21.82 Underwater blasting

(1) Only explosives and blasting accessories recommended by the manufacturer for underwater blasting may be used for underwater blasting.

(2) Whenever explosive materials are being used in underwater blasting operations, a blasting flag (international code "Bravo", a solid red flag) must be displayed.

(3) Precautions must be taken to prevent damage to structures in the danger area.

(4) Underwater blasts must not be detonated when a diving operation or water craft is within the danger area, nor until the diving supervisor has given permission for the blaster to fire the charge.

(5) After detonating an underwater blast, the site must be examined by the blaster, or by a competent diver who

(a) has been instructed in the recognition of undetonated explosive materials and other blasting related hazards, and

(b) is under the direction of a blaster.

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

21.83 Special effects blasting

Special effects blasting must be carried out under the direction of a blaster certified in this specialty to a standard acceptable to the Board.

21.84 Seismic blasting

(1) If seismic blasting is carried out in an isolated location, loaded holes may be left unattended only if

(a) the blaster has first ensured that all leg wires are shunted, drill cuttings are spread out and levelled, the leg wires are coiled as close to the ground as possible while never exceeding 15 cm (6 in) above the ground level, and the holes are suitably user identified, and recorded in the blasting log, and

(b) the holes are blasted within 30 days.

(2) In seismic blasting, if the recorder can confirm complete detonation, the firing line may be left connected to the firing switch and disconnected at the hole.

(3) In a seismic blasting operation, a misfired or unfired charge may be left unfired only if

(a) it cannot be conventionally and safely detonated,

(b) it is in an isolated location,

(c) it is at a depth sufficient to minimize the risk of injury to workers or other persons,

(d) its location is effectively marked, and

(e) a permanent record of its location is kept.

(4) Seismic water tank trucks having open flame water heaters must not be used to transport explosives unless

(a) the distance between the heat tube and the outside of the tank is at least 35 cm (14 in),

(b) a heater, if woodburning, has a fire box of a type that fully contains the fuel and two dampers mounted in the heat tube, one at the vent end and the other at the fire box, so the flame may be shut in instantly in the event of an accident, and

(c) the detonator storage is located on the opposite side of the vehicle from the explosive magazine, and both are built to type 6 magazine standard.

(d) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

(5) In a seismic operation where there is no alternate route, a vehicle may be driven over a loaded hole if

(a) bypassing the hole is not practicable,

(b) operational planning minimizes the requirement to travel through a loaded area,

(c) safe work procedures are developed and communicated to all workers before they start work at the site,

(d) loaded holes are in compliance with subsection (1),

(e) explosive charges are at a minimum depth of 6 m (20 ft), and

(f) all radio transmission equipment is turned off, or the transmission capability is disabled by disconnecting the microphone.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

Note: Some electrical equipment, such as cellular telephones and other types of mobile telephone equipment continuously transmit a radio signal when turned on, so such devices must be turned off when it is necessary to drive over a loaded hole.

21.85 Avalanche control

(1) Explosive charges must not be placed manually on site by workers or projected by any means for the purpose of avalanche control, until the proposed work procedures have been submitted to and accepted by the Board.

(2) Explosives must not be primed until the last most practicable moment which means that point in time when the explosives are as close to the control route as possible, in a safe, sheltered location excluded from public access.

(3) The pull-wire lighter must not be placed on the safety fuse assembly until immediately before placing the charge.

(4) The employer must ensure that procedures are reviewed annually and that proposed changes to the procedures are submitted to the Board for approval before implementation.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

21.8 Qualifications

A candidate for a blaster's certificate must

(a) be at least 18 years of age,

(b) demonstrate a satisfactory knowledge of the English language, both written and spoken,

(c) be physically capable of safely carrying out the duties of a blaster, and

(d) forward written proof acceptable to the examining officer that

(i) the candidate has had at least 6 months experience in blasting operations as an assistant to a blaster, and/or

(ii) the candidate's character, knowledge, qualifications and experience would make the candidate competent to handle explosives.

Note: Blaster's certificates will normally be issued for a period of 5 years, and may be endorsed with any restriction that the Board deems necessary.

21.9 Misrepresentation

A person must not make, or assist in making, any false representation for the purpose of obtaining a blaster's certificate for any person.

21.10 Examination

Only persons authorized by the Board may conduct examinations for blaster's certificates.

21.11 Recording certificates

The employer must ensure that the details on the certificate of a blaster are recorded and understood before permitting the certificate holder to carry out the duties of a blaster.

21.12 Custody of certificates

(1) A blaster must retain his or her certificate and must keep it in a safe place at the worksite while carrying out the duties of a blaster.

(2) The blaster's certificate must be produced for inspection on the request of an officer.

(3) A copy of a blaster's certificate is not acceptable as proof of certification.

21.13 Suspension of duties

If, in the opinion of the employer, the holder of a blaster's certificate has failed to comply with any of the blasting requirements in this Regulation, manufacturer's recommendations or recognized safe blasting practices, the employer must immediately investigate the incident and may suspend the

blaster from performing the duties of a blaster.

21.14 Submitting reports

The employer must submit to the Board a report of the investigation carried out under section 21.13.

21.15 Suspension of certificates

An officer may seize and forward to the Board a blaster's certificate if there is reason to believe that the safety of any person may be or has been endangered by the blaster.

Note: Part 2 of the *Workers Compensation Act* gives authority to the Board to cancel or suspend a certificate or place other conditions on its use if the Board has reasonable grounds for believing that a person who holds a certificate has breached a term or condition of the certificate or has otherwise contravened Part 2 of the Act, or this Regulation. When the Board has taken or is considering taking action under Part 2 of the Act, the person affected will be provided with an opportunity to make representation to the Board, and will be advised in writing of the reasons for any decision.

21.71 After the blast

After a blast is initiated, the blaster of record must not permit anyone to enter the blasting area until

(a) the area has been examined by the blaster of record for misfires and other hazards,

(b) the "all clear" has been sounded, and

(c) the blaster of record gives permission for work to proceed.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.72 Electrical blasting

After a blast is electrically initiated the blaster must not enter the blasting area until

(a) the blaster has disconnected the firing lines from the initiating device and has shunted the lead wires, or

(b) if the blast was initiated from a power line, the blaster has disconnected the firing lines and locked the switch open.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.73 Misfires

(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 later 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 was used to initiate the blast, 30 minutes after the estimated time of detonation;

(e) the waiting period stated in the manufacturer's instructions.

(2) If there is evidence or suspicion of a misfire after a blast is initiated and a charge is known or suspected to be burning, the blaster of record must not permit anyone to enter the danger area until the later of the following:

(a) one hour after the smoke clears;

(b) the waiting period stated in the manufacturerâ€™s instructions.

[Enacted by B.C. Reg. 14/2019, effective June 3, 2019.]

21.56 Safety fuse assemblies

(1) Only safety fuse assemblies with antistatic protection may be used for safety fuse blasting.

(2) Safety fuse assemblies less than 1 m (3.3 ft) in length must not be used.

(3) Safety fuse assemblies must be handled with care to avoid pinching or kinking and damaged fuse assemblies must not be used.

21.57 Lighting safety fuse

(1) When lighting a single safety fuse assembly a match may be used.

(2) When multiple safety fuses are to be lit, a suitable safety fuse lighting device must be used to ensure that a minimum 90 cm (3 ft) fuse length safety factor is maintained.

(3) When multiple safety fuse assemblies are to be lit, a suitable lighting device, such as igniter cord, must be used, and once the igniter cord is lit the blast area must be vacated.

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21.1 Definitions

In this Part

"blaster" means a person who is the holder of a valid blaster's certificate issued by the Board or acceptable to the Board;

"blaster of record" means the blaster who is designated to be in charge of a blasting operation;

"blasting area" means an area extending at least 50 m (165 ft) in every direction from a place where explosive materials are being prepared or fixed, or where an unexploded charge is known or believed to exist;

"blasting log" means a written record of loading details, and the site examination after the blast;

"blasting operation" includes preparing, placing, and firing a charge, handling a misfire, and destroying or disposing of explosive materials;

"bootleg" means the remnant of a blast hole which did not properly break when the blast was initiated; also called socket, butt or button;

"charge" means explosive materials which may or may not contain a primer, and which are placed for the purpose of detonation;

"danger area" means an area in which there may be danger to persons or property from flying material or other hazardous condition resulting from a blast;

"dangerous incident" means an accident or near miss occurrence caused by or as a result of the use of explosives, and also includes an unexpected result or problem with explosive products;

"day box" means an unlicensed facility, not used for overnight storage, constructed to Type 6 magazine specifications pursuant to the *Explosives Act* (Canada);

"detonator" or "detonator products" includes those explosives commonly called blasting caps, or electric caps, or other similar devices used to detonate commercial explosives;

"electric detonator" means a detonator, other than an electronic detonator, designed for, and capable of, initiation by means of an electric current, including, for example, a resistorized electric detonator;

"electric igniter" means a device designed for, and capable of, initiating deflagration in another explosive by means of an electric current;

"electronic detonator" means a detonator that uses stored electrical energy as a means of powering a programmable electronic timing delay element, whether or not the detonator is wireless;

"initiating device" means a blasting machine, non-electric starter, fuse lighter and any other device used to initiate a deflagration or detonation but does not include a detonator or electric igniter;

"explosive" means a substance that is made, manufactured or used to produce an explosion or detonation, including but not limited to blasting explosives, pyrotechnic devices and accessories containing explosives;

"igniter cord" means a small diameter wire coated with an incendiary composition used to ignite a series of safety fuse assemblies;

"isolated location" means an area where people other than the workers involved in the work project are not likely to be, and excludes frequently travelled roads, or a recreation area when it is likely to be used by people;

"magazine" means a structure used for the unattended storage of either detonators or explosives, and which meets the regulations and standards of the *Explosives Act* (Canada);

"misfire" means a charge, or part of a charge, that failed to completely detonate or deflagrate, as applicable;

"primer" means an explosive to which a detonator is attached or into which a detonator is inserted;

"radio frequency transmitter" means an AM, CB, FM and VHF radio, TV, radar, cellular telephone, wireless or remote control device, global positioning system, radio navigational beacon and any other electronic transmitting device that radiates radio frequency waves;

"safety fuse assembly" means a manufactured blasting accessory consisting of a precut length of safety fuse, an igniter cord connector, and a detonator;

"shunt" means the act of closing an electrical circuit to prevent or minimize the potential for an electrical charge or current to unintentionally reach an explosive by

(a) using an electrically conductive, non-ferrous clip or foil,

(b) twisting together the lead wires or leg wires,

(c) using a shorting pin, or

(d) using other means recommended by the manufacturer;

"springing" means a blasting technique which opens up a pocket at the bottom of a blast hole so that successive larger charges may be loaded and blasted;

"stemming" means placing inert material in the portion between the top of the explosive column and the collar of a blast hole, intended to confine the explosive gases for an effective blast.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

GENERAL REQUIREMENTS

CERTIFICATION

STORAGE

TRANSPORTATION

HANDLING EXPLOSIVES

DRILLING

LOADING

SAFETY FUSE INITIATION

ELECTRICAL INITIATION

FIRING

RETURNING TO THE BLAST SITE

MISFIRE PROCEDURES

SPECIALIZED BLASTING OPERATIONS

21.22 Vehicle operation

(1) A vehicle being used to transport explosives must be in sound mechanical condition, suitable for, and capable of, safely transporting explosives.

(2) Passengers, other than those assigned to assist in handling explosives, are not permitted on a vehicle transporting explosives.

21.23 Flammable materials

Reasonable quantities of flammable or combustible materials may be carried by a conveyance transporting explosives at the workplace provided such materials are contained in a manner which will not cause or transmit a fire or explosion, and are adequately separated from any explosives containers on the conveyance.

21.24 Transportation of explosives

(1) Explosives carried in a vehicle must be in a fully enclosed, locked, fire resistant fixed container or compartment, separate from the passenger compartment.

(2) Detonators and electric igniters must be transported in their original containers as shipped by the manufacturer.

(3) Detonators must be adequately separated from other explosives during transport.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.25 Mobile drill rigs

The transportation of explosives on a mobile drilling rig is only permitted if

(a) explosives and detonators are carried in separate containers built to type 6 or type 10 magazine standard and capacities, with 2 hooded locks, and

(b) the explosives and detonator containers are

(i) located at least 60 cm (2 ft) apart, with the doors or lids facing at least 90° apart,

(ii) located above the vehicle deck in a manner which protects the containers from contact with roadside objects and the drilling equipment,

(iii) located so the contents are not endangered by any heat source on the drill unit,

(iv) kept locked when outside the blasting area, and securely closed when in the blasting area, except when opened for depositing or removing their contents, and

(v) attended by the blaster of record, or a qualified person designated by the blaster, at all times when explosives are being carried.

[Amended by B.C. Reg. 188/2011, effective February 1, 2012.]

21.26 Water transport

Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

21.27 Contact with metal

Contact between packages containing explosives and exposed ferrous metal in a conveyance must be prevented by the use of wood, tarpaulin, or other suitable dunnage materials.

21.28 Emergency procedures

Before explosives are transported, the employer must establish suitable written emergency procedures, and must ensure that all workers who may be affected are adequately instructed in the procedures.

21.29 Safe operation

A person operating a vehicle that is transporting explosives

(a) must operate the vehicle in a safe manner, consistent with prevailing road and weather conditions, and

(b) must not drive faster than 90 km/h (55 mph).

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

21.30 Vehicle load limit

A vehicle transporting explosives must not be operated or permitted to operate if the load to be transported exceeds 80% of the manufacturer's rated carrying capacity for the vehicle.

21.31 Firefighting equipment

(1) A conveyance transporting explosives must be equipped with at least 2 fire extinguishers, of a type capable of quickly extinguishing gasoline, oil, or electrical fires.

(2) The fire extinguishers must be readily available for use and must have

(a) a minimum 5 BC rating for a vehicle with up to 2 000 kg (4 400 lbs) gross vehicle weight (GVW) rating, and

(b) a minimum 10 BC rating for a vehicle with more than 2 000 kg (4 400 lbs) GVW rating.

21.32 Trailer transportation

Explosives must not be transported in a trailer, or in any type of semitrailer unless it is equipped with power brakes operable from the tractor cab.

21.33 Railroad and highway crossings

The operator of a vehicle transporting explosives must, before crossing

(a) a railroad track protected by an automatic signal device, reduce the speed of the vehicle and establish that the crossing can be made in safety, and

(b) a main highway, or a railroad track that is not protected by an automatic signal device, completely stop the vehicle and only proceed when the way is safely clear.

21.34 Prior servicing

Explosives must not be loaded on or in a vehicle unless the vehicle has been fully serviced.

21.35 Overnight parking

(1) When a vehicle carrying or containing explosives is to be parked overnight, the premises in which the vehicle will be parked must not be used for any other purpose which may involve any substance likely to cause explosion or fire.

(2) Such premises must be away from habitation and buildings that contain flammable materials.

(3) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

21.45 Priming

A primer must not be made up until immediately before placing the explosives.

21.46 Carrying

Persons must not carry explosive materials in their clothing.

21.47 Cartridges

Wrappers must not be removed from cartridge explosives.

21.48 Loading tools

Explosives must not be loaded into a hole except with a loading tool made of wood, plastic or other non-sparking material.

21.49 Electrical storms

If there is any sign of thunder or lightning storm activity, all blasting activity must be suspended and the danger area must be cleared and guarded if explosives are present at the blast site.

21.50 Guarding loaded holes

(1) Except as permitted by section 21.84, a hole which has been loaded, whether primed or not, but not fired by the end of the working day must not be left unattended.

(2) A worker, whose sole responsibility is the security of the explosives, must be posted to ensure that loaded holes are not tampered with while the work crew is absent from the site.

21.51 Vehicles

Except as permitted by section 21.84, a vehicle or other mechanized equipment must not be driven over a loaded hole.

21.52 Springing holes

After a hole is "sprung" ample time must be left for the hole to cool before further loading or placing of explosives or explosive accessories takes place.

21.53 Connecting detonating cord

(1) When detonating cords are used, the cords must only be interconnected or attached to trunk cords at the last most practicable moment after all holes are loaded.

(2) When detonating cords are used to prime a charge, the cord must be cut from the supply reel before, or as soon as possible after the charge is placed.

(3) Detonators or detonator connectors must not be attached to a detonating line until everything is in readiness for the blast.

21.54 Shock tubes

(1) Non-electric shock tubes loaded into holes must not be pulled or snapped.

(2) Shock tube starters must not be fastened to the firing line until all holes are loaded and ready to be blasted.

21.55 Pneumatic loading

(1) Explosives may only be loaded pneumatically if the procedures and equipment used will prevent buildup of static electricity or hazards from stray electric currents.

(2) Prior written permission of the Board must be obtained before any pneumatic loading is carried out at a hole which contains an electric detonator or electronic detonator.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.58 Stray currents

(1) Precautions must be taken to prevent premature initiation of electric detonators, electronic detonators and electric igniters from sources of electricity.

(2) Electric blasting circuits must be kept on the ground with bare connections sufficiently elevated to prevent current leakage.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.59 Extraneous currents

Electric detonators or electric igniters must not be used when extraneous current exceeds 50 milliamps.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.60 Static electricity

(1) Precautions must be taken during handling of electric detonators, electronic detonators and electric igniters to prevent premature initiation caused by static electricity.

(2) Detonator leg wires must not be thrown in the air or dragged along the ground.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.61 Radio frequency precautions

(1) If the electric blasting circuit is equipped with an electric detonator, minimum distances from radio frequency transmitters as detailed in *Institute of Makers of Explosives, Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps) Safety Library Publication No. 20, December 2011* as amended from time to time, must be maintained.

(1.1) If the blasting system is equipped with an electronic detonator or electric igniter, minimum distances from radio frequency transmitters as recommended by the manufacturer must be maintained.

(2) If the minimum distance has not otherwise been determined, electric blasting circuits are not permitted within

(a) 100 m (330 ft) of a CB radio or other mobile or portable radio frequency transmitter, and

(b) 1 000 m (3,300 ft) of an AM or FM radio, TV, or other fixed radio frequency transmitter.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.62 Mobile transmitters

(1) If absolute control of radio frequency transmitters cannot be maintained, for example, on public highways, warning signs must be posted to alert vehicle operators to turn off their transmitters.

(2) When electric blasting circuits are being connected, traffic control persons must be posted to instruct vehicle operators to turn radio frequency transmitters off.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.63 Testing electric blasting circuits

(1) The blaster of record must ensure that each electric blasting circuit is tested before firing.

(2) In seismic blasting, the blaster of record must ensure that each electric blasting circuit is tested after the blast hole is loaded with explosives and before a plug is placed into the hole.

(3) If the electric blasting circuit is equipped with an electric detonator or electric igniter, the blaster of record must ensure that before firing,

(a) the resistance of the circuit is measured using a blasting galvanometer or another instrument specifically designed for testing electric detonators and circuits containing them, and

(b) the resistance is recorded in the blasting log.

[Enacted by B.C. Reg. 14/2019, effective June 3, 2019.]

21.63.1 Confirming electronic detonator integrity

The blaster of record must ensure that before firing with the use of an electronic detonator, the signal integrity of the detonator is confirmed and

recorded in the blasting log.

[Enacted by B.C. Reg. 14/2019, effective June 3, 2019.]

21.64 Capacity of blasting machines

(1) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

(2) The capacity of a blasting machine must be clearly marked on the blasting machine and must not be exceeded.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

21.65 Firing from power lines

When firing is done from a power line, an approved blasting safety switch must be used, and the switch kept locked and inaccessible to anyone except the blaster.

21.74 Blast site examination

The blaster must make a thorough examination of the blast site after charges have been fired to determine that there are no unexploded charges remaining.

21.75 Unfired explosives

(1) If there is evidence or suspicion of misfired charges or undetonated explosives

(a) all loose unfired explosives must be collected and destroyed in a safe manner, and

(b) the blaster must direct the hand removal of as much broken material as possible before metallic tools or equipment are 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 area.

21.76 Removing loose material

(1) Removal of loose material must be done cautiously, with regard for possible undetonated explosive materials or misfired holes.

(2) Loose rock must be scaled from faces in the work area and the area stabilized before other work resumes.

21.77 Marking and detonating

(1) Each misfired charge must be clearly marked and the area cordoned off.

(2) No attempt must be made to remove an unexploded charge and no other work may take place within the blasting area, until the misfired charge has been successfully detonated by rewiring or repriming with a fresh primer.

21.78 Safety fuse reblast

If a misfired charge contains a safety fuse and is reblasted, workers must not return to the blast site until 30 minutes after the detonation.

21.79 No relighting

Relighting a safety fuse is prohibited.

21.80 Drilling for refiring

When drilling is necessary to expose a misfired charge the blaster must

(a) accurately determine the angle of the misfired hole,

(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 misfired charge.

21.81 Extracting explosives

(1) It is prohibited to extract, or attempt to extract, a primer or explosive of the nitroglycerine type from a loaded hole.

(2) Only if the hole does not contain a detonator may a blaster or person authorized by the blaster remove ammonium nitrate, water gel or emulsion type explosives from a blast hole, and the removal procedure must be carried out with caution, using moderate air or water pressure or a combination thereof, with a blowpipe made of non-metallic construction.

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21.16 Detonators

(1) Detonator products must not be kept in a store or receptacle in which explosives or safety fuses, fuse lighters, igniter cords or connectors are stored.

(2) At the loading site, detonator products must be stored separately from other explosives, and in a crush resistant box which is clearly identified.

21.17 Worksite storage

Explosives at the worksite must be guarded or contained in secured day boxes until used or returned to storage magazines.

21.18 Communication

(1) The employer must ensure that the location of a magazine in which explosives are stored, and any restrictions on access or activity around the magazine area, are clearly communicated to all workers.

(2) A day box and receptacle used for day storage of explosives on a work site must, when they contain explosives, display signs indicating the presence of explosives in a conspicuous manner, and the signs must be removed when they are empty.

(3) A vehicle containing explosives while in a workplace must display signs indicating the presence of explosives in a conspicuous manner, visible from all sides of the vehicle, and the signs must be removed when the vehicle no longer contains explosives.

21.19 Magazine condition

(1) The interior of an explosives magazine must be kept scrupulously clean and must be constructed, covered or lined to prevent the exposure of any ferrous metals or gritty materials.

(2) Precautions must be taken to exclude moisture from an explosives magazine.

(3) Any article or substance likely to cause a fire or explosion must be kept out of and at a safe distance from an explosives magazine.

21.20 Cord

(1) Detonating cord must be stored separately, or with explosives other than detonators.

(2) Igniter cord must be stored separately from fuses, detonators, or explosives.

21.21 Separate handling

Blasting explosives and detonator products must be kept and handled separately until the last most practicable moment, before bringing them together.

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21.36 General

Explosive materials must be stored, transported, handled and used in the manner recommended by the manufacturer.

21.37 Defective explosives

Explosive materials or accessories which have deteriorated, or are believed to be defective, must not be used and must be handled and disposed of in a safe manner following the manufacturer's recommendations.

21.38 Cold temperatures

If the sensitivity of an explosive is affected by cold temperatures the explosive may be brought to a working temperature in a manner recommended by the manufacturer, but must not be warmed near an open fire or a steam boiler nor by direct contact with steam or hot water.

21.39 Abandoned explosives

Explosive materials and accessories must not be abandoned, but must be placed in suitable storage or disposed of in accordance with the manufacturer's instructions.

21.40 Ignition sources prohibited

(1) Smoking is prohibited within 15 m (50 ft) of where explosives are stored, being handled, or are in loaded holes.

(2) Open flame ignition sources must not be permitted within 15 m (50 ft) of where explosives are stored, being handled, or are in loaded holes, unless the blaster of record gives consent.

21.41 Containers

(1) Containers, known or suspected to contain explosives or explosive residue, must be handled with care to prevent undue impact or exposure to excessive heat or flame.

(2) All empty explosives containers must be disposed of by burning or as recommended by the manufacturer.

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21.42 Predrilling requirements

Before drilling begins

(a) in a previously blasted area, the surface to be drilled must be exposed and examined for misfired explosives,

(b) faces or slopes must be cleared of loose material, or otherwise stabilized to prevent slides or falls of rock, and

(c) the location of utility services must be determined and clearly marked.

21.43 Drilling prohibitions

Drilling must not take place within

(a) 15 cm (6 in) of any part of a bootleg, or

(b) 6 m (20 ft) of any part of a hole containing explosives, unless prior written permission has been obtained from the Board.

21.44 Drill hole size

Each drill hole to be loaded with explosives must be of sufficient diameter to permit free insertion of the explosives to the bottom of the hole without ramming, pounding, cutting, or undue pressure.

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21.2 Employer's responsibility

Nothing in this Part relieves an employer of the responsibility to provide adequate direction and instruction of workers, and to assign work only to those workers who are competent.

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, including detonators, and initiating device used,

(d.1) the instrument used to test the electric blasting circuit,

(e) a factual account of events including the blaster's log records,

(f) the names of all employers responsible for workers present at the worksite when the incident occurred, and

(g) the action taken by each employer referred to in paragraph (f).

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.4 Blasting log

(1) The blaster of record must record in a log the preblast loading details and the results of the postblast 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.

21.5 Authority to blast

(1) Only the holder of a valid blaster's certificate issued by the Board or acceptable to the Board is permitted to conduct or direct a blasting operation, and then only if the work involved is within the scope of that certificate.

(2) All work within the blasting area must be done under the authorization of the designated blaster of record responsible for that area.

(3) A blaster may be assisted by persons who do not hold blaster's certificates, but the blaster must have authority over the assistants and must exercise visual supervision over them and be responsible for their work during explosive loading, priming, fixing or firing.

21.6 Other legislation

Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

21.7 Training

A worker engaged in loading, unloading, or conveying explosives must be trained in the proper means for handling the explosives, the hazards of fire and mishandling and the procedures to follow in the event of a fire or explosion.

21.66 Blaster's responsibility

(1) The blaster must take precautions for the protection of persons and property, including proper loading and stemming of holes, and where necessary, the use of cover for the blast or other effective means of controlling the blast or resultant flying material.

(2) The blaster must ensure that the danger area is clear of workers and is kept clear during the blasting period.

(3) The blaster must post workers who have the sole responsibility of guarding against entry into the danger area of the blast site, and the workers must be instructed as to their duties and responsibilities.

(4) Whistles, signs or other signals may not be used in place of the guards required by subsection (3).

(5) Before sounding the warning signals, the blaster must clear the danger area and post guards as required by subsections (2) to (4), and must ensure that all persons have reached a place of safety.

21.67 Firing lines

The firing lines must not be attached to the initiating device or electric blasting circuit until all charges are placed, connected and ready to be fired.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.68 Firing all holes

(1) Charges must be fired in logical sequence.

(2) If any detonation could affect other charges placed nearby, all of the charges must be fired in one operation.

21.69 Blasting signals

(1) The blaster must ensure that an audible signalling device, distinct from other signalling devices in the area, is used to give the following warning signals:

(a) preceding the blast, 12 short whistle signals must be sounded at one second intervals;

(b) two minutes must elapse after the last warning signal before initiating the blast;

(c) following the blast and after the area has been inspected and found safe, one prolonged whistle signal of at least 5 seconds duration must be sounded, to signify that permission is granted to return to the blasting area.

(2) Subsection (1) does not apply to oil and gas downhole explosives operations, avalanche control, single underground headings, buried seismic work in isolated locations or other circumstances deemed appropriate by the Board, in which case the blaster must ensure that alternative warning procedures acceptable to the Board are used.

(3) Subsection (1)(b) does not apply with respect to the 2 minute warning in congested areas if alternative warning procedures acceptable to the Board are developed and implemented.

[Amended by B.C. Reg. 14/2019, effective June 3, 2019.]

21.70 Posting warning procedures

The employer must ensure that the warning procedure and blasting signals to be used at the workplace are posted conspicuously at each blasting operation, and workers must be instructed in this information.