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

Occurrence Date (YYYYMMDD): 20121123 and Time (HHMM):

Comments: Avalanche information is pieced together by a trip report on turns-all-year website and from the avalanche forecast/snowpack discussion issued by NWAC the day before the accident.

Reporting Party Name and Address: Turns-All-Year trip report

Avalanche Characteristics:
Type: SS€ Aspect: NE
Trigger: N Slope Angle: unknown
Size: R 2 \ D 2 Elevation: 5400 ☐m / ☒ft
Sliding surface (check one):
☐ In new ☒ New/old ☐ In old ☐ Ground

Location:
State: WA County: Okanogan Forest: Okanogan
Peak, Mtn Pass, or Drainage: Liberty Bell
Site Name: Liberty Bell Slide Paths #2 & #3
Lat/Lon or UTM: 48.52N/120.65W

Group	Number of People	Time recovered	Duration of burial	Depth to Face ☐m / ☐ ft
Caught	1			
Partially Buried—Not critical	1	immediately	0	
Partially Buried--Critical				
Completely Buried				
Number of people injured:		Number of people killed:		

Dimensions ☐m / ☐ft	Average	Maximum
Height of Crown Face	unknown	unknown
Width of Fracture	unknown	unknown
Vertical Fall	unknown	unknown

Snow	Hardness	Grain Type	Grain Size (mm)
Slab	unk	unk	unk
Weak Layer	unk	unk	unk
Bed Surface	unk	unk	unk
Thickness of weak layer: unk ☐mm / ☐cm / ☐in			

Burial involved a terrain trap? ☒ no ☐ yes → type:
Number of people that crossed start zone before the avalanche: 1
Location of group in relation to start zone during avalanche: ☐ high ☐ middle ☐ low ☐ below ☒ all ☐ unknown
Avalanche occurred during ☒ ascent ☐ descent

Subject	Name	Age	Gender	Address	Phone	Activity
1	unknown					
2	unknown					
3	unknown					
4						
5						

Equipment Carried

1	2	3	4	5	
☒	☒	☒	☐	☐	Transceiver
☒	☒	☒	☐	☐	Shovel
☒	☒	☒	☐	☐	Probe
☐	☐	☐	☐	☐	
☐	☐	☐	☐	☐	

Experience at Activity

1	2	3	4	5	
☒	☒	☒	☐	☐	Unknown
☐	☐	☐	☐	☐	Novice
☐	☐	☐	☐	☐	Intermediate
☐	☐	☐	☐	☐	Advanced
☐	☐	☐	☐	☐	Expert

Avalanche Training

1	2	3	4	5	
☒	☒	☒	☐	☐	Unknown
☐	☐	☐	☐	☐	None
☐	☐	☐	☐	☐	Some
☐	☐	☐	☐	☐	Advanced
☐	☐	☐	☐	☐	Expert

Signs of Instability Noted by Group
☒ Unknown
☐ None
☐ Recent avalanches
☐ Shooting cracks

Injuries Sustained

1	2	3	4	5	
☒	☒	☒	☐	☐	None
☐	☐	☐	☐	☐	First Aid
☐	☐	☐	☐	☐	Doctor's care
☐	☐	☐	☐	☐	Hospital Stay

Extent of Injuries or Cause of Death

1	2	3	4	5	
☐	☐	☐	☐	☐	Asphyxiation
☐	☐	☐	☐	☐	Head Trauma
☐	☐	☐	☐	☐	Spinal Injury
☐	☐	☐	☐	☐	Chest Trauma

☐ Collapse or whumphing ☐ ☐ ☐ ☐ ☐ Fatal ☐ ☐ ☐ ☐ ☐ Skeletal Fractures
☐ Low test scores ☐ ☐ ☐ ☐ ☐ Other:

Damage Number of Vehicles Caught:2 Number Structures Destroyed: 0 Estimated Loss: $0

Accident Summary Include: events leading to accident, group's familiarity with location, objectives, route, hazard evaluation, etc.
From TAY TR: "Two BC skiers got their snow- machines stuck, almost simultaneously, in Liberty Bell Slide Path #2 and #3 cones, while the tow behind skier was skinning behind them in order to cross the slide cones.

Due to early season low snow cover conditions, they were on the way to ski Portly Basin, which starts near 5400 feet.. It was snowing, there was about ten inches of new snow on the road, the snowmobile trail breaking was difficult and visibility was poor.

The skier in path #3 immediately realized he was in a bad spot, got off his machine, looked up the slide path and saw a wall of snow heading his way, and ran and jumped off the cone to a safe spot. The avalanche buried his machine, with all his gear, including his shovel.

Meanwhile, the skier in path #2 was hit by a smaller portion of the same avalanche (an avalanche from the face way above can slit into all three slide paths) and it flipped his machine upside down. He was able to self extricate from the debris. (This skier was the same skier that was hosed from above while following a skin track on Dec, 28, 2008, when a group of guides triggered an avalanche above him and then helped him get out on one ski, see BC6).

The skinning skier was near path #1 when a small portion of the same slide came down in front of him.

The decision was made to leave the machines and not risk another hang fire or re-load slide and come back up when conditions were stable to dig out the machines. They proceeded to ski (1), ski (2)and walk(3 gear buried) back down HWY 20 where after four miles, were met by a group of local snowmobile riders for a friendly lift out.

Rescue Summary Include: description of initial search, report of accident, organized rescue, etc.
From TAY TR: "Yesterday (11-26)as reported above, a group of BC skiers and local snowmobile riders went back up and dug both machines out, following safety protocols with two posted lookouts in two different locations, radio and whistle contact with the probing/digging party. The machine in Path #3 was buried under five and one half feet of snow and was about 25 or so feet down slope from its original position when hit. With the help of the local snowmobile mechanic on site, both machines started.

Rescue Method

1	2	3	4	5	
☒	☐	☐	☐	☐	Self rescue
☐	☐	☐	☐	☐	Transceiver
☐	☐	☐	☐	☐	Spot probe
☐	☐	☐	☐	☐	Probe line
☐	☐	☐	☐	☐	Rescue dog
☐	☐	☐	☐	☐	Voice
☐	☐	☐	☐	☐	Object
☐	☐	☐	☐	☐	Digging
☐	☐	☐	☐	☐	Other:

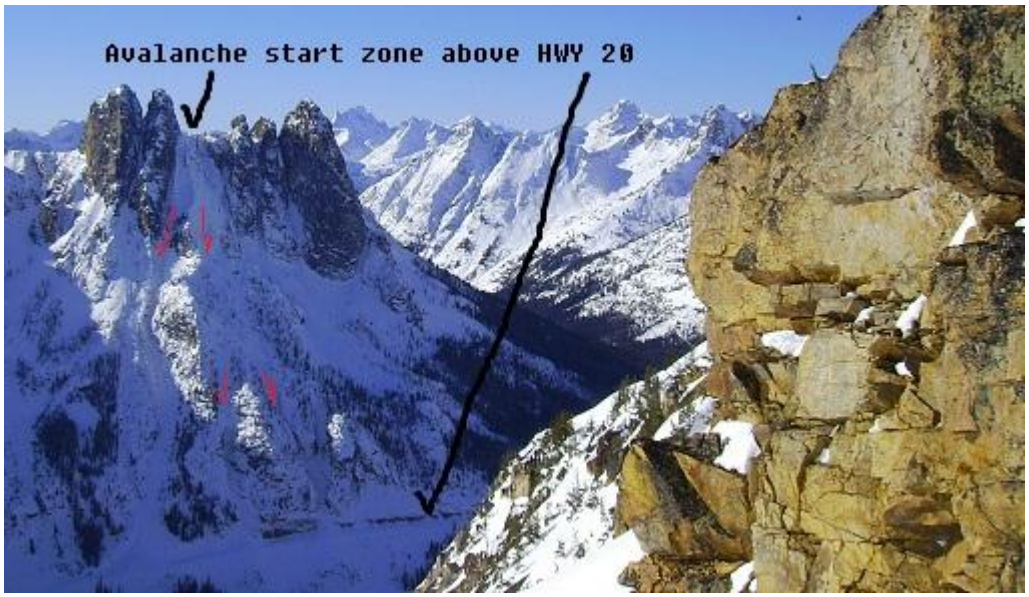
The cool thing about this story, besides the fact that no one was injured, is that of our local snowmobile riders who are always willing to help out in any way they can. Those guys have an amazing amount of riding skills and make the balance required to negotiate difficult terrain and deep snow, look easy. People who do not understand the sport cannot understand why these guys like to high mark up into the high alpine zones. The reason is the same as why we ski there, its fun (risk vs. reward) and it's their passion.

Having been snow machine stuck in these same active slide paths in the past, along with a friend of mine (guides big mountains), I can tell you it's no fun. We decided to take the risk and do the digging and we were lucky we did not have to try and dodge massive amounts of snow heading our way. The paths had all slid right before we arrived to cross them. The tendency, upon safe return home after dodging a bullet, is to want to drink massive amounts of whiskey, learn from mistakes and be thankful for life.

The skier in path #3, often breaks trail in deep new snow conditions, with his snowmobile and while ski climbing up in the HWY 20 corridor and everyone who follows, greatly benefits from his trail breaking skill, including commercially guided groups, who have been following his (and others) trails for years around these parts.

After the dig out, three out of the seven continued the day by skiing Pica Bowl in wind effected powder."

Attach additional pages as needed. Include weather history, snow profiles, reports from other agencies, diagram of site, photographs, and any other supporting information



http://www.turns-all-year.com/skiing_snowboarding/trip_reports/index.php?topic=26228.0

Ancillary Snowpack & Forecast Information from the NWAC for the time of the incident:

Snowpack Discussion

Before last weekend, most areas at lower and intermediate elevations had a relatively meager (read almost none) snowcover full of many terrain and vegetative obstacles. A slightly more robust and relatively stable snowpack existed above about 5000 feet in the north and 6000 feet in the south, yet this too was generally less than 2-3 feet except in some more heavily wind loaded terrain. Late last week during a brief bout of clearing skies, some surface hoar formed on a snow surface of mostly firmer and crusted snow.

Since that time, an increasingly strong and very moist southwesterly flow entrained several storms that began last Friday and culminated in the strongest and warmest storm of the series on Monday. Abundant rainfall to relatively high elevations on Monday fell on the new snow from last weekend, producing either significant melt, substantial settlement or increased avalanche activity on Monday, with our first natural slide cycle of the late fall. Slabs ranging up to 10-20 inches were reported in several locations, including Mt Baker, Washington Pass, and Mission Ridge, with these slides releasing relatively easily (clean shears and easly compression test results) on the previously deposited surface hoar or crusted surface.

Following the substantial rain event in most NW mountain areas on Monday, decreasing showers and slight cooling Tuesday were followed by a quickly moving front that deposited an additional 6-18 inchesof snow over a breakable to semi-breakable crust that formed over residual wet snow from Monday. Most field information indicates that the most recent snow has formed a relatively good bond with the old snow surface below about 5 to 6000 feet and a generall weaker bond above. Despite the potentially weaker bonding of new to old snow at higher elevations, the overall lowering temperature and wind speed trends during the Wednesday snowfall have produced a generally stable density profile within the most recently deposited new snow. At the present time due to an overall lack of internal cohesion within near surface snow, loose slide releases on the crust are more likely than slab releases. As a result, a moderate danger exists in most NW mountain locations where sufficient snow has been received to bury terrain or vegetative anchors.

Pertinent Field Observations

In the Mt Baker area where some 16 inches of new snow was received on Wednesday, field information from the Ski Patrol suggests an unconsolidated snow surface with little propagation potential at this time. Avalanche control was quite limited with not much moving and only isolated soft slabs of 6-12 inches releasing in steeper higher elevation terrain.

Detailed Avalanche Forecasts

Friday

Thursday night: Significantly rising winds and freezing levels starting later Thursday afternoon and evening should combine with some increasing light rain or wet snow in the north WA Cascades and Olympics Thursday night to gradually increase the avalanche danger as denser snow or rain is deposited over lower density snow received last Wednesday. The greatest danger from wind transport should be on north and northeast exposures at higher elevations. However, cross loading may impact other aspects as well and increasing caution is advised on slopes showing evidence of wind transport and having either a smooth underlying ground surface or having sufficient snow cover to bury early season terrain and vegetative anchors.

Some recent field reports from Wednesday still indicated relatively clean shears releasing on a crust and/or surface hoar layer that formed during clearing weather late last week. While the potential of avalanches involving these more deeply buried and slowly settling weak layers is decreasing, it remains a concern…mainly in higher elevation terrain not experiencing recent rainfall and not experiencing recent avalanche activity.

Friday: After affecting primarily the Olympics and northern WA Cascades overnight, a moderate frontal system should move southeastward across the region on Friday morning, reaching the central WA Cascades early-mid-morning and the southern WA Cascades and Mt Hood area later Friday morning and midday. This should spread increasing light to moderate rain, or snow changing to rain southward along with increasingly strong ridgetop winds amid sustained warming aloft. While a briefly cooler easterly flow thru the Cascade passes may allow for some initial snow or mixed snow and rain, downward mixing of the warm air should combine with a midday wind shift to turn most precipitation to rain by mid-late morning at the latest. Overall, rain should reach to about 5000 feet in the north and near 7-8000 feet in the south during this storm along with rather strong winds near higher ridgelines. Above these elevations, the combination of winds and heavy dense snow loading should increase the potential for human triggered wind slabs releasing down to the recent Monday crust. Along with an increased avalanche danger becoming considerable at higher elevations along with an increasing potential for loose, wet loose and storm slab or wind slab avalanches, this should not be a great day for back country travel. Moderate rain and strong winds should be received to the top of most areas Friday afternoon before freezing levels and winds slowly ease later Friday afternoon in the north and Olympics, with a slower easing of winds in the southern WA Cascades and Mt Hood area.

Please note that a rather shallow snowpack continues below about 4 to 5000 feet in most locations, along with a long list of associated dangers. These dangers include but are not limited to contact with rocks, bushes, cliffs and creeks, many of which may be just buried or

only partly buried…and all of which present terrain traps for even small loose slides or sluffs to sweep unway travelers into or through. Don't let your lack of awareness turn a great outing into an ordeal.

Primary Concerns:

Wet loose avalanches—rain falling on the recent lighter and generally more stable surface snow should result in increasing sluffs, which may entrain increasing amounts of moist to wet snow as the day wears on. Some of these wet loose avalanches may trigger isolated moist or wet slabs of the recent snow deposited over the crust formed during heavy rainfall last Monday, while more isolated slabs may reach down to the surface hoar/crust combination formed late last week. While most of these slabs should be in the range of 6-12 inches, some reaching 2 feet are possible in wind loaded terrain, or if they involve the older hoar frost layer.

Persistent slab avalanches—although the threat of slides involving the surface hoar layer reported in several locations earlier this week is diminishing due to the recent rain, warming, significant settlement and previous avalanche activity, it may still be a lingering concern at higher elevations, mainly in the north and northeast WA Cascades, and at higher elevations (above about 6000 ft) along the Cascade east slopes where less rainfall was received.

Storm snow and wind slab avalanches—While wind slab activity due to strong winds and loading by dense new snow deposited over lower density snow from Tuesday should increase at higher elevations…mainly above 5 to 6000 feet in the north and 7000 feet in the south.

Meanwhile, storm snow slabs should not be a significant factor until late Friday when lowering freezing levels allow new snow to be deposited at progressively lower elevations. However, with a good bond of the most recent snow to Monday's crust and gradually lowering temperatures during precipitation, new storm snow avalanches will be of a more limited concern until later Friday, at least in the south and central Cascades and Mt Hood area. Further north where less warming and more snowfall is likely, expected heavier loading by denser wet snow will be more of a factor on lee slopes and the potential for both natural and human triggered slide activity should increase. Gradually increasing wind slabs may also become more of a concern above about 6000 feet in the central Cascades by late Friday.

Please send to: CAIC; 325 Broadway WS1; Boulder CO 80305; caic@qwest.net; Fax (303) 499-9618 and to the nearest Avalanche Center.