



Safety Advisory for Seismic Blasting Operations

Personal Safety and Seismic Blasting

Blasters: The Canadian Association of Geophysical Contractors (CAGC) wants you to be cautious about your surroundings when detonating seismic blasts. There is a risk that blasting may destabilize trees and/or weak limbs and tops.

Background: At the recent “2014 Seismic in Motion” event at Waiparous Alberta, representatives from the Wildlife Tree Committee of BC (WTC), Workers Compensation Board of BC (WorkSafeBC) and CAGC conducted a vibration study to measure the levels of disturbance created by various seismic activities. The group is investigating the potential for trees to collapse as a consequence of differing seismic activities.

The current guidance of having the blaster stay a minimum of 30m from the source hole when firing a seismic blast may not, in all surroundings, be an adequate distance to ensure the safety of the blaster. The vibration study found that the level of vibration (measured as peak particle velocity) triggered by 1kg, 2kg and 4kg seismic detonations causes significant vibration for distances beyond the standard 30m firing line, which prompted this advisory.

Ensure Personal Safety:

Blasters should be aware of their surroundings prior to detonating any seismic blasts within treed areas. Don't assume all dangerous trees have been removed. Before and after detonating a blast, look around for hazards. Where there is potential for weak trees (or tops and overhead limbs) to collapse, conduct a risk assessment. Consider moving further away from suspect trees or have suspect trees removed.

When returning to the blasting area, be aware of any change to trees in your immediate surroundings and take appropriate mitigation measures if you are unsure about your safety.

Report Tree Failure Incidents:

If you discover that your seismic blast resulted in the collapse of a tree, the WTC wants to know the circumstances. If this is a common event the WTC will collect your information to build a case for further study to promote worker safety.

WorkSafeBC is also interested in such incidents and regard these 'close calls' as possible dangerous incidents. In the Occupational Health and Safety Regulations (OHSR), section 21 we find that the blaster has an obligation to document their blasting activities (OHS 21.4) and report dangerous incidents (OHS 21.3) which have or could have caused serious injury. Blastors are encouraged to, as a minimum, be certain that upon discovery of a fallen tree(s) following blasting to include the particulars in their blasting log.

How can you help?

Document the circumstances surrounding any observed tree impacts (e.g., fallen tree or tops/limbs, leaning or split stem) and forward this information to CAGC for use in developing safe work guidance to seismic operations. For more information, contact the WTC representative, Dean McGeough by email at deanmcg@shaw.ca or by phone (250-642-2666).

Email incident reports to: info@cagc.ca or Fax 403 265 0025

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BC Occupational Health and Safety Regulation references:

21.3 Dangerous incident reports

(1) If a blasting accident occurs which causes personal injury, or if there is any other dangerous incident involving explosives, whether or not there is personal injury, the employer must

- (a) report the incident immediately to the Board, and
- (b) forward a written report of the incident to the Board without undue delay.

(2) The written report of the incident must contain

- (a) the date, time and location of the incident,
- (b) the names and certificate numbers of all blasters involved,
- (c) the names and occupations of any persons injured,
- (d) the types of explosives, detonators, and blasting machine used,
- (e) a factual account of events including the blaster's log records, and
- (f) the action taken by the employer.

21.4 Blasting log

(1) The blaster of record must record in a log the pre blast loading details and the results of the post blast site inspection.

(2) Blasting logs must be maintained at the blasting site, available for inspection by an officer, workers and worker representatives.

(3) The employer must ensure that blasting logs are kept for at least 5 years after completion of the blasting operation.

(4) The blaster must maintain a personal log of all blasting work that the blaster has performed.



Tree Incident Report - Seismic Operations

Date:		Time:	
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Submitted by:	
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Seismic Project Reference:	
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Geographical Reference:	Line Reference:
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Description of Incident	Blasting Incident? Yes or No
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Blast Details (if applicable)	
Charge Weight:	Explosive Type:
Depth of Hole:	Shooting Line (m):
Stemming Details:	
Describe Incident:	

Forest Type
<input type="checkbox"/> Areas of Muskeg
<input type="checkbox"/> Dense Black Spruce and Tamarack <15cm dbh
<input type="checkbox"/> Mature spruce and deciduous forest
<input type="checkbox"/> Mature deciduous stand
<input type="checkbox"/> Juvenile mixed species stand <30 years old
<input type="checkbox"/> Mature conifer stand
<input type="checkbox"/> Tree plantation
<input type="checkbox"/> Area damaged by forest fire
<input type="checkbox"/> Other: _____

Tree Incident Details	
Tree Species:	Live or Dead:
Diameter:	Wood condition: Hard Spongy Soft
Tree Height:	Provide sketch map on back
Distance from Shot:	
Other details (use back of card)	Photos attached: Yes or No

Visible Tree Hazards
<input type="checkbox"/> Heavy recent lean with lifting roots
<input type="checkbox"/> Insecurely lodged tree, top or limbs
<input type="checkbox"/> Other: _____ (e.g. conks, cat face, splits, broom, forked, weak limbs)

Other Details
Weather:
Wind Conditions:
Estimated Temp:

Signature:	Crew Reference:

Submit copy to CAGC

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