

## Appendix H

### Reporting Avalanche Involvements

#### H.1 Objective

The objective of reporting avalanche accidents and damage is to collect data about the extent of avalanche hazards in the United States. Summaries of the reports will draw attention to avalanche problems and assist in the development of risk reduction measures.

#### H.2 Reporting Forms

Two different reports are available for recording avalanche accidents and damage. Any person who wishes to report an avalanche incident or accident can use these reports.

The short form is a brief summary of an avalanche incident or accident. This form should be submitted every time people are involved in an avalanche, property is damaged or a significant natural event occurs.

The long form is a detailed report that can be used as a template for an accident investigation. This report should be completed when an avalanche causes a fatality, serious injury, or property damage in excess of \$5,000, or when the incident has a high educational value. It may be useful as a checklist when operations wish to describe an accident and rescue work in greater detail.

#### H.3 Filing of Reports

Completed short reports should be returned as quickly as possible to the nearest avalanche center. A copy should also be sent to the Colorado Avalanche Information Center, which serves as a central recording hub for avalanche accident information.

Colorado Avalanche Information Center  
325 Broadway #WS1  
Boulder, CO 80305  
caic@qwest.net  
Fax: (303) 499-9618

Reports will be used to identify trends in avalanche accidents, used for educational purposes, and to maintain long-term data sets. The reporter's and victim's names and contact information should be recorded. Requests for anonymity will be noted and respected whenever possible.

#### H.4 Completing the Short Form

##### H.4.1 Date and Time

Fill in the date and time of the avalanche occurrence.

##### H.4.2 Location

Give the mountain range, valley and feature where the avalanche occurred. Include as much information as possible including county name, ski area name, highway name, avalanche path and GPS coordinates.

##### H.4.3 Group and Activity Description

Record the primary purpose of the group when the avalanche occurred. Enter the number of people engaged in each listed activity. If the activity is not listed write it in (i.e. mountain climbing, snowshoeing, traveling on a road). Note if the group was ascending, descending, etc.

##### H.4.4 People Caught in the Avalanche

Enter the number of people that were involved in the avalanche and the number injured or killed. Of those involved, give the number that were not caught or buried; the number *caught*; the number that were *partially buried-not critical*; the number that were *partially buried-critical*; and the number *completely buried* using the definitions listed below.

The following definitions were composed for the purpose of reporting incidents and accidents with the intent of delineating between different rescue scenarios.

A person is *caught* if they are touched and adversely affected by the avalanche. People performing slope cuts are generally not considered *caught* in the resulting avalanche unless they are carried down the slope.

A person is *partially buried–not critical* if their head is above the snow surface when the avalanche stops.

A person is *partially buried–critical* if their head is below the snow surface when the avalanche stops but equipment, clothing and/or portions of their body are visible.

A person is *completely buried* if they are completely beneath the snow surface when the avalanche stops. Clothing and attached equipment are not visible on the surface.

For people that were *completely buried* or *partially buried–critical*, estimate the length of time they were buried, the burial depth measured from the snow surface to their face, position of person (face up, face down, or sitting), the distance between multiple persons and distance from vehicle if applicable. Include the method of rescue used to find the victim (i.e. transceiver, exposed equipment, exposed body part, spot probe, probe line, voice, etc.).

#### H.4.5 Diagram

Provide a sketch, photograph, or digital image showing the outline of the avalanche, the deposit, and the locations of people, snowmobiles, and other equipment when the avalanche started and when it stopped. Include significant terrain features and avalanche path characteristics such as starting zones or terrain traps.

#### H.4.6 Avalanche Description

Fill in the appropriate fields as accurately as possible.

#### H.4.7 Comments

Briefly describe: events leading to the avalanche involvement; how the rescue was conducted; the injuries sustained; level of avalanche training of group members; and other information that may be significant. A description of the events and decision-making process leading up to the accident should be recorded.

#### H.5 Completing the Detailed Report

On the form enter the information in the spaces provided or tick off the multiple-choice statements.

Write “N/Av” if the information is not available or “N/App if not applicable.

**Figure H.1** Terrain trap  
(photography by Bruce Tremper)





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



Occurrence Date:(YYYYMMDD) \_\_\_\_\_ Time:(HHMM) \_\_\_\_\_

Reporting Party Name and Address: \_\_\_\_\_

**Avalanche Characteristics:**

Type: \_\_\_\_\_ Aspect: \_\_\_\_\_  
 Trigger \_\_\_\_\_ Slope Angle: \_\_\_\_\_  
 Size: R /D \_\_\_\_\_ Elevation: \_\_\_\_\_ m / ft  
 Sliding Surface (check one):  
 In new  New/old  In old  Ground

**Location:**

State: \_\_\_\_\_ County: \_\_\_\_\_ Forest: \_\_\_\_\_  
 Peak, Mtn Pass, or Drainage: \_\_\_\_\_  
 Site Name: \_\_\_\_\_  
 Lat/Lon or UTM: \_\_\_\_\_

Group	Number of People				Dimensions: <input type="checkbox"/> m <input type="checkbox"/> ft	Average	Maximum
Caught					Height of Crown Face		
Partially Buried— Not-critical		Time Recovered	Duration of Burial	Depth to Face <input type="checkbox"/> m <input type="checkbox"/> ft	Width of Fracture		
					Vertical fall		
Partially Buried— Critical					<b>Snow</b>	Hardness	Grain Type
					Slab		
Completely Buried					Weak Layer		
					Bed Surface		
Number of people injured: _____		Number of people killed: _____		Thickness of weak layer: _____ mm / cm / in			

Burial involved a terrain trap?  no  yes→type: \_\_\_\_\_ Number of people that crossed start zone before the avalanche: \_\_\_\_\_  
 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						
2						
3						
4						
5						

Equipment Carried	Experience at Activity	Avalanche Training	Signs of Instability Noted by Group	Injuries Sustained	Extent of Injuries or Cause of Death
1 2 3 4 5 <input type="checkbox"/> transceiver <input type="checkbox"/> shovel <input type="checkbox"/> probe pole <input type="checkbox"/> _____ <input type="checkbox"/> _____	1 2 3 4 5 <input type="checkbox"/> unknown <input type="checkbox"/> novice <input type="checkbox"/> intermediate <input type="checkbox"/> advanced <input type="checkbox"/> expert	1 2 3 4 5 <input type="checkbox"/> unknown <input type="checkbox"/> none <input type="checkbox"/> some <input type="checkbox"/> advanced <input type="checkbox"/> expert	<input type="checkbox"/> unknown <input type="checkbox"/> none <input type="checkbox"/> recent avalanches <input type="checkbox"/> shooting cracks <input type="checkbox"/> collapse or whumphing <input type="checkbox"/> low test scores	1 2 3 4 5 <input type="checkbox"/> none <input type="checkbox"/> first aid <input type="checkbox"/> doctor's care <input type="checkbox"/> hospital stay <input type="checkbox"/> fatal	1 2 3 4 5 <input type="checkbox"/> asphyxiation <input type="checkbox"/> head trauma <input type="checkbox"/> spinal injury <input type="checkbox"/> chest trauma <input type="checkbox"/> skeletal fractures <input type="checkbox"/> _____

**Damage** | Number of Vehicles Caught: \_\_\_\_\_ | Number of Structures Damaged: \_\_\_\_\_ | Estimated \$ Loss: \_\_\_\_\_

**Accident Summary** | Include: events leading to accident, group's familiarity with location, objectives, route, hazard evaluation, etc.

**Rescue Summary** | Include: description of initial search, report of accident, organized rescue etc.

**Rescue Method:**  
 1 2 3 4 5  
 self rescue  
 transceiver  
 spot probe  
 probe line  
 rescue dog  
 voice  
 object  
 digging  
 other \_\_\_\_\_

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

**Please send to: CAIC; 325 Broadway WS1; Boulder, CO 80305; caic@qwest.net  
 Fax (303) 499-9618**





**American Avalanche Association  
Forest Service National Avalanche Center  
Avalanche Accident Report: Long Form**



Please send to:  
Colorado Avalanche Information Center  
325 Broadway WS1  
Boulder, CO 80305  
caic@qwest.net (303) 499-9618 fax

**Occurrence Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_

**Report Author(s):**

Name: \_\_\_\_\_ Affiliation \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

**Location:**

State: \_\_\_\_\_ County: \_\_\_\_\_ Region: \_\_\_\_\_ Forest: \_\_\_\_\_  
Geographic Area (mountain range, mountain pass, drainage, or feature): \_\_\_\_\_

Site Name: \_\_\_\_\_  
Lat/Lon or UTM: \_\_\_\_\_ Elevation:  above treeline  near treeline  below treeline

Summary	Caught	Partially Buried Not-critical	Partially Buried Critical	Completely Buried	Injured	Killed	Vehicles Damaged	Structures Damaged
Number								

**Weather** Fill in the weather chart of the five days prior to the accident. Use 24 hr averages or trends for wind speed and direction.

Weather station(s): Location \_\_\_\_\_ Lat/Lon or UTM: \_\_\_\_\_ Elevation: \_\_\_\_\_ m / ft

Date						Day of Accident
Tmax						
Tmin						
HN24						
HN24W						
Wind Speed						
Wind Dir						

**Avalanche Conditions** Attach most recent avalanche advisory

Closest Avalanche Center: _____	Avalanche Danger Rating <input type="checkbox"/> Low <input type="checkbox"/> Moderate <input type="checkbox"/> Considerable <input type="checkbox"/> High <input type="checkbox"/> Extreme	Recent Avalanche Activity
<input type="checkbox"/> accident outside of forecast area		
Avalanche warning in effect? <input type="checkbox"/> yes <input type="checkbox"/> no		

**Snowpack** Describe the state of the snowpack. Include season history, snow profiles, and prominent features as necessary.

<b>Section I: Group Information</b>	
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Fill in the following tables. Some of the fields can be checked yes or left blank. Attach additional pages and reports from other agencies as necessary.

Subject	Name	Age	Gender	Address	Phone
1					
2					
3					
4					
5					

Skill Level	Activity	Years at Activity	Rank skill level as novice, intermediate, advanced, or expert.		Years Traveling in Avalanche Terrain	Avalanche Education Level
			Activity Skill Level	Accessed Local Avalanche Advisory		
1						
2						
3						
4						
5						

Rescue Equipment Carried	Transceiver Make and Model	Shovel	Probe Pole	Releasable Bindings	Other	Snowmobile: Rescue Equipment Carried on Person
1						
2						
3						
4						
5						

Injuries or Cause of Death	Unknown	None	First-Aid Necessary	Doctor's Care Needed	Hospital Stay Required	Asphyxiation	Head Injury	Chest Injuries	Spinal Injury	Hypothermia	Skeletal Fracture	Other	Fatal
1													
2													
3													
4													
5													

<b>Comments</b>	
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## Section II: Avalanche Path and Event Information

Fill in the following tables. Some of the fields can be checked yes or left blank. Attach additional pages, fracture line profiles, and reports as necessary.

### Avalanche Characteristics

Type: \_\_\_\_\_ Trigger: \_\_\_\_\_ Size: R1 R2 R3 R4 R5 / D1 D2 D3 D4 D5

Sliding Surface (check one): Within new snow New/old interface Old snow layer Ground

Comments:

Dimensions <input type="checkbox"/> m <input type="checkbox"/> ft	Average	Maximum	Measured
	Height of Crown Face		
Width			
Vertical fall			

Snow	Hardness	Grain Type	Grain Size	Thickness
Slab				
Weak Layer				
Bed Surface				

### Start Zone

Elevation: \_\_\_\_\_ m / ft

Average Slope Angle (°) : \_\_\_\_\_

Maximum Slope Angle (°) : \_\_\_\_\_

Aspect: \_\_\_\_\_

Vegetation: \_\_\_\_\_

#### Ground Cover

- Smooth  
 Rocky  
 Glacier  
 Dense Forest  
 Open Forest  
 Unknown

#### Location of Crown Face

- Ridge  
 Cornice  
 Mid-slope  
 Convex Roll  
 Rocks  
 Unknown

#### Snow Moisture

- Dry  
 Moist  
 Wet

### Track

Open Slope Average Slope Angle(°): \_\_\_\_\_

Confined Aspect: \_\_\_\_\_

Gully

#### Snow Moisture

Dry Moist Wet

### Runout

Elevation: \_\_\_\_\_ m / ft

Average Incline(°) : \_\_\_\_\_

Aspect: \_\_\_\_\_

Vegetation: \_\_\_\_\_

#### Ground Cover

- Smooth  
 Rocky  
 Glacier  
 Dense Forest  
 Open Forest  
 Unknown

#### Snow Moisture

- Dry  
 Moist  
 Wet

#### Debris Type (check all that apply)

- Fine  
 Blocks  
 Hard  
 Soft  
 Rocks  
 Trees  
 \_\_\_\_\_  
 \_\_\_\_\_

$\alpha_i$  (°) : \_\_\_\_\_

$\alpha_e$  (°) : \_\_\_\_\_

Debris Density: \_\_\_\_\_ kg/m<sup>3</sup>

Terrain Trap: no yes

Terrain Trap Type: \_\_\_\_\_

### Comments

**Section III: Accident Description**

Fill in the following sections with available information. Attach additional pages, statements, witness accounts, and other reports as necessary.

**Events Leading Up to the Avalanche**

Include objectives of party, departure point, route taken, familiarity with area, and encounters with other groups, location of party at time of avalanche, etc.

Location of group in relation to start zone at the time of avalanche release:  high  middle  low  below  all  unknown  
Slope angle at approximate trigger site: \_\_\_\_\_°

**Avalanche Danger Evaluation**

Number of snowpit observations : \_\_\_\_\_

Stability Tests Performed:

Signs of Instability Observed:

- none
- some cracking
- whumphing
- recent avalanche activity
- unknown
- shooting cracks
- hollow sounds

- yes
- no
- unknown

Test Results

**Comments**

Witnesses	Name	Address	Phone
1			
2			

**Accident Diagram**

On a separate page or on a photograph, draw a diagram of the accident scene. Include avalanche boundaries, prominent rock and/or trees, the location of all party members before the avalanche, and the location of people, machines and equipment after the avalanche.



**Section IV: Rescue**

Fill in the following sections with available information. Attach additional pages, statements, witness accounts, and other reports as necessary.

Rescue Chronology						
First Report	Response					
Reporting Party:	Agency	Time Dispatched	Time on Scene	Method of Travel	Number of Rescuers	Equipment
Report Method:						
Time Reported: _____						

Recovery		For Body Position use: Prone/Face Down, Supine/On Back, On Side, Sitting, Standing For Head Position use: Up Hill, Down Hill, Sideways							
Subject	Caught	Partially Buried - Non-critical	Partially Buried - Critical	Completely Buried	Depth to Face □m □ft	Time Recovered	Length of Burial	Body Position	Head Position
1									
2									
3									
4									
5									

Recovery Method			For a transceiver recovery, include make and model of transceiver used by searcher. If an object on the surface was used as a clue, list the object.							
Subject	Self Rescue	Companion	Organized	Voice	Object	Transceiver	Spot Probe	Probe Line	Rescue Dog	Digging
1										
2										
3										
4										
5										

Rescue Description	List pertinent events that occurred during the rescue. Include additional pages of dispatch notes, statements, and agency reports as needed.

**Section V: Damage**

Fill in the following sections with available information. Attach additional pages, statements, witness accounts, and other reports as necessary.

<b>Vehicles in Avalanche</b>			
Fill in the table below. Describe and/or estimate the cost of the damage to each vehicle caught in the avalanche.			
Type	Partially Buried	Completely Buried	Damage

<b>Structures Damaged</b>			
Fill in the table below. Describe and/or estimate the cost of the damage to each structure affected by the avalanche.			
Type	Construction Type	Damage	Destroyed

**Total Loss** Estimate the cost of the damage caused by the avalanche. \$ \_\_\_\_\_

**Rescue Cost** Estimate the cost of rescue. \$ \_\_\_\_\_

**Economic Effects** List economic effects not included in the above tables (road closed, ski area closed, mine closed, change in policy, etc.)

**Additional Comments and Recommendations**