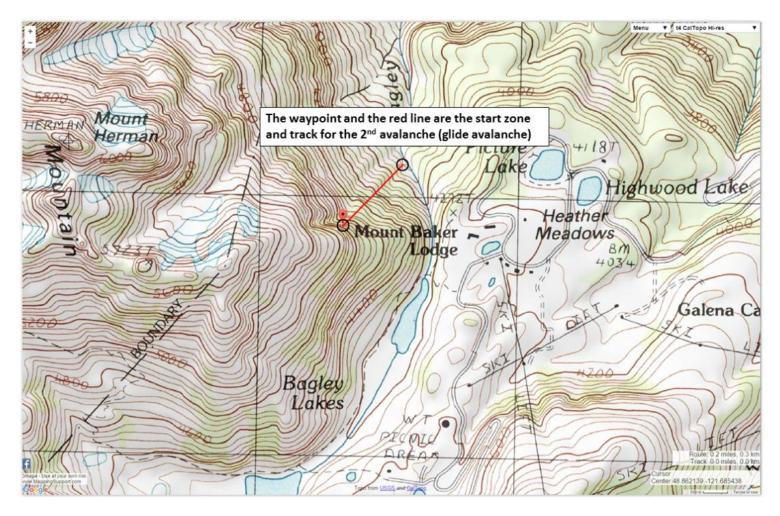


Picture 4: Reporting Party tracks into slope at 4650'



Picture 5: Overview of slope from Hwy 542

## **Topographic Map of Second Avalanche**





# West Slopes North - Canadian Border to Skagit River

Issued: 6:00 PM PST Saturday, January 23, 2016 by Kenny Kramer

NWAC avalanche forecasts apply to backcountry avalanche terrain in the Olympics, Washington Cascades and Mt Hood area. These forecasts do not apply to developed ski areas, avalanche terrain affecting highways and higher terrain on the volcanic peaks above the Cascade crest level.

**The Bottom Line**: Watch for recent shallow wind slabs that may have formed on the lee, northerly aspects below ridges, mainly near and above treeline.

Continued conservative decision-making remains wise travel advice, until the persistent slab problems can be ruled out.

Issued: 6:00 PM PST Saturday, January 23, 2016 by Kenny Kramer

Elevation

Sunday

**Outlook for Monday** 



**Above Treeline** 



### Moderate

Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.



Moderate



**Near Treeline** 



### Moderate

Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.



Moderate



**Below Treeline** 



## Moderate

Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify problem features.



Moderate

**Danger Scale** 

No Rating

Low

Moderate

Considerable

High

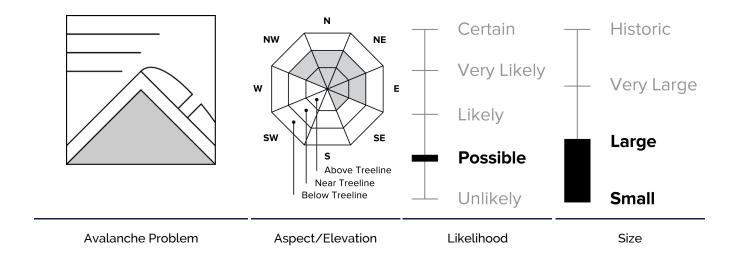
Extreme

**Issued: 6:00 PM PST Saturday, January 23, 2016** by Kenny Kramer

# **Avalanche Problems for Sunday**

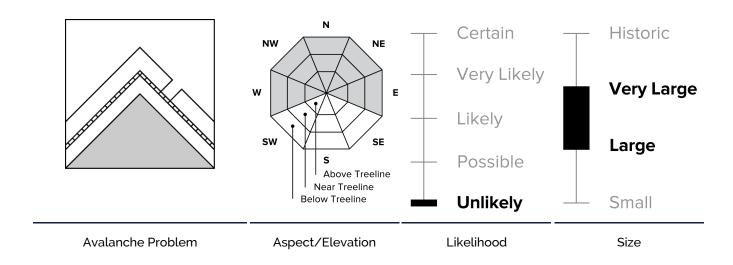
## Wind Slab

Wind slabs can take up to a week to stabilize. They are confined to lee and cross-loaded terrain features and can be avoided by sticking to sheltered or wind scoured areas.



# Persistent Slab

Persistent slabs can be triggered by light loads and weeks after the last storm. You can trigger them remotely and they often propagate across and beyond terrain features that would otherwise confine wind and storm slabs. Give yourself a wide safety buffer to handle the uncertainty.



# **Snowpack Analysis:**

#### Weather

Two fair weather periods earlier this month allowed surface hoar and near surface faceting to occur. These persistent weak layers were buried intact on January 3rd and 11th. One or both of these layers have been seen in snow pits by NWAC pro observers and avalanche professionals the past few days ranging from Mt Baker to the Crystal Mountain area. These persistent weak layers are most likely to be found on non-solar (northerly) aspects of the below and near-treeline band. However, we cannot rule out the above treeline elevation bands with no recent observations up high, so the problem is listed for all three bands. We will cautiously wait to see how the PWLs survived the most recent storm cycle over the past few days.

A series of storms deposited several feet of recent snow along the west slopes. The most recent frontal system brought up to a foot of snow late Wednesday night through early Thursday morning, before very warm and wet weather arrived through the day Thursday.

The rapid arrival of warmer air brought a quick change to rain for all areas away from the Passes like Mt. Baker, Paradise and Crystal. 2 to nearly 7 inches of water fell over the west slopes in 48 hours through 5 pm Friday, with the heaviest rainfall in the Mt. Baker area. The Passes were slower to warm on Thursday, but a thick, mostly breakable freezing rain crust was reported above about 4000 feet both in the Snoqualmie and Stevens Pass areas Friday and Saturday. While limiting the avalanche danger, it has also ruined the skiing for most areas near the passes.

#### **Snow and Avalanche Observations**

The snowpack has now undergone significant changes since the warming and rain Thursday, causing a widespread natural avalanche cycle of both wet-loose and slab releases.

The most recent observations by Jeff Ward Friday the 22nd in the Stevens Pass area indicated a widespread avalanche cycle has occurred with numerous wet-loose slides on all aspects as well as storm slab releases, possibly releasing on the persistent layer, though not confirmed, all size one.

Several NWAC pro observers found both the 1/3 and 1/11 buried surface hoar layers throughout the region earlier in the week, however, by Saturday after the rain, warming, numerous avalanches, and freezing rain crust, found no such layer in extensive searching in the Stevens Pass area within the below treeline elevation band. It is felt at this point, the Persistent Weak Layer, at least for most west slope areas, is no longer a prevalent avalanche problem.

We will continue to list the persistent slab problem in the forecast, but lower the likelihood until further observations can confidently put this to bed.

About 3-6 inches of new snow fell Saturday at moderate temperatures adding some shallow storm snow layers.

# Detailed Forecast for Sunday:

Further cooling overnight Saturday and Sunday with a weak system, giving a chance of light snowfall in the south areas along with light winds, should all lead to an overall stabilizing snowpack. The main concern are areas of shallow wind slabs on lee slopes near ridges. Any previously wet or moist surface snow should have formed a strengthening crust by Sunday, locally decreasing danger. Further continued snowpack settlement should also allow for an improving trend.

### Weather Data for NWAC Mt. Baker station

The weather station data from the day of the accident does not suggest meteorological factors played a significant role in the natural avalanche that released on Mt. Herman.

1-25-2016 Northwest Avalanche Center Mt Baker Ski Area, Washington

Wind gages unheated and may rime

MM/	DD	Hour PST	Temp F 5020'	Temp F 4210'	RH % 5020'	RH % 4210'	Wind Min 5020'	Wind Avg 5020'			Prec.	Prec.	24 Hr Snow 4210'	Snow
1	24	500	26	29	100	95	2	4	6	256	0.00	0.00	2	116
1		600	26	29	100	97	2	3	5	263	0.00	0.00	2	109
1		700	25	28	100	99	2	3	5	268	0.00	0.00	2	117
1		800	25	27	100	98	1	3	5	270	0.00	0.00	1	116
1		900	25	28	100	96	1	3	4	265	0.00	0.00	2	117
1	24	1000	25	29	100	93	2	3	5	260	0.00	0.00	2	117
1	24	1100	26	30	100	91	3	4	8	260	0.00	0.00	2	116
1	24	1200	26	29	100	94	4	5	7	259	0.00	0.00	3	117
1	24	1300	27	30	100	89	3	6	9	263	0.00	0.00	2	117
1	24	1400	27	31	100	83	0	4	6	269	0.00	0.00	3	116
1	24	1500	27	30	100	87	0	3	6	266	0.00	0.00	3	116
1	24	1600	26	29	100	91	1	4	7	268	0.00	0.00	3	117
1	24	1700	25	29	100	94	3	6	9	255	0.00	0.00	-8	116
1	24	1800	24	28	100	90	0	4	8	257	0.00	0.00	3	117
1	24	1900	24	27	100	92	1	4	6	256	0.00	0.00	3	117
1	24	2000	24	27	100	88	1	4	6	248	0.00	0.00	3	116
1	24	2100	24	28	100	87	3	6	8	259	0.00	0.00	3	116
1	24	2200	24	27	100	86	4	7	9	257	0.00	0.00	3	116
1		2300	24	28	100	85	4	7	9	262	0.00	0.00	3	116
1		0	24	28	100	82	6	8	9	262	0.00	0.00	3	116
1		100	23	28	100	81	7	9	11	261	0.00	0.00	3	116
1		200	24	28	100	81	6	8	10	261	0.00	0.00	2	116
1		300	24	27	100	83	4	6	8	263	0.00	0.00	3	116
1	25	400	24	27	100	83	4	5	8	262	0.00	0.00	3	116

IOTAL
Prec.
4210'
0.00



## American Avalanche Association Forest Service National Avalanche Center Avalanche Incident Report: Short Form



Occurrence Date (YYYYMMDD): 20160124 and Time (HHMM): 1330 Comments:

**Reporting Party Name and Address:** Northwest Avalanche Center - 7600 Sandpoint Way -Bld 1, Seattle WA 98115

Type: WS Trigger: N Size: R 3 \ 1 Sliding surf	ace (check one)	Aspect: NE Slope Angle: Est 60 deg Elevation: 4850 ☐m / ☑ft				State Peak Site	Location: State: WA County: Whatcom Forest: Mt. Baker-Snoqualmie Peak, Mtn Pass, or Drainage: Bagley Creek Site Name: Mt. Herman Lat/Lon or UTM: 48.863268 -121.687949								
Group Number of People Caught 2		Time Dura		Depth ation Face urial □m/			<b>Dimensions</b>			Average			Maximum		
Partially	2						H	leight of C	Crown Face	0.6			1.0		
Buried—							Width o		Fracture		20		25		
Not critical							V	Vertical Fall		320	320		320		
Partially	0						Snow		Hardness	(	Grain T	ype	Grai	in Size (mm)	
Buried							S	lab	Ukn	M	[F		Ukn		
Critical							V	Veak	Ukn	M	[F		Ukn		
Completely	0						Layer								
Buried							В	ed	Ground	R	Rock Slab		NA		
	people injured:	1 Nun	ber of pe	f people killed: 1			S	urface							
	Transcer of people injured. 1							Thickness of weak layer			er: NA  mm / cm / in				
Avalanche of Subject			start zone during ava scent  descent  Age  Ge		nder Address				w 🔀 below	⊠ below □ all		ll unknowi		Activity	
2	Mark Panthen		36		M										
	3														
4															
5															
□         □         □         □         □         Novice         □         □         □         Non           □         □         □         □         □         □         □         □         Som           □         □         □         □         □         Advanced         □         □         □         Adv									Unknown None Some Advanced Expert						
Signs of Instability Noted by Group 1 2 3 4 5  Unknown								Stay	Extent of  1 2			suse o	Asphy Head Spinal Chest	vxiation Trauma I Injury Trauma al Fractures	

See attached incident report  Rescue Summary Include: description of initial search, report of accident, organized	Rescu	e Me	thod			
rescue, etc.	1	2	3	4	5	
See attached incident report						Self rescue Transceiver Spot probe Probe line Rescue dog Voice Object Digging Other: Helicopter
Attach additional pages as needed. Include weather history, snow profiles, reports from photographs, and any other supporting information	m other	ageı	ncies,	diag	ram o	

Please send to: CAIC; 325 Broadway WS1; Boulder CO 80305; caic@state.co.us and to the nearest Avalanche Center.