

ACUSHNET FIRE & EMS DEPARTMENT

Blasting Procedures

Effective: June 1, 2018

Permits Issued under 527 CMR 1.00

I. Scope and Application

- (1) Effective June 1, 2018 the procedure contained herein shall be used to issue any permits regulated by the Massachusetts Comprehensive Fire Safety Code, 527 CMR 1.00.
- (2) All permits, use and storage of explosives in the Town of Acushnet shall be done in accordance with Massachusetts Comprehensive Fire Safety Code, 527 CMR 1.00, NFPA 495 (2013 Edition), and these procedures.
- (3) The Fire Chief may waive any requirement of this procedure or the Fire Chief may determine additional restrictions as may be deemed by the Fire Chief to be in the best interest of public safety.

II. Purpose

This procedure is intended to provide reasonable safety and limit the impact to surrounding property in the use and handling of explosive materials in the Town of Acushnet.

III. Security and Safety of Explosive Materials.

(1) Basic Requirements

- (a) All state, and local laws and regulations applicable to obtaining, keeping, transporting, storing, handling, and using explosive materials shall be followed. The Blaster is responsible for the site security and safety at all times when explosive materials are present.
- (b) Explosive materials shall be protected from unauthorized possession and shall not be abandoned.
- (c) No attempt shall be made to fight a fire that cannot be contained or controlled before it reaches explosive materials. In such cases the local fire department shall be immediately notified, all personnel shall be immediately evacuated to a safe Location, and the site guarded from entry by spectators or intruders until the arrival of the head of the fire department or his designee.
- (d) All magazines, when containing explosive materials, shall be locked or safeguarded against theft and tampering.
- (e) No explosive materials shall be located, kept or stored where they may be exposed to flame, excessive heat, sparks impact or theft
 1. No firearms shall be discharged into or in the vicinity of a vehicle containing explosive materials or into or in the vicinity of a location where explosive materials are being handled, used, at stored.
 2. No smoking shall be permitted within 50 feet of any location where explosives are being handled or used.
 3. No person within 50 feet of any location where explosives are being handled or used shall carry any matches, open light, or other fire or flame.

Note Suitable devices for lighting safety fuse are exempt from this requirement.

(e) No person under the influence of intoxicating liquors, narcotics, or other dangerous drugs shall be allowed to handle explosive materials.

(f) Unauthorized or unnecessary personnel shall not be present where explosive materials are being handled, used, or stored.

(h) Containers of explosive materials shall not be opened in any magazine or within 50 feet of any magazine. Non sparking tools shall be used for opening any package or container of explosive materials.

(i) Explosive material shall not be used in a manner contrary to the instructions of the manufacturer of the explosive materials.

IV Blasting Not Within an Approved Quarry

(1) Requirements for a Use and Handling Permit [Blasting Permit]

(a) No person shall detonate explosives in the Town of Acushnet unless they possess a Use and Handling Permit issued to the Blaster by the Fire Chief of the Town of Acushnet.

(b) The blaster must submit the following documents in application for a Use and Handling Permit:

1. A valid "Certificate of Competency"
2. A valid "Explosives User Certificate"
3. A Dig Safe number obtained in accordance with M.G.L. Chap. 82 s. 40
4. A completed application form.
5. A "Blast Design Plan" as detailed in this procedure.
6. A copy of the "Blast Analysis" as detailed in this procedure.
7. A proposed schedule of days when blasting will occur.
8. A list of locations offered a pre-blast survey and a list of completed pre-blast surveys.
9. \$50.00 permit fee.
10. Deposit on the Fire Watch invoice of 4 hours per blasting day.

(c) After review and verification of the submitted documents, the Fire Chief or his designee will, within 10 business days, deny the application or will issue a "Use and Handling Permit" with any conditions or restrictions that he determines may be needed to protect the public safety.

(d) If during the period the Use and Handling Permit is in effect the "Certificate of Competency", the "Explosives User Certificate", or the Dig Safe number are suspended, revoked, or become invalid, then the Use and Handling Permit is immediately suspended without further action by the Fire Chief.

(e) No Use and Handling Permit may be assigned or transferred.

(f) Any person denied a Use and Handling Permit may appeal to the Acushnet Board of Selectmen.

(g) The Use and Handling Permit shall remain in effect for a period of thirty (30) days unless suspended or revoked by the Fire Chief, the Marshal, or their designees.

(h) A "Use and Handling" permit may be suspended or revoked by the head of the Fire Department or the Marshal or their designees for any violation of this procedure, 527 CMR 1.00, or M.G.L. Chap. 148.

(2) Pre-Blast Operations

(a) The Blast Design Plan, the Blast Analysis, and any Pre-Blast Inspection Surveys shall be completed before any explosive materials are delivered to the blast site.

(b) All state, and local laws and regulations applicable to obtaining, keeping, transporting, storing, handling, and using explosive materials shall be followed.

(c) Blast design Plan: A Blast Design Plan shall be done for each blast site. Precautions shall be taken by the blaster in the design of the blast plan to prevent damage and to minimize adverse effects including ground vibrations, air blast and flyrock.

1. Such precautions shall include but not be limited to, review of each shot variable or dimension to ensure a blast design plan which establishes sound relationships between current industry standards and the allowable limits of the effects of blasting.

2. A blast design plan shall describe as a minimum, the amount of material to be removed, benches and lifts, sketches of proposed drill patterns, spacing, free face, bore hole size, depth, and angle, stemming, decking, weight of explosive material per delay, delay periods, initiation techniques, the amount of explosive material to be used, critical dimensions, location and descriptions of building(s) and structures(s) to be protected, their number, and the placement of seismographs.

a. All shots shall be designed using the most current industry standards, to prevent excessive air blast, ground vibration, and fly rock.

b. Blasting mats and sufficient cover shall be required.

(d) Blast Analysis: before conducting a blast the blaster shall conduct a blast analysis of the overall factors affecting the blasting operations. This analysis shall consider: adjacent area structure(s), building(s), building foundations utilities, including gas and water supply lines, septic systems and swimming pools, and area geology within the Blast Design Plan and the identification of commercial equipment such as computers, electron microscopes, laser equipment, relays etc., which are sensitive to vibrations, and other underground objects that might be damaged by the effects of a blast.

1. A blast analysis shall be compared to the blast design plan to establish a sound relationship between the blast design and the effects of blasting upon the neighborhood within the blast design plan.

2. The blast analysis shall contain a discussion of plan factors to be used which protect the public and meet the applicable air blast, fly rock, and ground vibration standards of this regulation.

3. Except as otherwise authorized by 527 CMR 1.00 and NFPA 495, blasting shall be conducted so that the effects of ground vibration and airblast, as indicated by the seismograph readings (including extrapolations when required), do not exceed the limits specified in NFPA 495 - Chapter 11.

4. All blasting operations must utilize a minimum of two seismographs to monitor the effects of blasting. The first unit shall be placed at the nearest inhabited building or structure adjacent to the blast areas that is not owned, leased, or controlled by the blasting operation. The seismograph shall also be placed on or in the ground on the side of the structure directly facing the blast site and shall be placed within ten feet of the structure or less than 10% of the distance from the blast, whichever is less. In these cases, compliance with NFPA 495 shall be determined by the recordings at the seismograph.

If there is no suitable location for seismograph placement within ten ft. of the structure that is mutually agreed upon by the blaster and the head of the fire department or his designee, the condition which made it unsuitable to place the seismograph within ten feet of the structure and the alternative location agreed upon by the head of the fire department or his designee shall be noted, in writing in the blast plan. In these cases, compliance with NFPA 495 shall be determined by using seismograph reading and extrapolating ground vibration and air blast, to the nearest inhabited structure, using accepted engineering practices.

Exception: If the person in control of said nearest structure refuses to grant permission for seismograph placement as required by 527 CMR 1.00 – 65.9.14.4, the head of the fire department shall be immediately notified. Such refusal shall be further documented in writing by the blaster and placed in

the blasting record. Placement of the seismograph shall then be at a location mutually agreed upon by the blaster and the head of the fire department or his designee.

Additional seismograph(s) will be placed as prescribed on approved Use and Handling permits or mutually agreed by the blaster and the head of the fire department or his designee.

5. All blasting operations shall be video recorded. The video is to record all images at the blast site beginning immediately after the BLAST SIGNAL until the initiation of the ALL CLEAR SIGNAL.

(e) Pre-Blast Inspection Surveys Any structure not owned or controlled by the project that is within the Blast Design Plan area shall be offered a pre-blast inspection survey in accordance with 527 CMR 1.00 – 65.9.15, *Pre-Blast Inspection Surveys*.

(3) Blasting Operations

(a) There shall be a “Fire Watch” on site at all blasting within the Town of Acushnet. The Fire Watch shall be a detail from the Acushnet Fire & EMS Department and the cost of the Fire Watch borne by the blaster. The Fire Watch will be present from the time the explosive materials are delivered to the blast area until the termination of blasting operations and the removal of all explosive material from the site. Provided the blaster provides the Acushnet Fire & EMS Department twenty-four (24) hour notice of intent to blast, blasting operations will not be delayed by the failure of the Acushnet Fire & EMS Department to provide a fire watch at the scheduled time. The cost of the fire watch will be \$45.00 per hour, with a minimum of four (4) hours per detail, and will be subject to fiscal year review with any changes taking effect as of July 1st and continuing to June 30th of each year. The Fire Chief retains the sole authority of waiving fire watches after receiving the prescribed twenty-four (24) hour notification. The Fire Chief further authorizes “spot inspections” at a time and manner of his discretion. The blaster and facility are expected to comply with these unscheduled inspections.

(b) Explosive materials shall be used under the control of experienced blasters who are familiar with the hazards involved and who hold all required licenses, permits, certificates and authorizations.

1. Loading shall be performed or supervised by a blaster possessing a current Certificate of Competency.

a. No blasting operation shall be conducted at any time unless a blaster holding a Certificate of Competency shall be physically present to direct, supervise and be responsible for such blasting operation

b. Trainees, helpers, and other persons shall work only under the supervision of a blaster holding a Certificate of Competency

2. No bore holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives and excess blasting caps shall be immediately returned to their separate storage magazines.

3. Stemming shall consist of clean fine clay, sand or crushed rock. The use of leaves or trash is prohibited. Each blast hole shall be stemmed to the collar and provide sufficient confinement of the charge to minimize the chance of injury to personnel from flying material.

(d) Unauthorized or unnecessary personnel shall not be allowed into the blast site.

(e) Containers of explosive materials shall not be opened in any magazine or within 50 feet of any magazine. Non sparking tools shall be used for opening any package or container at explosive materials.

(f) A blaster authorized to prepare explosive charges or to conduct blasting operations shall use every reasonable precaution, including but not limited to warning signals, flags, barricades, or other equally effective means to ensure the safety of the general public and co/workers.

1. A code of blasting signals shall be posted on one or more conspicuous places at the operation. All employees shall be required to familiarize themselves with this code. The code shall be:

WARNING SIGNAL: Three long blasts five minutes prior to blast signal.

BLAST SIGNAL: Two blasts one minute prior to the shot.

ALL CLEAR SIGNAL: A prolonged blast following the inspection of the blast area.

2. Blast signals shall be clearly audible for a distance of 250 feet of the blast site.

(g) No person shall fire a blast in any blasting operation on Sunday, Saturday, Holiday, or between the hours of 4:00 PM and 9:00 AM unless otherwise authorized in writing by the Marshal or the Fire Chief, but in any case the authority of the Marshal shall prevail.

(h) Whenever blasting is being conducted in the vicinity of utility lines or rights-of-way, the blaster shall notify the appropriate representatives of the utilities at least 24 hours in advance of blasting, specifying the location and intended time of such blasting.

(k) Precautions shall be taken to prevent accidental discharge of electric detonators from currents induced by radar and radio transmitters, lightning, adjacent power lines, dust and snow storms, or other sources of extraneous electricity. These precautions shall include:

1. The posting of signs warning against the use of radio transmitters on all roads within 350 feet of blasting operations.



About 48" x 48"



About 42" x 36"

Specimens of signs which would meet the requirements of this section.

2. Observance of the latest recommendations with regard to blasting in the vicinity of radio transmitters or power lines, as set forth in IME Safety Library Publication No. 20, *Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps)*.

3. Surface and underground use, and all handling of explosive materials shall be discontinued during the approach and progress of an electrical storm. All personnel shall move to a safe location.

Consideration shall be given to the fact that lightning has been known to follow steel, piping, and conductive ore.

(l) Boreholes shall be large enough to permit free insertion of cartridges of explosive materials.

(m) All boreholes shall be inspected and cleared of any obstruction before loading.

(n) After loading bore holes for a blast is completed and before firing, all excess explosive materials shall be removed from the area and returned to the proper storage facilities.

(q) At all times when explosive materials are outside of a magazine and until the shot has been fired and subjected to post-blast examination, the blast area shall be guarded or barricaded and posted.

(3) Initiating Blasts

(a) The blaster shall establish the boundaries of the blast site and secure the blast area prior to firing the blast.

(b) The blast shall be initiated in accordance with 527 CMR 1.00 and NFPA 495.

(c) Only the blaster in charge shall fire the blast. All connections shall be made progressively from the bore hole back to the initiation point. Blasting lead lines shall remain shunted (shorted) and shall not be connected to the blasting machine or other source of current until the blast is to be fired.

(d) No blast shall be fired until the blaster in charge has made certain that all surplus explosive materials are in a safe place, all persons and equipment are at a safe distance or under sufficient cover, and that an adequate warning signal has been given.

(4) Procedures After Blasting

(a) No person shall return to the blast area until permitted to do so by the blaster.

(b) The blaster shall allow sufficient time for smoke and fumes to dissipate and for dust to settle before returning to the blast site.

(c) The blaster shall inspect the entire blast site for misfires before allowing other personnel to return to the blast area.

(d) When the blaster has determined that the blast site is clear of all explosives, The "All Clear" signal will be given and the "Fire Watch" notified.

(e) Following the conclusion of the blast, the Blaster shall provide the "Fire Watch" with a written record of the seismograph readings.

(f) It shall be the responsibility of the Blaster to provide the Fire Chief a video recording of each blast in accordance with the manner described in the Use and Handling Permit.

(5) Misfires

(a) If a misfire is found, the blaster shall provide safeguards for excluding all personnel from the blast area.

(b) No other work shall be done other than that necessary to remove the hazard. Only those persons necessary to do this work shall remain at the blast site.

(c) The misfire shall be handled in accordance with NFPA 495 - 10.5.

(d) The "Fire Watch" will remain at the blast site until the misfires are cleared and all explosive materials removed from the site.

(6) Disposal of explosive materials

(a) Empty containers and packages and paper or fiberboard packing materials that have previously contained explosive materials shall not be reused for any purpose. Such packaging materials shall be destroyed by burning at an outdoor location approved by the Fire Watch or other approved method of disposal. All personnel shall remain at a safe distance from the disposal area.

(b) In the event that it becomes necessary to destroy any explosives, either because of damage to containers, deterioration, or any other reason, all handling of explosives shall cease and the Fire Chief, the State Fire Marshal, and the manufacturer shall be immediately contacted for assistance. The manufacturer's advice shall be followed without deviation.

(V) Quarry Blasting

(1) General Requirements

(a) Quarry blasting shall be conducted in strict compliance with 527 CMR 1.00 and NFPA 495.

(b) A series of durable warning signs shall be erected along the entire perimeter of any rock face more than six feet high. They shall be spaced not more than 75 feet apart and set back a reasonable distance from the face. Each sign shall contain the words "WARNING - BLASTING AREA - DANGER" in letters at least two inches in height. Signs shall be placed within 500 feet of building(s) used for human habitation in compliance with 527 CMR 65.9.12-12.2.

(c) As a condition of local permit approval, quarry blasting shall be authorized to occur on Tuesday, Wednesday and Thursday. Waivers from this schedule may be made, in writing, to the Fire Chief.

(2) Requirements for a Use and Handling Permit [Blasting Permit]

(a) No person shall detonate explosives in the Town of Acushnet unless they possess a Use and Handling Permit issued to the Blaster by the Fire Chief of the Town of Acushnet.

(b) The blaster must submit the following documents in application for a Use and Handling Permit:

1. A valid "Certificate of Competency"
2. A valid "Explosives User Certificate"
3. A Dig Safe number obtained in accordance with M.G.L. Chap. 82 s. 40
4. A completed application form.
5. A "Blast Design Plan for Quarry, Part A" as detailed in this procedure.
6. A copy of the "Blast Analysis for Quarry" as detailed in this procedure.
7. A proposed schedule of days when blasting will occur.
8. A list of locations offered a pre-blast survey and a list of completed pre-blast surveys.
9. \$10.00 permit fee.
10. Deposit on the Fire Watch invoice of 4 hours per blasting day.

(c) After review and verification of the submitted documents, the Fire Chief or his designee will, within 10 business days, deny the application or will issue a "Use and Handling Permit" with any conditions or restrictions that he determines may be needed to protect the public safety.

(d) If during the period the Use and Handling Permit is in effect the "Certificate of Competency", the "Explosives User Certificate", or the Dig Safe number are suspended, revoked, or become invalid, then the Use and Handling Permit is immediately suspended without further action by the Fire Chief.

(e) No Use and Handling Permit may be assigned or transferred.

(f) Any person denied a Use and Handling Permit may appeal to the Massachusetts State Fire Marshal.

(g) The Use and Handling Permit shall remain in effect for a period of thirty (30) days unless suspended or revoked by the Fire Chief, the Marshal, or their designees.

(h) A "Use and Handling" permit may be suspended or revoked by the head of the Fire Chief or the Marshal or their designees for any violation of this procedure, 527 CMR 1.00, or M.G.L. Chap. 148.

(2) Pre-Blast Operations

(a) The Blast Design Plan for Quarry, the Blast Analysis for Quarry, and any pre-blast building surveys shall be completed before any explosive materials are delivered to the blast site.

(b) All state, and local laws and regulations applicable to obtaining, keeping, transporting, storing, handling, and using explosive materials shall be followed.

(c) Blast Design Plan for Quarry: A Blast Design Plan for a quarry shall consist of two parts.

(1) Part A There shall be a grid map to scale of the quarry and the surrounding area determined by Table 2 done for each quarry. This plan shall be updated annually and filed with the first application for a Use and Handling permit each calendar year.

(2) Part B There shall be blast design plan for each blast submitted to the Acushnet Fire Department at least 24 hours prior to the blast. The area included in a blast design plan shall be according to Table 1. Precautions shall be taken by the blaster in the design of the blast plan to prevent damage and to minimize adverse effects including ground vibrations, air blast and flyrock.

1. Such precautions shall include but not be limited to, review of each shot variable or dimension to ensure a blast design plan which establishes sound relationships between current industry standards and the allowable limits of the effects of blasting.

2. A blast design plan shall describe as a minimum, the amount of material to be removed, benches and lifts, sketches of proposed drill patterns, spacing, free face, bore hole size, depth, and angle, stemming, decking, weight of explosive material per delay, delay periods, initiation techniques, the amount of explosive material to be used, critical dimensions, location and descriptions of building(s) and structures(s) to be protected, their number, and the placement of seismographs.

a. All shots shall be designed using the most current industry standards, to prevent excessive air blast, ground vibration, and fly rock.

TABLE 2

Proposed maximum weight of explosive material per 8 ms delay	Distance in all directions from outer most boundary of the quarry
25 lbs	250 ft.
36 lbs	300 ft.
52 lbs	400 ft.
82 lbs	500 ft.
113 lbs	600 ft.
211 lbs	800 ft.
267 lbs	900 ft.
330 lbs	1,000 ft.

(d) Blast Analysis: Before conducting a blast the blaster shall conduct a blast analysis of the overall factors affecting the blasting operations. This analysis shall consider: adjacent area structure(s), building(s), building foundations utilities, including gas and water supply lines, septic systems and swimming pools, and area geology within the Blast Design Plan and the identification of commercial equipment such as computers, electron microscopes, laser equipment, relays etc., which are sensitive to vibrations, and other underground objects that might be damaged by the effects of a blast.

1. A blast analysis shall be compared to the blast design plan to establish a sound relationship between the blast design and the effects of blasting upon the neighborhood within the blast design plan.

2. The blast analysis shall contain a discussion of plan factors to be used which protect the public and meet the applicable air blast, fly rock, and ground vibration standards of this regulation.

3. Except as otherwise authorized by 527 CMR 1.00 and NFPA 495, blasting shall be conducted so that the effects of ground vibration and airblast, as indicated by the seismograph readings (including extrapolations when required), do not exceed the limits specified in NFPA 495 - Chapter 11.

4. All blasting operations must utilize a minimum of two seismographs to monitor the effects of blasting. The first unit shall be placed at the nearest inhabited building or structure adjacent to the blast areas that is not owned, leased, or controlled by the blasting operation. The seismograph shall also be placed on or in the ground on the side of the structure directly facing the blast site and shall be placed within ten feet of the structure or less than 10% of the distance from the blast, whichever is less. In these cases, compliance with NFPA 495 shall be determined by the recordings at the seismograph. If there is no suitable location for seismograph placement within ten ft. of the structure that is mutually agreed upon by the blaster and the head of the fire department or his designee, the condition which made it unsuitable to place the seismograph within ten feet of the structure and the alternative location agreed upon by the head of the fire department or his designee shall be noted, in writing in the blast plan. In these cases, compliance with NFPA 495 shall be determined by using seismograph reading and extrapolating ground vibration and air blast, to the nearest inhabited structure, using accepted engineering practices.

Exception: If the person in control of said nearest structure refuses to grant permission for seismograph placement as required by 527 CMR 1.00 – 65.9.14.4, the head of the fire department shall be immediately notified. Such refusal shall be further documented in writing by the blaster and placed in the blasting record. Placement of the seismograph shall then be at a location mutually agreed upon by the blaster and the head of the fire department or his designee.

Additional seismograph(s) will be placed as prescribed on approved Use and Handling permits or mutually agreed by the blaster and the head of the fire department or his designee.

5. All blasting operations shall be video recorded. The video is to record all images at the blast site beginning immediately after the BLAST SIGNAL until the initiation of the ALL CLEAR SIGNAL.

(e) Pre-Blast Inspection Surveys Any structure not owned or controlled by the project that is within the Blast Design Plan for quarry area shall be offered a pre-blast inspection survey in accordance with 527 CMR 1.00 – 65.9.15, *Pre-Blast Inspection Surveys*.

(3) Blasting Operations

(a) There shall be a “Fire Watch” on site at all blasting within the Town of Acushnet. The Fire Watch shall be a detail from the Acushnet Fire & EMS Department and the cost of the Fire Watch borne by the blaster. The Fire Watch will be present from the time the explosive materials are delivered to the blast area until the termination of blasting operations and the removal of all explosive material from the site.

Provided the blaster provides the Acushnet Fire & EMS Department twenty-four (24) hour notice of intent to blast, blasting operations will not be delayed by the failure of the Acushnet Fire & EMS Department to provide a fire watch at the scheduled time. The cost of the fire watch will be \$45.00 per hour, with a minimum of four (4) hours per detail, and will be subject to fiscal year review with any changes taking effect as of July 1st and continuing to June 30th of each year. The Fire Chief retains the sole authority of waiving fire watches after receiving the prescribed twenty-four (24) hour notification. The Fire Chief further authorizes “spot inspections” at a time and manner of his discretion. The blaster and facility are expected to comply with these unscheduled inspections.

(b) Explosive materials shall be used under the control of experienced blasters who are familiar with the hazards involved and who hold all required licenses, permits, certificates and authorizations.

1. Loading shall be performed or supervised by a blaster possessing a current Certificate of Competency.

a. No blasting operation shall be conducted at any time unless a blaster holding a Certificate of Competency shall be physically present to direct, supervise and be responsible for such blasting operation

b. Trainees, helpers, and other persons shall work only under the supervision of a blaster holding a Certificate of Competency

2. No bore holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives and excess blasting caps shall be immediately returned to their separate storage magazines.

3 Stemming shall consist of clean fine clay, sand or crushed rock. The use of leaves or trash is prohibited. Each blast hole shall be stemmed to the collar and provide sufficient confinement of the charge to minimize the chance of injury to personnel from flying material.

(c) No explosive materials shall be located, kept or stored where they may be exposed to flame, excessive heat, sparks impact or theft

1. No firearms shall be discharged into or in the vicinity of a vehicle containing explosive materials or into or in the vicinity of a location where explosive materials are being handled, used, at stored.

2. No smoking shall be permitted within 50 feet of any location where explosives are being handled or used.

3. No person within 50 feet of any location where explosives are being handled or used shall carry any matches, open light, or other fire or flame.

Note Suitable devices for lighting a safety fuse are exempt from this requirement.

(d) No person under the influence of intoxicating liquors, narcotics, or other dangerous drugs shall be allowed to handle explosive materials.

(e) Unauthorized or unnecessary personnel shall not be present where explosive materials are being handled, used, or stored.

(f) Containers of explosive materials shall not be opened in any magazine or within 50 feet of any magazine. Non sparking tools shall be used for opening any package or container at explosive materials.

(g) A blaster authorized to prepare explosive charges or to conduct blasting operations shall use every reasonable precaution, including but not limited to warning signals, flags, barricades, or other equally effective means to ensure the safety of the general public and co/workers.

1. A code of blasting signals shall be posted on one or more conspicuous places at the operation. All employees shall be required to familiarize themselves with this code. The code shall be:

WARNING SIGNAL: Three long blasts five minutes prior to blast signal.

BLAST SIGNAL: Two blasts one minute prior to the shot.

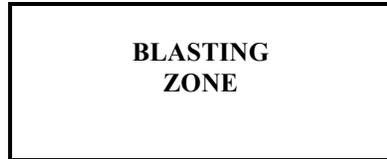
ALL CLEAR SIGNAL: A prolonged blast following the inspection of the blast area.

2. Blast signals shall be clearly audible for a distance of 250 feet of the blast site.

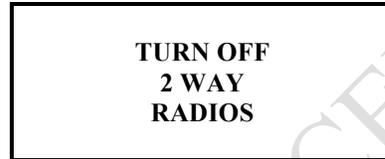
(h) No person shall fire a blast in any blasting operation on Sunday, Saturday, Holiday, or between the hours of 4:00 PM and 9:00 AM unless otherwise authorized in writing by the Marshal or the Fire Chief, but in any case the authority of the Marshal shall prevail.

(k) Precautions shall be taken to prevent accidental discharge of electric detonators from currents induced by radar and radio transmitters, lightning, adjacent power lines, dust and snow storms, or other sources of extraneous electricity. These precautions shall include:

1. The posting of signs warning against the use of radio transmitters on all roads within 350 feet of blasting operations.



About 48" x 48"



About 42" x 36"

Specimens of signs which would meet the requirements of this section.

2. Observance of the latest recommendations with regard to blasting in the vicinity of radio transmitters or power lines, as set forth in IME Safety Library Publication No. 20, *Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps)*.

3. Surface and underground use, and all handling of explosive materials shall be discontinued during the approach and progress of an electrical storm. All personnel shall move to a safe location.

Consideration shall be given to the fact that lightning has been known to follow steel, piping, and conductive ore.

(l) During the time that boreholes are being loaded or are loaded with explosive materials, blasting agents, or detonators, the blast site shall be barred to all but those persons engaged in the drilling and loading operations or otherwise authorized to enter the site.

(m) Boreholes shall be large enough to permit free insertion of cartridges of explosive materials.

(n) All boreholes shall be inspected and cleared of any obstruction before loading.

(p) After loading bore holes for a blast is completed and before firing, all excess explosive materials shall be removed from the area and returned to the proper storage facilities.

(q) At all times that explosive materials are outside of a magazine and until the shot has been fired and subjected to post-blast examination, the blast area shall be guarded or barricaded and posted.

(3) Initiating Blasts

(a) The blaster shall establish the boundaries of the blast site and secure the blast area prior to firing the blast.

(b) Only the blaster in charge shall fire the blast. All connections shall be made progressively from the bore hole back to the initiation point. Blasting lead lines shall remain shunted (shorted) and shall not be connected to the blasting machine or other source of current until the blast is to be fired.

(h) No blast shall be fired until the blaster in charge has made certain that all surplus explosive materials are in a safe place, all persons and equipment are at a safe distance or under sufficient cover, and that an adequate warning signal has been given.

(4) Procedures After Blasting

- (a) No person shall return to the blast area until permitted to do so by the blaster.
- (b) The blaster shall allow sufficient time for smoke and fumes to dissipate and for dust to settle before returning to the blast site.
- (c) The blaster shall inspect the entire blast site for misfires before allowing other personnel to return to the blast area.
- (d) When the blaster has determined that the blast site is clear of all explosives, The “All Clear” signal will be given and the “Fire Watch” notified.
- (e) Following the conclusion of the blast, the Blaster shall provide the “Fire Watch” with a written record of the seismograph readings.
- (f) It shall be the responsibility of the Blaster to provide the Fire Chief a video recording of each blast in accordance with the manner described in the Use and Handling Permit.

(5) Misfires

- (a) If a misfire is found, the blaster shall provide safeguards for excluding all personnel from the blast area.
- (b) No other work shall be done other than that necessary to remove the hazard. Only those persons necessary to do this work shall remain at the blast site.
- (c) No attempt shall be made to extract explosive materials from a misfired hole. A new primer shall be inserted, and the hole shall be re-blasted.
Note. If re-blasting presents a hazard, the explosive materials may be washed out with water, or, where the misfire is under water, blown out with air
- (d) If there are any misfires using cap and fuse, all personnel shall stay out of the blast site for at least 30 minutes.
- (e) If there are any misfires using other non-electric detonators (i.e., other than cap and fuse) or using electric detonators, all personnel shall stay out of the blast site for at least 15 minutes.
- (f) If there is reason to believe that the explosive is burning in the hole, no person shall return to the vicinity of the misfire for at least 12 hours, and the site shall be guarded in the interim.
- (g) If a misfire is suspected, all initiating circuits (electric or non-electric) shall be carefully traced and a search made for unexploded charges.
- (h) No drilling, digging, or picking shall be permitted until all misfires have been detonated or until the blaster in charge approves the resumption of work
- (i) No person shall be permitted to examine a shot after a misfire until specifically authorized by the blaster. If practicable the misfired charge shall be re-primed and fired. Misfires shall be handled only by or under the direction of the blaster.

(6) Disposal of explosive materials

- (a) Empty containers and packages and paper or fiberboard packing materials that have previously contained explosive materials shall not be reused for any purpose. Such packaging materials shall be destroyed by burning at an approved outdoor location or other approved method of disposal. All personnel shall remain at a safe distance from the disposal area

(b) All explosive materials that are obviously deteriorated or damaged shall not be used and shall be destroyed according to the instructions of the manufacturer.

(c) In the event that it becomes necessary to destroy any explosives, either because of damage to containers, deterioration, or any other reason, all handling of explosives shall cease and the manufacturer shall be immediately contacted for assistance. The manufacturer's advice shall be followed without deviation.

(VI) Blaster's Log:

(1) A blaster who performs blasting operations shall maintain a Blaster's log recording each blast in accordance with 527 CMR 1.00 – 65.9.14.

(2) The blaster's log shall be completed and a copy submitted to the Acushnet Fire & EMS Department within 6 hours of a blast.

(3) Blasts that exceed the maximum allowable peak particle velocity frequency or decibel levels established by this regulation or are known by the blaster in charge to have produced fly rock, shall be reported to the Fire Watch immediately, the Fire Chief within 24 hours and, a written report shall be provided within five days.

(4) Blasters' logs shall be available at any time for inspection by the Fire Chief, the Marshal, their designees, or a police officer representing the Use and Handling permit issuing authority

(VII) Complaints

(1) All complaints resulting from the impact of a blast shall be recorded and forwarded to the blaster.

(2) If the Fire Watch receives the complaint at the site, the firefighter shall record the time of complaint, name of person submitting complaint, that person's address, and the reason for the complaint.

(3) If the complaint is received at the fire station (either by phone or in person), the person receiving the complaint shall record the time of complaint, name of person submitting complaint, that person's address, and the reason for the complaint.

(4) Upon the return of the fire watch to the fire station, the firefighter shall record on the "Blasting Complaint Log" all complaints received at the fire station.

(5) Any persons that claim damage from the blast shall be given (either by mail or in person) a *Blasting Regulatory Review Form (FP-296)*

(6) All completed *Blasting Regulatory Review Forms* that are received shall be properly processed and a copy sent to the blaster and a copy sent to the State Fire Marshal.