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**canadianavalancheassociation**

Box 2759, Revelstoke, BC V0E 2S0 ph: (250) 837-2435 / fax: (250) 837-4624 canav@avalanche.ca / www.avalanche.ca

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July 12, 2007

Ms. Anne Burch  
WorkSafeBC  
Prevention Policy and Regulation Review Department  
Policy and Research Division  
PO Box 5350 Station Terminal  
Vancouver, BC V6B 5L5

**Re: Proposed WSBC regulations regarding avalanche assessments**

Dear Ms. Burch;

On behalf of the Canadian Avalanche Association (CAA) I am pleased to submit the attached document containing suggested wording for Section 4.1.2 of the regulations pertaining to avalanche assessments. The CAA believes this suggested regulation wording will provide the basis for an effective framework for avalanche protection for workers in British Columbia. As I stated at the public hearings in Vancouver, the CAA believes that it will take at least one year to build the professional guidance and capacity to do the work that will fall from these regulations, and one additional year to develop the avalanche assessments and avalanche control plans for all British Columbia organizations that have workers exposed to avalanche risk.

The CAA is willing to work with all stakeholders to ensure that avalanche safety programs for workers in BC are the best in the world. I look forward to working with you and your staff as we work toward this mutual goal.

I am also attaching the CAA's oral submission for the Vancouver hearings, for your reference.

Sincerely,

A handwritten signature in black ink, appearing to read "Clair Israelson".

Clair Israelson  
Executive Director  
Canadian Avalanche Association

Cc: CAA WSBC written submission, v 070712  
CAA oral submission to WSBC June 12, 2007

**THE CAA SUGGESTS THE WSBC DRAFT REGULATIONS BE REVISED TO READ AS FOLLOWS:**

**Part 4, General Conditions, 4.1.2 Snow Avalanche Assessment**

1. In these section:

“*avalanche*” means snow avalanche

“*avalanche risk assessment*” means determination of the characteristics of the terrain in and around a workplace based on an analysis of topographic variables, the snow climate, the estimated return periods and magnitudes of avalanches, and the type of work that is to be done in that workplace.

“*avalanche risk zone*” means a workplace or part of a workplace where an avalanche risk assessment has determined that avalanches could pose a risk to workers and avalanche risk reduction measures are required to make the area safe for the work to be conducted.

“*avalanche control plan*” means written procedures specifying

- (a) structural and/or active avalanche control measures necessary to mitigate avalanche risk in the workplace;
- (b) recommended worker training and experience qualifications for key levels of safety decision authority within operations; and,
- (c) operational procedures to be followed by persons working in the workplace,

“*structural avalanche control*” involves long term methods to reduce avalanche risks. Risk reduction may be achieved through worksite layout, facility location and design, or restrictions for worksite use by workers. Berms, mounds, snow sheds, retaining walls and protective forests are some methods of structural avalanche control.

“*active avalanche control*” means monitoring weather, snow and avalanche conditions throughout the winter season, determining temporal fluctuations in avalanche hazard, and implementing activity restrictions, area closures or other methods to reduce avalanche risks.

“*multi-disciplinary team*” means two or more persons with the credentials, knowledge and experience required to produce high quality avalanche risk assessments and / or avalanche control plans.

“*qualified avalanche expert*” means a Professional Member of the Canadian Avalanche Association (CAA) who meets all qualifications recommended by the CAA for conducting qualitative avalanche risk assessments for operations in wilderness settings, and for specifying the contents of active avalanche control plans.

2. Before work commences at a workplace where there is or may be a risk to a worker from an avalanche, an avalanche risk assessment must be conducted.
  - (a) For workplaces involving forest operations, buildings, construction sites, transportation corridors, mining operations, or other developed worksites in fixed locations, a quantitative avalanche risk assessment must be conducted by a multi-disciplinary team led by a qualified registered professional.
  - (b) In wilderness settings, where workers range over vast expanses of undeveloped mountainous terrain, a qualitative avalanche risk assessment must be conducted by a qualified avalanche expert.
  
3. If an avalanche risk assessment identifies an avalanche risk zone, no work may be conducted in the risk zone at any time when snow depths have reached thresholds for significant avalanches to occur unless:
  - (a) a qualified registered professional has prepared a structural avalanche control plan, that plan has been signed off by the employer or primary contractor, and the plan is implemented as specified;  
and/or,
  - (b) a qualified avalanche expert has prepared an active avalanche control plan, that plan has been signed off by the employer or primary contractor, and the plan is implemented as specified.
  
4. Where an avalanche risk assessment identifies the need for a combination of structural and active avalanche control methods, that avalanche control plan must be signed off by a qualified registered professional and a qualified avalanche expert, or an individual who possesses both credentials.
  
5. If an avalanche control plan has recommended procedures to be followed by people working in an avalanche risk zone, the employer or primary contractor is responsible to ensure that every person working in the risk zone is trained in, and complies with, any procedures applicable to that person's work.

**CAA Oral Presentation – WorksafeBC Public Hearing  
June 12, 2007, Vancouver, BC**

- The Canadian Avalanche Association (CAA) is representing workers in these matters
- The CAA is a not-for profit, non-government organization that represents the people and expertise of the Canadian avalanche community:
  - The CAA is an inclusive organization representing persons engaged in avalanche related activities in Canada. The CAA has over 800 members. Our membership includes ski patrollers, mountain guides, provincial and federal avalanche workers, engineers, geo-scientists, foresters and other registered professionals, consultants and others.
  - Describe purposes and scope of membership as stated in the CAA constitution and bylaws. (*table CAA constitution and page 1 of Bylaws*)
  - The CAA develops national technical standards for avalanche work in Canada (*table OGRS*)
  - The CAA provides the formal training programs for avalanche workers in Canada (*table Introductory and Advanced Avalanche Hazard Mapping course outlines as examples*)
  - CAA has a long history of brokering “best practices” for many avalanche related activities; for example, Explosives Use Procedures in collaboration with the WSBC Program Design Division (*table documents*)

**GENERAL COMMENTS**

- Worker safety has been an important issue for the CAA for many years. We fully support well considered WSBC regulations that truly improve the safety of workers exposed to avalanches.
- We note that worker exposure to avalanches is increasing in many industry sectors, including construction, forestry, mining, transportation, downhill ski resorts, commercial wilderness operations, and a myriad of other activities undertaken by BC’s diverse and highly mobile workforce.
- We believe that due to lack of early consultation between WorkSafeBC and stakeholders the proposed amendments relating to avalanches in Part 4.1.2 are well intentioned but misguided and unworkable.
- We see at least three distinct categories of workers exposed to avalanche hazards in British Columbia. These are:
  - “Unprotected workers” such as timber cruisers and others who travel in the mountains to do their jobs and may not have any avalanche specific training or workplace safety procedures.

- “Protected workers” such as highways maintenance contractors, miners, loggers, etc. who work in a setting where there is someone responsible to protect them from avalanches.
  - “Avalanche workers” such ski patrollers, mountain guides, MoT avalanche technicians, parks staff, consultants and others
- We believe that each of these categories of workers will require different types of safety plans and operational procedures for effective protection from avalanches.
- It appears that the strategy presently described in part 4.1.2 has been designed for forestry. To use this same approach as a “one size fits all” prescription for all other sectors exposed to avalanches in BC is simply wrong and won’t work.
- We contend part 4.1.2 needs significant revision in order to be effective. The CAA will, in a written submission, recommend specific wording changes to 4.1.2 so that all workers in BC have effective and realistic protection from avalanches.
- We are pleased to see that the April 25 version of the proposed amendments treats avalanche assessment and terrain stability assessment separately. This is a very important distinction, because people qualified to conduct terrain stability assessments are not necessarily qualified to conduct avalanche risk assessments.
- The term “Avalanche assessment” as presently defined is conceptually flawed. The correct term should be avalanche risk assessment, and understood as “defining the avalanche problem” based on analysis of terrain variables, the snow climate, the estimated return periods and magnitudes of avalanches, and the type of work that is to be done in that workplace.
- There is a second, equally crucial component that builds from the avalanche risk assessment, and that is an avalanche control plan designed for the specific operational characteristics of each workplace.
- There are two distinct methods for avalanche control:
  - “Structural avalanche control” involves long term methods for reducing avalanche risks. These methods specify worksite layout, facility design and location, and use of the worksite by workers. Structural avalanche control may include the design and construction of built defenses against avalanches.
  - “Active avalanche control” involves continuously monitoring weather, snow and avalanche conditions, and determining day to day changes in avalanche hazard. This is the “avalanche forecasting” element. Then, based on this avalanche forecast and the specific requirements of the operation, the avalanche hazards are controlled using a variety of techniques.

- We believe active avalanche control is what is intended by the term “avalanche risk watch” in the draft regulations. We urge WSBC to use language that is in common use. “Avalanche risk watch” is ambiguous and misleading and should disappear.
- We contend that the WSBS regulations should specify avalanche risk assessments and avalanche control plans as complimentary but separate and distinct components of avalanche protection planning.
- In 2002 the CAA produced two publications, *Guidelines for Snow Avalanche Risk Determination and Mapping in Canada*, and *Land Managers Guide to Snow Avalanche Hazards in Canada*. These publications were created by a blue ribbon international team of engineers, geoscientists, foresters, and avalanche experts.
- We believe that WorkSafeBC, members of BC professional associations, CAA members, and employers should recognize these documents as conceptual guidance and technical standards for avalanche risk assessments and associated avalanche control planning in British Columbia. (*table both documents*)

#### **QUALIFICATIONS FOR AVALANCHE ASSESSMENTS AND CONTROL PLANS**

- Avalanche risk assessments require expert subjective judgment based on avalanche specific training, knowledge and extensive experience. This expert judgment cannot be learned in school. A qualified registered professional, without extensive avalanche specific training and experience, must not be deemed to be qualified for this work.
- We contend that Professional Membership in the Canadian Avalanche Association should be the single overriding qualification for persons conducting avalanche risk assessments and planning and specifying the contents of avalanche control plans in BC. This CAA membership, and it’s requirement for ongoing Continuing Professional Development ensures that member’s avalanche skills and knowledge are current with evolving national and international best practices.
- We agree that qualified registered professionals - who are also CAA Professional Members - should conduct avalanche risk assessments and prepare structural avalanche control plans for developed worksites in fixed locations.
- We contend that it is totally unreasonable to require qualified registered professionals to conduct detailed avalanche risk assessments for the vast expanses of terrain used by wilderness based operations such as heli-skiing or ski or snowmobile touring operations. A much simpler qualitative avalanche risk assessment is all that is practical and useful in these wilderness settings.

- We believe that “avalanche experts” are the only people who are qualified to conduct qualitative avalanche risk assessments for wilderness workplaces, and to plan and specify the contents of active avalanche control plans.
- Please note that at the present time there is no “statement of qualifications” for “avalanche expert.” Until now there has not been the need to define this. The CAA’s Board of Directors and membership are committed to urgently addressing this, and other issues, that will fall from this proposed WSBC regulation.

Proposed definition: “*avalanche expert*” means a person meeting all qualifications recommended by the Canadian Avalanche Association for

- conducting qualitative *avalanche risk assessments* for wilderness operations where avalanche risk zones are occupied by workers on a transient basis, and/or
- planning and specifying contents of *active avalanche control plans*.
- As usually there is no one individual who possesses all of the expertise needed to produce high quality avalanche risk assessments and control plans, a multi-disciplinary team approach has become accepted best practice in BC. We suggest these WSBC regulations should promote the use of multi-disciplinary teams for avalanche risk assessments and avalanche control planning.
- We recommend that where a combination of structural and active avalanche risk controls are needed, that avalanche control plan should be signed off by the qualified registered professional and the avalanche expert.

## IMPLEMENTATION CONSIDERATIONS

- We believe that achieving adequate worker safety will require development of sector and operation specific avalanche control plans that specify:
  - Accountability for avalanche risk assessments and avalanche control plans, and employer accountability for operational implementation of the avalanche risk assessments and avalanche control plans for their respective operations.
  - Operational procedures that are tailored to the specific needs of individual operations.
  - Training and experience qualifications for workers for key levels of safety decision authority within operations.
- We will all need time to develop the capacity to deliver the avalanche safety programs necessary for the safety of workers in BC.
- We believe we need a full year to work with professional associations and employers’ organizations to develop consensus based qualifications and sector specific guidance for persons who will conduct avalanche risk assessments and create and implement avalanche control plans in BC.

- We believe employers will need one additional year to do the avalanche risk assessments and prepare the avalanche control plans for the spectrum of operations in BC where workers are exposed to avalanche hazards.
- We believe that WorkSafeBC and all stakeholders need to commit to an urgent collaborative process to develop guidance documents for avalanche risk assessments, control plans and operating procedures for the protection of workers in British Columbia.
- We recommend that WorkSafeBC should revise part 4.1.2, and not enact the revised section of the proposed regulations until the fall of 2009, or some later date as determined by WorkSafeBC.

**FINAL COMMENTS:**

- The CAA has recommended training and experience qualifications that are de-facto standards for entry level avalanche workers and avalanche control team leaders.
- The CAA believes that by July 2008 similar consensus based recommended qualifications can be in place for “avalanche forecasters” or “operations managers” responsible for the operational implementation of active avalanche control plans, and for the “avalanche experts” who should be responsible to conduct qualitative avalanche risk assessments for wilderness operations, and to plan and specify the contents of active avalanche control plans.

Thank you for this opportunity to speak to these issues on behalf of the CAA.

Clair Israelson  
Executive Director,  
Canadian Avalanche Association

**Maclean(Gannon), Christine**

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**From:** Clair Israelson [clair@avalanche.ca]  
**Sent:** Thursday, July 12, 2007 4:03 PM  
**To:** Regulation Review - External Queries (SM)  
**Cc:** 'Andrew Nelson'; 'Dan Markham'; 'Deb Ritchie'; Jack.Bennetto@gems8.gov.bc.ca; 'Janice Johnson'; 'John Hetherington'; 'Ken Bibby'; 'Mike Boissonneault'; 'Mike Mortimer'; 'Rob Rohn'; 'Steve Blake'; 'Susan Hairsine'  
**Subject:** Canadian Avalanche Association submission regarding Part 4.1.2 Avalanche Assessments  
**Attachments:** WSBC cover letter 070712.pdf; CAA WSBC written submission V 070712.pdf; CAA WSBC oral submission FINAL 070612.pdf

Dear sirs;

Please accept this email cover and attached three documents from the Canadian Avalanche Association in regards to Part 4.1.2 of the proposed WSBC regulation.

1. Clair Israelson, Executive Director, Canadian Avalanche Association (CAA)
2. This submission is on behalf of an Association
3. The CAA submission is on behalf of workers
4. These comments are specific to section 4.1.2 of the proposed regulation
5. The CAA generally agrees with the intent of the regulation, but generally disagrees with the regulation as proposed

Please contact me if I can be of further assistance in these matters

Sincerely,



Clair Israelson  
Executive Director  
Phone 250.837.2435, ext 227