

2021/05/26-01

**WORKERS' COMPENSATION BOARD
(WorkSafeBC)**

RESOLUTION OF THE BOARD OF DIRECTORS

RE: 2020 and 2021 Amendments to the *Occupational Health and Safety Regulation*

WHEREAS:

Pursuant to section 110(1) of the *Workers Compensation Act*, R.S.B.C. 2019, c. 1 (*Act*), WorkSafeBC may make regulations it considers necessary or advisable in relation to occupational health and safety and occupational environment;

AND WHEREAS:

WorkSafeBC, pursuant to its mandate under the *Act*, has proposed amendments to the following Parts of the *Occupational Health and Safety Regulation*, B.C. Reg. 296/97 (*OHSR*), and has given notice of the proposed amendments, conducted consultations and held public hearings on the following proposed amendments in accordance with section 113(1) of the *Act*:

- Part 21, Blasting, with consequential amendments to Parts 12, 22 and 23, and
- Part 26, Arborists, with consequential amendments to Part 34;

AND WHEREAS:

Pursuant to section 115 of the *Act*, a review of the above Parts was undertaken by WorkSafeBC as part of the process of ongoing review of and consultation on its regulations to ensure they are consistent with current workplace practices, technological advances and other changes affecting occupational health and safety and occupational environment;

AND WHEREAS:

WorkSafeBC, after due consideration of all presentations, considers it necessary and advisable in relation to occupational health and safety and occupational environment to amend Parts 12, 21, 22, 23, 26, and 34 of the *OHSR*;

AND WHEREAS:

Pursuant to section 114 of the *Act*, WorkSafeBC must specify the date on which its regulations come into force, which date must be at least 90 days after their deposit under the *Regulations Act*;

AND WHEREAS:

Pursuant to the Provincial Government's *Regulatory Reform Policy*, WorkSafeBC has evaluated the proposed regulatory amendments according to the established regulatory criteria;

THE BOARD OF DIRECTORS RESOLVES THAT:

Effective December 1, 2021, the *OHSR* is amended as set out in Appendices A to B attached to this resolution.

I, Jeff Parr, hereby certify for and on behalf of the Board of Directors of WorkSafeBC that the above resolutions were duly passed at a meeting of the Board of Directors hosted in British Columbia on May 26, 2021.

Original signed by Jeff Parr

JEFF PARR
Chair, Board of Directors
Workers' Compensation Board

APPENDIX A

1 *Section 12.89 (b) of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended by adding “as defined in section 21.1” after “bootleg”.*

2 *Section 21.1 is amended*

(a) by adding the following definitions:

“blast site” means an area extending at least 15 m (50 ft) in every direction from a place where

(a) explosives are stored outside of a magazine or are placed or primed, or

(b) a misfire is known or believed to exist;

“blasting accessory” means a non-explosive device, product or tool, including a blasting machine, fuse lighter, blasting galvanometer, crimper, powder punch and loading pole; ,

(b) by repealing the definition of “blasting area”,

(c) in the definition of “blasting log” by striking out “of loading details, and the site examination after the blast” and substituting “that contains the information referred to in section 21.4 (1)”;

(d) in the definition of “blasting operation” by striking out “explosive materials” and substituting “explosives”,

(e) by repealing the definition of “charge” and substituting the following:

“charge” means an explosive, whether or not the explosive has a primer, that is placed for the purpose of detonation or deflagration; ,

(f) in the definition of “danger area” by striking out “blast” and substituting “blasting operation”,

(g) by repealing the definition of “day box” and substituting the following:

“day box” means a container used at a worksite to store and transport explosives that is

(a) weatherproof,

(b) constructed with

(i) an outer surface that is made of non-combustible materials, and

(ii) an inner surface that is made of non-sparking materials, and

(c) equipped with a lock or mechanism to enable locking; ,

(h) by repealing the definition of “detonator” or “detonator products” and substituting the following:

“detonator” means any of the following:

- (a) a device containing a primary explosive that is used for initiating detonation in another explosive;
- (b) an exploding bridgewire detonator;
- (c) an exploding foil initiator;
- (d) a deflagration to detonation transition detonator; ,

(i) by repealing the definition of “explosive” and substituting the following:

“explosive” means a substance, or an item containing a substance, that is made, manufactured or used to produce a detonation or deflagration; ,

(j) by repealing the definition of “igniter cord”,

(k) by repealing the definition of “magazine” and substituting the following:

“magazine” means a licensed magazine within the meaning of the *Explosives Act* (Canada); ,

(l) by adding the following definition:

“manufacturer-armed perforating gun” means a perforating gun fitted with a detonator if

- (a) the detonator is fitted by the manufacturer during the manufacture of the gun, and
- (b) the gun as fitted with the detonator is an authorized explosive within the meaning of the *Explosives Act* (Canada); ,

(m) in the definition of “misfire” by adding “, and includes cutoffs and unexploded explosives in the muckpile or debris, but does not include a mislight” after “as applicable”, and

(n) by adding the following definitions:

“mislight” means a failure or perceived failure of a pull-wire lighter to ignite the safety fuse assembly;

“perforating gun” means a device that

- (a) is used for perforating an oil and gas well in preparation for production, and
- (b) contains charges, each of which is shaped to focus the effect of the explosive energy of the charge; .

3 *The heading “General Requirements” before section 21.2 is repealed and the following substituted:*

Division 1 – General Requirements .

4 *The following section is added:*

Planning and conducting blasting operations

- 21.2.1** (1) The employer must ensure that all activities of a blasting operation are planned and conducted in a manner consistent with this Regulation and recognized safe blasting practices.
- (2) Every person who has knowledge and control of any particular activity in a blasting operation must ensure that the activity is planned and conducted in a manner consistent with this Regulation and recognized safe blasting practices.
- (3) The planning required under this section must
- (a) include procedures for identifying and addressing potential misfires,
 - (b) include any exposure controls required by Part 5 or 6,
 - (c) identify any work activities or conditions at the workplace where there is a known or reasonably foreseeable risk to persons or property,
 - (d) be completed before work begins on the relevant activity, and
 - (e) be documented at the time of planning.
- (4) If a change in workplace circumstances, including a change to work activities or conditions at the workplace, poses or creates a known or reasonably foreseeable risk to persons or property that was not previously identified,
- (a) the planning documented under subsection (3) (e) must be amended to identify and address the risk and provide for the health and safety of persons at or near the workplace, and
 - (b) the amendment must be documented as soon as practicable.
- (5) The planning documented under subsection (3) (e), and any amendment documented under subsection (4), must be readily available to workers.

5 *Section 21.4 is amended*

(a) by repealing subsection (1) and substituting the following:

- (1) The blaster of record must record in a blasting log
- (a) the following preblast loading details:
 - (i) the time, date and location of the blast;
 - (ii) the name of the blaster of record and all other persons handling explosives;
 - (iii) the type and weight of explosives used;
 - (iv) the number of detonators used;
 - (v) the type of initiating device used, and
 - (b) the results of the postblast site examination required under section 21.71, 21.74 or 21.82 (5). ,

(b) in subsection (2) by striking out “blasting site” and substituting “worksite”, and

(c) in subsection (4) by adding “in the immediately preceding 5 years before the current date” after “has performed”.

6 *Section 21.5 (2) is amended by striking out “blasting area” and substituting “blast site”.*

7 *The following sections are added:*

General – explosives and blasting accessories

- 21.6.1** Explosives and blasting accessories must be stored, transported, handled and used
- (a) in the manner recommended by the manufacturer, and
 - (b) in accordance with this Regulation.

Technical data sheets and manufacturer's instructions

- 21.6.2** The following must be readily available to workers at a worksite where explosives or blasting accessories are used in a blasting operation:
- (a) technical data sheets for all explosives;
 - (b) manufacturer's instructions for all blasting accessories.

8 *The heading "Certification" before section 21.8 is repealed and the following substituted:*

Division 2 – Certification of Blasters .

9 *Section 21.8 is repealed and the following substituted:*

Qualifications

- 21.8** A candidate for a blaster's certificate must be at least 18 years of age and must forward written proof acceptable to the examining officer that
- (a) the candidate has taken a minimum of 8 hours of training relating to the safe handling of explosives,
 - (b) the candidate has passed a background check, and
 - (c) the candidate has
 - (i) at least 6 months of experience in blasting operations as an assistant to a blaster, or
 - (ii) the knowledge, qualifications and experience to make the candidate competent to handle explosives.

10 *The following section is added:*

Continuing professional development – blasters

- 21.8.1** Every year during the term of a blaster's certificate, the blaster must receive at least 6 hours of continuing professional development relating to blasting best practices.

11 *Section 21.13 is amended by striking out " , in the opinion of the employer, the holder of a blaster's certificate" and substituting "a blaster".*

12 *The heading "Storage" before section 21.16 is repealed and the following substituted:*

Division 3 – Storage .

13 *Section 21.16 is repealed and the following substituted:*

Detonators

- 21.16** (1) Detonators must be stored separately from
- (a) other explosives, including detonating cord and electric igniters, and
 - (b) blasting accessories.
- (2) Subsection (1) does not apply in relation to a manufacturer-armed perforating gun.

14 *Section 21.17 is repealed and the following substituted:*

Worksite storage

- 21.17** (1) Explosives at a worksite must be guarded or stored in a locked and secured day box until used or returned to a magazine to prevent unauthorized access or removal.
- (2) The quantity of explosives at a worksite, other than explosives in a magazine, must not exceed the quantity reasonably needed for one work shift.
- (3) Subsection (2) does not apply to oil and gas downhole explosives operations.
- (4) At a loading site, detonators must be stored in a crush-resistant, non-ferrous container that is clearly identified as containing explosives.
- (5) Subsection (4) does not apply in relation to a manufacturer-armed perforating gun.
- (6) When the specific purpose for which explosives were removed from a magazine has been carried out or is no longer required, any remaining explosives must be stored in a magazine as soon as practicable.

15 *Section 21.18 (2) is repealed and the following substituted:*

- (2) Signs that indicate the presence of explosives in a day box must be
- (a) displayed on the day box in a conspicuous manner when the day box contains explosives, and
 - (b) removed from the day box when the day box does not contain explosives.

16 *Section 21.19 is amended*

(a) by repealing subsection (1) and substituting the following:

- (1) The interior of a magazine must be
- (a) kept clean, dry and organized,
 - (b) kept free of grit, combustible or abrasive material, any fire-producing, spark-producing or flame-producing device and any substance that might ignite spontaneously, and
 - (c) constructed, covered or lined to prevent the exposure of any ferrous metals or gritty materials. , **and**

(b) in subsections (2) and (3) by striking out “an explosives magazine” and substituting “a magazine”.

17 *Section 21.20 is repealed.*

18 *Section 21.21 is repealed and the following substituted:*

Separate handling

- 21.21** (1) Detonators must be kept and handled separately from other explosives until the last most practicable moment before assembling the charge.
- (2) Subsection (1) does not apply in relation to a manufacturer-armed perforating gun.

19 *The heading “Transportation” before section 21.22 is repealed and the following substituted:*

Division 4 – Transportation .

20 *Section 21.22 is amended*

(a) by repealing subsection (1) and substituting the following:

- (1) A vehicle being used to transport explosives must be
- (a) in sound mechanical condition and suitable for and capable of safely transporting explosives, and
 - (b) inspected and maintained in accordance with the vehicle manufacturer’s recommendations. , *and*

(b) by adding the following subsections:

- (3) The portion of a vehicle that contains explosives must be free of grit, combustible or abrasive material, any fire-producing, spark-producing or flame-producing device and any substance that might ignite spontaneously.
- (4) If an iron or steel part of a portion of a vehicle that will contain explosives could come into contact with the explosives or their packaging during transportation so as to increase the likelihood of an ignition, that part must be covered with material that will prevent the contact.
- (5) Subsection (4) does not apply to the transportation of perforating guns.
- (6) A person who is transporting a perforating gun by vehicle must ensure that
- (a) the vehicle has a specially built rack or carrying case designed or constructed so that the perforating gun
 - (i) is securely held in place during transportation, and
 - (ii) is not subject to damage by contact with any other object or material carried in the vehicle, and
 - (b) the perforating gun is kept in the rack or carrying case during transportation.

21 *Section 21.23 is amended*

(a) by striking out “by a conveyance” and substituting “by a vehicle”, and

(b) by striking out “on the conveyance” and substituting “in the vehicle”.

22 *Section 21.24 is amended*

(a) by repealing subsection (1) and substituting the following:

- (1) During transportation by vehicle, explosives must be kept
 - (a) separate from the passenger compartment of the vehicle, and
 - (b) subject to section 21.22 (6), in a fully-enclosed, locked, fire-resistant container, compartment or day box that is
 - (i) fixed within or secured to the vehicle to prevent detachment in the event of a rollover,
 - (ii) located above the vehicle deck in a manner that protects the container, compartment or day box from contact with roadside objects and drilling equipment,
 - (iii) located so that the contents are not endangered by any heat source,
 - (iv) locked when outside the worksite, and securely closed when in the worksite, except when opened for depositing or removing the contents of the container, compartment or day box, and
 - (v) attended by a qualified person at all times when the container, compartment or day box contains explosives. , **and**

(b) by repealing subsection (3) and substituting the following:

- (3) Detonators and electric igniters, including deflagrating explosives manufactured and packaged as a primer with a shunted electric igniter, must be adequately separated from other explosives during transportation to prevent accidental initiation of the other explosives.
- (4) Subsection (3) does not apply in relation to a manufacturer-armed perforating gun.

23 *Section 21.25 is repealed and the following substituted:*

Mobile drilling rigs

21.25 The transportation of explosives on a mobile drilling rig is permitted only if detonators and other explosives are stored in separate day boxes or magazines that are

- (a) located at least 60 cm (2 ft) apart, with the doors or lids facing at least 90° apart,
- (b) located above the vehicle deck in a manner that protects the day boxes or magazines from contact with roadside objects and drilling equipment,
- (c) located so that the contents are not endangered by any heat source,
- (d) locked when outside the worksite, and securely closed when in the worksite, except when opened for depositing or removing their contents, and
- (e) attended by a qualified person at all times when the day boxes or magazines contain explosives.

24 *Section 21.27 is repealed.*

25 *Section 21.29 is amended*

(a) *by adding* “must operate the vehicle in a safe manner, consistent with prevailing road and weather conditions” *after* “explosives”, *and*

(b) *by repealing paragraphs (a) and (b).*

26 *Section 21.30 is repealed.*

27 *Section 21.31 is repealed and the following substituted:*

Firefighting equipment

21.31 A vehicle transporting explosives must be equipped with at least 2 fire extinguishers that

(a) have a rating of at least 4-A:40-B:C, and

(b) are readily accessible for use.

28 *Section 21.34 is repealed.*

29 *The heading “Handling Explosives” before section 21.36 is repealed and the following substituted:*

Division 5 – Handling Explosives .

30 *Section 21.36 is repealed.*

31 *Section 21.37 is repealed and the following substituted:*

Defective explosives

21.37 Explosive or blasting materials or accessories that have deteriorated, or are believed to be defective, must not be used and must be handled and disposed of

(a) in a safe manner, and

(b) in accordance with the *Explosives Act* (Canada) and the regulations under that Act.

32 *Section 21.39 is repealed and the following substituted:*

Disposal of explosives

21.39 Explosives must not be abandoned and must be placed in suitable storage or disposed of in accordance with the manufacturer’s recommendations.

33 *Section 21.41 (2) is repealed and the following substituted:*

(2) All empty original disposable packaging for explosives must be destroyed safely or as recommended by the manufacturer.

34 *The heading “Drilling” before section 21.42 is repealed and the following substituted:*

Division 6 – Drilling .

- 35 *Section 21.42 (a) is amended by striking out “misfired explosives” and substituting “misfires”.*
- 36 *Section 21.43 is amended by striking out “Drilling” and substituting “Except in accordance with section 21.76.1, drilling”.*
- 37 *The following section is added before the heading “Loading”:*

Anomalous drill hole

- 21.44.1** (1) A detailed report of each anomalous drill hole that requires changes to the blasting plan must be maintained at the worksite.
- (2) The anomalous drill hole report must contain
- (a) the date, location, burden, spacing, depth, diameter, angle and marking of each drill hole, and
 - (b) any changes in geology, including
 - (i) the presence of subsurface water, mud seams or voids, and
 - (ii) similar details.
- (3) The blaster must review the anomalous drill hole report before loading begins.
- (4) Each anomalous drill hole referred to in subsection (1) must be clearly marked at the worksite.
- 38 *The heading “Loading” before section 21.45 is repealed and the following substituted:*

Division 7 – Loading .

- 39 *Section 21.46 is amended by striking out “explosive materials” and substituting “explosives”.*
- 40 *Section 21.52 is amended by striking out “explosive accessories” and substituting “blasting accessories”.*
- 41 *Section 21.54 is amended*
- (a) in subsection (1) by striking out “Non-electric shock” and substituting “Shock”, and*
 - (b) by repealing subsection (2).*
- 42 *The heading “Safety Fuse Initiation” before section 21.56 is repealed and the following substituted:*

Division 8 – Safety Fuse Assembly Initiation .

- 43 *Section 21.57 is amended*

(a) *in subsection (2) by striking out “safety fuses” and substituting “safety fuse assemblies”, and*

(b) *by repealing subsection (3) and substituting the following:*

(3) An igniter cord must not be used for lighting a safety fuse assembly.

44 *The heading “Electrical Initiation” before section 21.58 is repealed and the following substituted:*

Division 9 – Electrical Initiation .

45 *Section 21.59 is amended by striking out “Electric detonators” and substituting “Except as permitted by the manufacturer, electric detonators”.*

46 *The heading “Firing” before section 21.66 is repealed and the following substituted:*

Division 10 – Firing .

47 *Section 21.66 is amended*

(a) *in subsection (2) by striking out “workers” and substituting “persons”, and*

(b) *by adding the following subsection:*

(6) The employer must ensure that the blaster carries out the blaster’s responsibilities under subsections (1) to (4).

48 *Section 21.67 is repealed and the following substituted:*

Firing lines

21.67 Except in oil and gas downhole explosives operations, the firing lines or lead-in lines must not be attached to the initiating device or blasting circuit until all charges are placed and connected.

49 *Section 21.69 (1) (c) is amended*

(a) *by striking out “inspected” and substituting “examined”, and*

(b) *by striking out “blasting area” and substituting “blast site”.*

50 *The heading “Returning to the Blast Site” before section 21.71 is repealed and the following substituted:*

Division 11 – After the Blast .

51 *Section 21.71 is amended*

(a) *by striking out “blasting area” and substituting “blast site”, and*

(b) *in paragraph (a) by striking out “area” and substituting “blast site”.*

52 *Section 21.72 is amended by striking out “blasting area” and substituting “blast site”.*

53 *The following heading is added before section 21.73:*

Division 12 – Misfire Procedures .

54 *Section 21.73 (1) is repealed and the following substituted:*

- (1) If there is evidence or suspicion of a misfire after a blast is initiated, the blaster of record must not permit anyone to enter the danger area until the latest of the following:
 - (a) if an electric detonator or electric igniter was used to initiate the blast, 15 minutes after the blaster of record disconnects the firing lines from the initiating device and shunts the lead wires;
 - (b) if shock tube initiation was used to initiate the blast, 15 minutes after the blaster of record disconnects the lead-in line from the initiating device;
 - (c) if an electronic detonator was used to initiate the blast, 30 minutes after the blaster of record disconnects the firing lines from the initiating device and shunts the lead wires;
 - (d) if a safety fuse assembly was used to initiate the blast, 30 minutes after the estimated time of detonation;
 - (e) the waiting period stated in the relevant manufacturer’s instructions.

55 *The heading “Misfire Procedures” before section 21.74 is repealed.*

56 *Section 21.74 is repealed and the following substituted:*

Blast site examination

21.74 Except as provided in section 21.82 (5), after a blast is initiated, the blaster of record must

- (a) examine the blast site to determine if there are any misfires, and
- (b) record the results of the examination in the blasting log.

57 *The following sections are added:*

Misfire marking

21.74.1 Except as provided in section 21.84 or by work procedures accepted by the Board under section 21.85, if a misfire cannot be dealt with immediately, the misfire must be clearly marked and the danger area cordoned off and guarded.

Extracting explosives

- 21.74.2** (1) Extracting or attempting to extract a primer or explosive of the nitroglycerine type from a loaded hole is prohibited.
- (2) A blaster or a person authorized by the blaster may remove ammonium nitrate, water gel or emulsion type explosives from a blast hole only if
- (a) the blast hole does not contain a detonator, and
 - (b) the removal procedure is carried out with caution, using

- (i) moderate air or water pressure or a combination of moderate air and water pressure, and
 - (ii) a blowpipe made of non-metallic materials.
- (3) A blaster or a person authorized by the blaster may remove a device containing high melting explosive (HMX) that has been exposed to a temperature exceeding 150°C from a blast hole only if
 - (a) safe work procedures have been developed and communicated to workers involved in the removal, and
 - (b) the removal procedure is carried out with caution.
- (4) Until a misfire has been successfully detonated with a fresh primer,
 - (a) the unexploded charge that contains a primer must not be removed and no attempt to remove it may be made, and
 - (b) no other work may take place within the danger area.

58 *Sections 21.75 to 21.77 are repealed and the following added:*

Cutoffs and unexploded explosives

- 21.75** (1) If there is evidence or suspicion of cutoffs or unexploded explosives in the muckpile or debris,
- (a) all loose unexploded explosives that do not contain a detonator must be collected and destroyed in a safe manner and in accordance with the manufacturer's recommendations, and
 - (b) the blaster must direct the hand removal of as much broken material as possible before metallic tools or equipment is used.
- (2) Metallic equipment must not be used during misfire procedures unless
- (a) the blaster directs the use of the equipment,
 - (b) the area is adequately illuminated, and
 - (c) everyone, except the blaster and the equipment operator, is removed from the danger area.

Excavating and scaling

- 21.76** (1) Excavation of blast rock must be carried out with caution by a person trained and competent in the recognition of misfires.
- (2) Loose rock must be scaled from faces in the worksite and the area stabilized before other work resumes.

Drilling for refiring

- 21.76.1** When drilling is necessary to expose a misfire, the blaster must
- (a) accurately determine the angle of the hole that contains the misfire,
 - (b) direct the angle and depth of the hole being drilled, and
 - (c) ensure that the hole being drilled is at least 60 cm (2 ft) from any part of the misfire.

59 *Section 21.78 is repealed and the following substituted:*

Safety fuse assembly reblast

21.78 If a misfire that contains a safety fuse assembly is reblasted, persons must not enter the danger area until 30 minutes after the detonation, unless the blaster of record confirms detonation.

60 *Section 21.79 is amended by adding “assembly” after “safety fuse”.*

61 *Sections 21.80 and 21.81 are repealed.*

62 *The heading “Specialized Blasting Operations” before section 21.82 is repealed and the following substituted:*

Division 13 – Specialized Blasting Operations .

63 *Section 21.82 is amended*

(a) in subsection (2) by striking out “explosive materials” and substituting “explosives”,

(b) by adding the following subsection:

(3.1) Underwater blasts must be initiated by the blaster of record. , and

(c) by repealing subsections (4) to (6) and substituting the following:

(4) The blaster of record must not initiate an underwater blast

(a) if a diving operation or water craft is within the danger area, and

(b) without the diving supervisor’s permission.

(5) After an underwater blast is initiated, the blast site must be examined for misfires and other hazards by

(a) the blaster of record, or

(b) a competent diver who

(i) has been trained in the recognition of misfires and other blasting related hazards, and

(ii) is under the direction of the blaster of record.

(6) A blaster must ensure that misfires are handled properly and that other blasting related hazards are removed.

64 *Section 21.84 is amended*

(a) by repealing subsection (2), and

(b) by adding the following subsection:

(6) In a seismic blasting operation, the blaster of record must ensure that explosives are initiated by 2 detonators if the total weight of the explosives in the hole is

(a) 4 kg (8.8 lbs) or more, or

(b) more than 0.5 kg (1.1 lbs) and

(i) the hole is less than 5 m (16.4 ft) deep,

- (ii) the condition of the soil may compromise the loading of the explosives in the hole, or
- (iii) the blasting operation is accessible only by helicopter.

65 *Section 21.85 is amended*

(a) in subsection (1) by striking out “Explosive charges” and substituting “Charges”, and

(b) by adding the following subsection:

- (2.1) An employer must ensure there is an effective means for a worker to separate the primed charge to be deployed from the other primed charges in order that the pull-wire lighter is not accidentally placed on the safety fuse assembly of one of the other primed charges.

66 *The following Division is added to Part 21:*

Division 14 – Close Proximity Blasting

Definitions

21.86 In this Division:

“**proximate structure**” means a school, hospital, medical clinic or other potentially occupied structure within the applicable proximity zone;

“**proximity zone**” means, as applicable, a distance that is not more than,

- (a) in the case of a school, hospital or medical clinic, 300 m (984 ft) from the blast site, and
- (b) in the case of any other potentially occupied structure, 150 m (492 ft) from the blast site;

“**written plan**”, in respect of a blasting operation under this Division, means the plan required under section 21.91.

Application of Division

21.87 This Division applies to blast sites that have a proximate structure within the applicable proximity zone where explosives are used primarily for rock excavation, boulder breakage or any other purpose that is likely to generate flying material.

Notice of project

- 21.88** (1) The owner or the person engaged by the owner to be the prime contractor must ensure that the Board receives a written notice of project at least 24 hours before the beginning of a blasting operation that has an anticipated duration of 3 or more days.
- (2) Before blasting begins, a copy of the notice of project must be posted at the blast site.

Emergency notice

21.89 Despite section 21.88, if in an emergency it is not practicable to comply with that section, the Board must be notified, and a copy of the notice posted, as soon as possible but no later than 24 hours after the blasting operation has begun.

Notice to occupants of proximate structures

- 21.90** (1) The employer conducting a blasting operation must ensure that the following persons are notified in writing at least 48 hours before any blasting begins:
- (a) the senior administrator or person in charge of each school, hospital or medical clinic within the applicable proximity zone;
 - (b) the occupants of any other potentially occupied structure within the applicable proximity zone.
- (2) The notice required under subsection (1) must include
- (a) a description of the work to be done,
 - (b) the date and approximate time blasting will begin,
 - (c) the anticipated duration of the blasting operation,
 - (d) an explanation of the blasting signals to be used and the meaning of those signals, and
 - (e) the name and phone number of the employer conducting the blasting operation.

Written plan

21.91 A written plan must

- (a) be developed by a blasting professional who
 - (i) has at least 5 years of experience in blasting operations in an urban environment, including knowledge of and expertise in blast design to control vibration, air overpressure, flying material and other potential hazards, and
 - (ii) holds a valid blaster's certificate as referred to in Division 2 or is a registered member in good standing of
 - (A) the Association of Professional Engineers and Geoscientists of the Province of British Columbia,
 - (B) the Applied Science Technologists and Technicians of British Columbia, or
 - (C) a similar professional association, in British Columbia or another province in Canada, that requires its members to adhere to a code of ethics,
- (b) provide for effective monitoring of ground vibration and air overpressure, and
- (c) specify the limits for peak particle velocity, frequency response and air overpressure that are not to be exceeded.

Suspension of blasting

- 21.92** If, in respect of peak particle velocity, frequency response or air overpressure, a limit specified under section 21.91 (c) is exceeded, all blasting must be suspended until a person who meets the requirements of paragraph (a) of that section has
- (a) determined why the limit was exceeded, and
 - (b) updated the written plan, if necessary.

General requirements

- 21.93** (1) All material to be blasted must be covered by blasting mats in good working condition.
- (2) The blast hole diameter must not exceed 75 mm (3 in).
 - (3) The bench height to burden ratio must be at least 2 to 1.
 - (4) In respect of blast holes,
 - (a) all blast holes must be effectively stemmed with small crushed aggregate rock or an energy confinement device, and
 - (b) the use of drill cuttings alone does not meet the requirements of paragraph (a).
 - (5) Safety fuse assemblies must not be used.
 - (6) When using ammonium nitrate/fuel oil, slurries, water gels or other bulk explosives, the employer must ensure that
 - (a) the work is conducted in accordance with recognized safe blasting practices and manufacturer's instructions,
 - (b) the critical hole diameter is not smaller than the minimum critical hole diameter recommended by the manufacturer,
 - (c) the fumes of the detonated product do not affect workers or other persons at or near the blast site, and
 - (d) additional precautions are taken in fractured ground and in wet holes.

67 *Section 22.1 is amended*

- (a) by renumbering the section as section 22.1 (1),*
- (b) in subsection (1) by repealing the definition of “bootleg”, and*
- (c) by adding the following subsection:*

- (2) Unless a contrary intention appears, the definitions in section 21.1 apply to this Part.

68 *Section 22.70 (2) is repealed and the following substituted:*

- (2) Detonators transported on a shaft conveyance must be transported separately from other explosives and materials.

69 *Section 22.71 (2) is amended by striking out “Detonator products and explosives” and substituting “Explosives”.*

- 70 *Section 22.72 (2) is amended*
- (a) *by striking out “or detonators”, and*
 - (b) *by repealing paragraph (a).*
- 71 *Section 22.73 is amended*
- (a) *in subsection (2) by striking out “magazine or storage container” and substituting “day box”, and*
 - (b) *by repealing subsection (3).*
- 72 *Section 22.80 is amended by striking out “blasting area” and substituting “blast site”.*
- 73 *The following section is added before the heading “Mechanical Excavation”:*
- No safety fuse assembly in underground working**
- 22.80.1** A safety fuse assembly must not be used in an underground working.
- 74 *Section 23.10 is amended in Table 23-1 in the column with the heading “Type of extinguisher” in the row relating to the work activity “Any vehicle carrying explosives” by striking out “20-BC” and substituting “4-A:40-B:C”.*

APPENDIX B

- 1 *Section 26.1 of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended by adding the following definitions:*
- “qualified arborist”** means a person who
- (a) has knowledge, through training or a combination of education and training, of
 - (i) tree-climbing activities, and
 - (ii) tree-climbing systems,
 - (b) has experience
 - (i) engaging in tree-climbing activities, and
 - (ii) using tree-climbing systems, and
 - (c) has, as appropriate to the work being done, knowledge, through training or a combination of education and training, of and experience
 - (i) pruning, repairing or maintaining trees, or
 - (ii) taking down trees in pieces or taking down parts of trees;
- “trainee arborist”** means a person undergoing on-the-job training under the direct supervision of a qualified arborist;
- “tree-climbing activities”** means any of the following work activities:
- (a) climbing a tree for the purpose of a work activity described in paragraph (b);
 - (b) doing any of the following while in a tree:
 - (i) pruning, repairing or maintaining a tree;

- (ii) taking down a tree in pieces;
- (iii) taking down parts of a tree;

“tree-climbing system” means the equipment a person relies on for support and security while engaging in tree-climbing activities, including a harness, climbing lines and lanyards; .

2 *The following section is added:*

**Planning and conducting activities involving trees
other than a forestry operation or tree-climbing activities**

- 26.2.1** (1) The employer must ensure that work activities at the workplace that involve pruning, repairing, maintaining, bucking or manually falling trees, taking down trees in pieces or taking down parts of trees are
- (a) planned in accordance with this section, and
 - (b) conducted in accordance with the plan.
- (2) Subsection (1) does not apply in relation to
- (a) work activities carried out in a forestry operation, or
 - (b) tree-climbing activities.
- (3) The planning required under this section must
- (a) identify the hazards and risks associated with the work activities to be performed,
 - (b) identify how the hazards and risks will be eliminated or minimized to the lowest level practicable,
 - (c) be completed and communicated to each worker involved in the work activities before the work activities commence, and
 - (d) be documented at the time of planning.
- (4) If, after planning takes place under subsection (3), there is a change in the workplace circumstances, including the work activities and the conditions of the workplace, and the change poses or creates a known or reasonably foreseeable hazard or risk to workers that was not previously identified, the employer must ensure that
- (a) the plan is amended to identify
 - (i) the hazard or risk, and
 - (ii) how the hazard or risk will be eliminated or minimized to the lowest level practicable,
 - (b) the amendment to the plan is communicated to each affected worker before the amendment is implemented, and
 - (c) the amendment to the plan is documented as soon as practicable.

3 *Section 26.7.1 is amended*

- (a) *in subsection (1) by striking out “worker” and substituting “worker in a forestry operation”,*
- (b) *in subsection (6) by adding “, with respect to a climber,” after “If”, and*

(c) *in subsection (7) by adding “used by a climber” after “Climbing equipment”.*

4 *The following heading is added immediately after section 26.12:*

Tree-Climbing Activities .

5 *The following sections are added:*

Application

26.12.0.1 Sections 26.12.0.2 to 26.12.0.6 apply in relation to tree-climbing activities at a workplace other than a forestry operation.

Requirements respecting tree-climbing activities

26.12.0.2 (1) The employer must ensure that only a qualified arborist or trainee arborist engages in tree-climbing activities at the workplace.

(2) Before a qualified arborist or trainee arborist engages in tree-climbing activities at the workplace, the employer must

(a) ensure that a qualified arborist determines that each tree that is intended to be climbed is able to withstand the loads intended to be imposed on it by

(i) the tree-climbing activities, and

(ii) the work activities to be performed on the ground in the area around the tree, or around other trees, that relate to the tree-climbing activities,

(b) ensure that

(i) a tree-climbing plan is prepared by a qualified arborist or trainee arborist in accordance with section 26.12.0.3 (1) for the trees that a qualified arborist or trainee arborist intends to climb and determines are able to withstand the loads described in paragraph (a) of this subsection, and

(ii) the tree-climbing plan, as documented under section 26.12.0.3 (1) (c), is communicated to each worker involved in the tree-climbing activities or the work activities described in paragraph (a) (ii) of this subsection, and

(c) if the tree-climbing plan referred to in paragraph (b) is prepared by a trainee arborist, ensure that the plan is approved by a qualified arborist.

Tree-climbing plan

26.12.0.3 (1) In preparing a tree-climbing plan referred to in section 26.12.0.2 (2) (b), a qualified arborist or trainee arborist must,

(a) for each tree that is intended to be climbed or that may be impacted by the tree-climbing activities,

(i) visually assess and identify the hazards and risks associated with

(A) the structure of the tree, including the shape, lean, root collar, roots, stems, trunk and branches,

- (B) the recurring patterns of tree failure associated with the species of the tree, such as rot, root damage or stem damage,
 - (C) the tree-climbing activities, and
 - (D) the work activities to be performed on the ground in the area around the tree, or around other trees, that relate to the tree-climbing activities, and
- (ii) identify how the hazards and risks identified under subparagraph (i) will be eliminated or minimized to the lowest level practicable,
- (b) for each tree that is intended to be climbed, identify
 - (i) the tree-climbing system to be used in climbing the tree,
 - (ii) the type and location of the initial anchor point to be used in the tree,
 - (iii) the name and duties of each worker involved in the tree-climbing activities or the work activities described in paragraph (a) (i) (D),
 - (iv) the appropriate personal protective equipment to be used by each worker involved in the tree-climbing activities or the work activities described in paragraph (a) (i) (D),
 - (v) an effective means of communication to be used between the qualified arborist or trainee arborist, as applicable, and the workers involved in any work activities described in paragraph (a) (i) (D), and
 - (vi) the emergency response, evacuation and rescue procedures to be used in the event of an equipment malfunction, a fall, an injury or the incapacity of a qualified arborist or trainee arborist to self-rescue when engaging in the tree-climbing activities, and
- (c) document the information described in paragraphs (a) (ii) and (b).
- (2) If, after preparing a tree-climbing plan in accordance with subsection (1), a qualified arborist or trainee arborist becomes aware of a known or reasonably foreseeable hazard or risk described in subsection (1) (a) (i) that was not previously identified, the qualified arborist or trainee arborist must
 - (a) amend the tree-climbing plan so it identifies how the hazard or risk will be eliminated or minimized to the lowest level practicable,
 - (b) communicate the amendment to each affected worker before the amendment is implemented, and
 - (c) document the amendment as soon as practicable.

Tree-climbing procedures

26.12.0.4 A qualified arborist or trainee arborist engaging in tree-climbing activities must

- (a) assess and determine that each anchor point or other point of securement is suitable for the loads to be imposed on it before using it,
- (b) ensure each climbing line of the tree-climbing system
 - (i) uses at least one anchor point or other point of securement in the tree,
 - (ii) uses independent anchor points or other points of securement, if practicable, and
 - (iii) is positioned at each anchor point or other point of securement in such a way that the climbing line will not move away from, though

the climbing line may slide through, the anchor point or other point of securement,

- (c) position the tree-climbing system in a manner that minimizes the risk of the qualified arborist or trainee arborist falling and colliding with an object while swinging on a climbing line in a pendulum-like motion,
- (d) tie a stopper knot at the end of each climbing line of the tree-climbing system,
- (e) before accessing the tree, be secured to the tree by the tree-climbing system and remain secured until the work is completed and the qualified arborist or trainee arborist has returned to the ground,
- (f) operate a cutting tool only when tied into the tree with
 - (i) a climbing line or lanyard, and
 - (ii) a second means of securement, such as another climbing line or lanyard, and
- (g) engage in the tree-climbing activities in accordance with the parts of the tree-climbing plan described in section 26.12.0.3 (1) (a) (ii) and (b) (i), (ii) and (v).

Rescue

26.12.0.5 The employer must ensure that a qualified arborist or trainee arborist engaging in tree-climbing activities can be promptly rescued in accordance with the procedures described in section 26.12.0.3 (1) (b) (vi) that relate to the tree that is climbed.

Tree-climbing equipment

- 26.12.0.6** (1) The employer must ensure that a tree-climbing system
- (a) consists of pieces of equipment that are suitable for their use in the tree-climbing system and compatible with other pieces of equipment in the tree-climbing system,
 - (b) is sufficient to support any loads likely to be imposed on it,
 - (c) is kept free from substances and conditions that could contribute to the deterioration of the equipment, and
 - (d) is not used for any purpose other than climbing.
- (2) The employer must ensure that a tree-climbing system is inspected by a qualified arborist before the tree-climbing system is first used on each work shift.
- (3) The employer must ensure that each piece of equipment in a tree-climbing system is removed from service
- (a) as specified by the manufacturer of the equipment, or
 - (b) if the equipment is defective.
- (4) The employer must ensure that all of a tree-climbing system is immediately removed from service if one or more pieces of equipment in the tree-climbing system arrest a fall.
- (5) The employer must ensure that, if a piece of equipment in a tree-climbing system is removed from service under subsection (3) or all of a tree-climbing system is removed from service under subsection (4), the piece of equipment or the

tree-climbing system, as applicable, is not returned to service until it has been inspected and certified safe for use by the manufacturer or its authorized agent or by a professional engineer.

6 *Section 34.2 (2) is amended by adding the following paragraph:*

(a.1) a qualified arborist or a trainee arborist, as defined in section 26.1; .