

Chapter 112

EXPLOSIVES AND BLASTING

[HISTORY: Adopted by the Town Board of the Town of Scott 4-3-1995. Amendments noted where applicable.]

GENERAL REFERENCES

Nonmetallic mining — See Ch. 182.

§ 112-1. Purpose.

The purpose of this chapter is to regulate the use of explosive materials and to establish uniform limits on permissible levels of blasting resultants to reasonably assure that blasting resultants do not cause injury, damage or a nuisance to persons or property.

§ 112-2. Definitions.

The following definitions shall apply in this chapter. Terms not herein defined shall be understood to have their usual and ordinary dictionary meanings.

AIR BLAST — An airborne shock wave resulting from the detonation of explosives.

APPROVED — Approval granted by the Town of Scott.

BLASTER — Any individual holding a valid blaster's license issued by the Wisconsin Department of Safety and Professional Services.

BLASTING — Any method of loosening, moving or shattering masses of solid matter by use of an explosive.

BLASTING BUSINESS — Any individual, corporation, company, association, firm, partnership, society, or joint-stock company engaged in a blasting operation.

BLASTING OPERATION — Any operation, enterprise or activity involving the use of blasting.

BLASTING RESULTANTS — The physical manifestations of forces released by blasting, including, but not limited to, projectile matter, vibration and concussion, which might cause injury, damage or unreasonable annoyance to persons or property located outside the controlled blasting site area.

COMMUNITY — A built-up inhabited area.

DEPARTMENT — The Wisconsin Department of Safety and Professional Services.

DETONATOR — Any device containing a detonating charge that is used for initiating detonation in an explosive. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuses, detonating cord delay connectors, and nonelectric instantaneous and delay blasting caps.

ELECTRIC BLASTING CAP — A blasting cap designed for, and capable of, initiation by means of an electric current.

EXPLOSION — The substantially instantaneous release of both gas and heat.

EXPLOSIVE — Any chemical compound, mixture or device, the primary or common purpose of which is to function by explosion unless the compound, mixture or device is otherwise classified by the Department by rule.

EXPLOSIVE MATERIALS — Explosives, blasting agents and detonators. The term includes, but is not limited to, dynamite and other high explosives, slurries, emulsions, water gels, blasting agents, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord and igniters.

FLYROCK — Rock that is propelled through the air from a blast.

GROUND VIBRATION — A shaking of the ground caused by the elastic wave emanating from a blast.

HIGHWAY — Any public street, public alley or public road.

INHABITED BUILDING — A building regularly occupied in whole or in part as a habitation for human beings, or any church, schoolhouse, railroad station, store or other structure where people are accustomed to assemble, except any building or structure occupied in connection with the manufacture, transportation, storage or use of explosive materials.

NUISANCE — An excessive, repeated noise, action or other disturbance that would cause an unreasonable annoyance.

PARTICLE VELOCITY — Any measure of ground vibration describing the velocity at which a particle of ground vibrates when excited by a seismic wave.

PARTIES IN INTEREST — The blaster and blasting business and all owners of property located within 1,000 feet of the boundaries of a blasting site.

PERMITTED EXPLOSIVES USE AREA — The area that surrounds a blasting site and:

- A. Is owned by the operator; or
- B. With respect to which, because of property ownership, employment relationship or agreement with the property owner, the operator can take reasonably adequate measures to exclude or to assure the safety of persons and property.

PERSON — Any individual, corporation, company, association, firm, partnership, society or joint-stock company.

POWDER FACTOR — Any ratio between the amount of powder loaded and the amount of rock broken.

PRIMER — A capped fuse, electric detonator or any other detonating device inserted in or attached to a cartridge of explosive.

STEMMING — The inert material, such as drill cutting, used in the collar portion or elsewhere of a blast hole to confine the gaseous products of detonation.

§ 112-3. Blaster qualifications; use permit required.

- A. General. No person shall handle or use explosive materials in the Town of Scott unless he:
- (1) Possesses a valid State of Wisconsin blaster's license with the proper classification or is supervised by a holder of a valid State of Wisconsin blaster's license with the proper classification; and
 - (2) Possesses all necessary state permits and complies with all applicable local, state and federal regulations, including, but not limited to, the requirements of this chapter and Ch. SPS 307, Wis. Adm. Code, Explosives and Fireworks.
- B. Permit. No person shall handle, use or cause explosives to be detonated within the Town of Scott without an explosives use permit issued by the Town of Scott, as hereafter set forth, to such person, his supervisor or employer:
- (1) Application. [Amended 11-2-1999; 11-11-2008¹]
 - (a) Applications for an explosives use permit shall be in writing upon forms provided by the Town Clerk. Applications shall be accompanied by a permit fee as set from time to time by the Town Board by resolution. Permits shall be issued on an annual basis commencing January 1 and ending December 31. All explosives use permits applied for after January 1 shall be prorated from the date of the issuance of the permit through the end of the year. Applications may be made by and permits issued to the blasting business, provided that the person doing the blasting or responsible for such blasting shall hold a valid Wisconsin blaster's license with proper classification. The applicant will identify the licensed blasters operating under the permit and the blasting locations within the Town of Scott. In the discretion of the Board, the permit fee may be waived upon a showing of acceptable hardship by the applicant.
 - (b) All applications for reissuance and renewal of an explosives use permit shall be filed by the permittee with the Town Clerk of the Town of Scott within 60 days before the expiration date of the previous permit along with the annual permit fee as set from time to time by the Town Board by resolution.
 - (2) Certificate of insurance. Each application for an explosives use permit as herein stated, or a renewal thereof, shall be accompanied by a certificate of insurance for a commercial general liability policy, and said policy of insurance shall have limits of coverage of not less than \$5,000,000 in the aggregate and \$1,000,000 per occurrence. The Town shall be named as an additional insured on the applicant's policy of liability insurance.²
 - (3) Explosives use plan. Each application for an explosives use permit or a renewal thereof shall include a written description of the total area within which explosives are proposed to be used, blasting procedures to be employed, including types of explosives, initiating systems, and an aerial photograph or drawing acceptable to the

1. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. II).

2. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. II).

Town Board with a scale of no less than one inch equals 400 feet and having an overlaying grid of 50 feet by 50 feet which accurately includes all areas and inhabited buildings within 1,000 feet of all proposed blasting areas.

- (4) Hours of operation. Blasting shall only be conducted between 9:00 a.m. and 4:00 p.m. on Monday through Friday; provided, however, that in the event an emergency has delayed a blast beyond 4:00 p.m., loaded holes may be blasted within a reasonable time thereafter. Blasting shall not be conducted at other times or on Sundays or legal holidays without written permission from the Town Board, which shall only be granted upon a showing of extreme need.
- (5) Blasting log.
 - (a) An accurate blasting log shall be prepared and maintained for each blast fired, and a true and complete copy of said log shall be supplied to the Town Clerk/Zoning Administrator within seven working days of the initiation of the blast. The Town may require that the permittee furnish to the Town an analysis of any particular blasting log to be prepared by the permittee. In the event the permittee cannot or will not prepare a reliable analysis, the Town may obtain such analysis from an independent expert. The permittee shall be liable for the reasonable cost of such analysis if it is determined after an opportunity to be heard that this chapter was violated by the permittee.³
 - (b) Each blasting log shall include, but not be restricted to, the following information:
 - [1] Name and license number of blaster in charge of blast.
 - [2] Blast location with grid coordinate references to the supplied aerial photograph or drawing of the explosives use area.
 - [3] Date and time of blast.
 - [4] Weather conditions at time of blast.
 - [5] Diagram and cross-section of blast hole layout.
 - [6] Number of blast holes.
 - [7] Blast hole depth and diameter.
 - [8] Spacing and burden of blast holes.
 - [9] Maximum holes per delay.
 - [10] Maximum pounds of explosives per delay.
 - [11] Depth and type of stemming used.
 - [12] Total pounds of explosives used, including primers and initiating cord.

3. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. II).

- [13] Distance to nearest inhabited building not owned by permittee.
- [14] Type of initiation system used.
- [15] Seismographic and air blast information, which shall include:
 - [a] Type of instrument and last calibration date;
 - [b] Exact location of instrument and date, time and distance from the blast;
 - [c] Name and company affiliation of person taking reading;
 - [d] Name of the person and firm analyzing the seismographic and air blast data when required;
 - [e] Vibrations and air blast levels recorded; and
 - [f] Copy of the seismograph printout.

C. No permittee shall be required to obtain more than one permit annually for its operations within the Town of Scott.

§ 112-4. Temporary permits. ⁴

The Town Clerk, upon receipt of a properly completed temporary permit application form, may issue a temporary permit to allow for special construction or demolition activities requiring the use of explosives. Temporary permits shall be issued for a duration of 14 consecutive working days. The temporary permit fee shall be as set from time to time by the Town Board by resolution. and shall be submitted with the completed temporary permit application form. Only one temporary permit can be issued for any given site within the year of permit issuance. Temporary blasting for basements or sewer and water laterals for single-family residential construction will not require a temporary permit under this section.

§ 112-5. Regulation of blasting resultants.

- A. Purpose of section. It is the purpose of this section to provide for the establishment of uniform limits on permissible levels of blasting resultants to reasonably assure that blasting within the Town of Scott does not cause injury, damage or a nuisance to persons or property outside and beyond the permitted explosives use area.
- B. Instrumentation. All blast-monitoring instruments used to produce data to support compliance with this section shall meet the following minimum specifications:
 - (1) Seismic frequency range: two Hz to 200 Hz (± 3 Hz).
 - (2) Acoustic frequency range: two Hz to 200 Hz (± 1 dB).
 - (3) Velocity range: 0.02 inch to 4.0 inch per second.
 - (4) Sound range: 100 dB to 140 dB linear.

4. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. II).

- (5) Transducers: three mutually perpendicular axes.
- (6) Recording: provide time-history of wave form.
- (7) Printout: direct printout showing time, date, peak air pressure, peak particle velocity and frequency in three directions and a printed waveform graph of the event depicting measured air blast and particle velocity in the three directions.
- (8) Calibration: at least once every 12 months according to manufacturer's recommendations.

C. Control of adverse effects.

- (1) General requirements. Blasting shall be conducted so as to prevent injury or a nuisance to persons and damage to public or private property outside the permitted explosives use area.
- (2) Air blast. Air blast shall not exceed the following limits at the location of the dwelling, public building, place of employment, school, church or community or institutional building outside and beyond the permitted explosives use area:

Lower Frequency Limit of Measuring System in Hz Maximum Level in dB

2 or lower — flat response	133 peak
6 or lower — flat response	129 peak

D. Ground vibration.

- (1) The maximum ground vibration at the location of any dwelling, public building, place of employment, school, church, or community or institutional building outside the controlled blasting site area shall be established in accordance with either the maximum peak particle velocity limit (See Table 7.64-2.), the scaled distance of Subsection G or the blasting level chart of Subsection H.
- (2) All structures in the vicinity of the blasting area, not listed in Subsection D(1), such as water towers, pipelines and other utilities, tunnels, dams, impoundments and underground mines, shall be protected from damage by establishment by the operator of a maximum allowable limit on the ground vibration. The operator shall establish the limit after consulting with the owner of the structure.
- (3) Maximum peak particle velocity. An operator may use the maximum ground vibration limits listed in Table 7.64-2.

**Table 7.64-2
Peak Particle Velocity Limits**

Type of Structure	Maximum Allowable Peak Particle Velocity for Ground Vibration (inches per second)	
	At frequencies below 40 Hz*	At frequencies 40 Hz and greater
Modern homes and structures with dry-wall interiors	0.75	2.0
Older homes and structures with plaster-on-wood lath construction for interior walls	0.50	2.0

Note:

* All spectral peaks within 6 dB (50 pct) amplitude of the predominant frequency must be analyzed.

- E. Ground vibration shall be measured as the particle velocity. Particle velocity shall be recorded in three mutually perpendicular directions. The maximum allowable peak particle velocity shall apply to each of the three measurements and the vector sum of the three measurements.
- F. A seismographic record shall be provided for each blast.
- G. Scaled-distance equation.
 - (1) An operator may use the scaled-distance equation, $W = (D/D_s)^2$, to determine the allowable charge-weight of explosives to be detonated in any eight-millisecond period, without seismic monitoring; where:
 - (a) W equals the maximum weight per delay of explosives, in pounds;
 - (b) D equals the distance, in feet, from the blasting site to the nearest structure listed in Subsection D(1); and
 - (c) D_s equals the scaled-distance factor listed in Table 7.64-3.
 - (2) The development of a modified scaled-distance factor may be authorized by the Town on receipt of a written request by the operator, supported by seismographic records of blasting at the site. The modified scaled-distance factor shall be determined such that the particle velocity of the predicted ground vibration will not exceed the prescribed maximum allowable peak particle velocity of Subsection D(3) at a ninety-five-percent confidence level.

Table 7.64-3
Scaled-Distance Factor Limits

Distance (D) from the blasting (feet)	Scaled-distance factor (D_s) to be applied without seismic monitoring
0 to 300	50
301 to 5,000	55
5,001 and beyond	65

H. Blasting level chart.

- (1) An operator may use the ground vibration limits found in Figure 7.64 to determine the maximum allowable ground vibration.
- (2) If the Figure 7.64 limits are used, a seismographic record including both particle velocity and vibration frequency levels shall be provided for each blast. The method of analysis shall be subject to reasonable discretionary review by the Town.

Figure 7.64 Blasting Level Chart



§ 112-6. Monitoring; flyrock.

A. Permittee monitoring.

- (1) The permittee shall monitor all blasts at the closest location to the blast of any dwelling, public building, place of employment, school, church or community or institutional building outside and beyond the permittee explosives use area, provided, however, that the permittee may monitor at another location, approximately the same

distance from the blast site, if the permittee is unable to obtain permission to conduct the monitoring from the owner of the preferred location. The Town Board or its designee may, at its discretion, require the relocation of monitoring equipment to a more suitable site and/or may conduct independent air-blast monitoring to spot-check data supplied by the permittee. If independent monitoring by the Town after hearing discloses that this chapter was violated by the permittee, then, in that event, the permittee shall pay the reasonable costs incurred by the Town for the independent monitoring.

- (2) The measuring equipment used shall have an upper end flat frequency response of at least 200 Hz.
 - (3) All measuring equipment during monitoring shall be spiked to the ground or sandbagged.
- B. Flyrock. Flyrock produced as a result of explosives use shall be totally contained within the permitted explosives use area.
- C. Seismic monitoring. The Town Board, in its discretion, may conduct independent seismic blast monitoring to spot-check data supplied by the permit holder. If the independent monitoring discloses, after hearing, that this chapter was violated by the permittee, then, in that event, the permittee shall pay the reasonable costs incurred by the Town for the independent monitoring.

§ 112-7. Preblast survey, testing and notification.

- A. Preblast notification. Each explosives use permit application and all reapplications shall include the names and addresses of all residents or owners of dwellings or other structures located within 1,000 feet of the boundaries of the blasting site.
- B. At the time of permit application, the applicant shall have notified, in writing, all residents or owners of dwellings or other structures located within the previously defined area (1,000 feet), who may request a preblast survey and a water quality test for existing wells. This request shall be in writing. The applicant shall cause a preblast survey to be conducted as to such dwelling or structures, and water quality testing for existing wells; provided, however, that the applicant shall not be required to conduct a preblast survey or well water quality testing more than once every six years as to any dwelling, structure, or well.
- C. The owner of a dwelling or structure that is within 1,000 feet of the blasting site, which subsequent to the conducting of a preblast survey has been substantially modified or improved by more than 50% of the property's fair market value, may request a preblast survey. If it is found that a preblast survey for such improved or modified structure is appropriate, the applicant/permittee may conduct such surveys within a reasonable period of time, but in no case exceeding twice a year for all such requests by all owners.
- D. The preblast survey and water quality testing shall be promptly conducted in a manner and form and by an independent survey company, a laboratory approved by the State of Wisconsin or organization selected by the applicant and acceptable to the owner or resident and the Town Zoning Administrator. The survey shall determine the condition of the dwelling or structure and shall document any preblasting damage or other physical factors

that could reasonably be expected to be affected by the use of explosives. The testing of wells shall determine the condition of the water to be safe for human use. The Board may consider accepting a blasting survey or well water test that was prepared prior to the effective date of this chapter if the blasting survey and well water test meet the requirements outlined herein.

- E. The survey shall include a written report signed by the person who conducted the survey. Copies of the survey report shall be promptly provided to the Town of Scott, the owner or resident, and the applicant/permittee. The owner, resident or applicant/permittee shall promptly submit in writing to the Town of Scott any objections to the survey report, setting forth in detail such objections.
- F. The water quality test for existing wells shall include a written report signed by the person who conducted the test. Copies of the test shall be promptly provided to the Town of Scott, the owner or resident, and the applicant/permittee. The owner, resident or applicant/permittee shall promptly submit in writing to the Town of Scott objections to the test, setting forth in detail such objections.
- G. Reasonable and reasonably related expenses incurred as a result of such independent surveys shall be the responsibility of the applicant/permittee.

§ 112-8. Enforcement; suspension or revocation of permit; violations and penalties.

- A. Enforcement. The following are criteria that the Town Board may consider for issuance, reissuance, suspension or revocation of a blasting permit:
 - (1) Compliance with the blasting standards established by the Town of Scott as noted by this chapter.
 - (2) Development and submittal to the Town Board of the Town of Scott of the explosives use plan and failure, upon operation, to comply with the plan.
 - (3) Development and submittal to the Town Board of the Town of Scott of the blasting log and failure, upon operation, to comply with the information called for by the blasting log.
 - (4) Maintaining the financial assurance requested by the Town Board of the Town of Scott.
 - (5) Compliance with the operational hours for blasting as noted by this chapter.
 - (6) Compliance with air blast and ground vibration standards established by the Town of Scott as noted by this chapter.
 - (7) Compliance with the preblasting notification requirements to residents and the Town Board as noted by this chapter.
 - (8) Attempts made by the permittee or party in interest to comply with the provisions of this chapter.
 - (9) Consideration of atmospheric, unknown conditions, including geophysical conditions, and other matters beyond the control of the permittee or party in interest.

B. Suspension or revocation of use permit.

- (1) Unless expressly provided herein or by other Town of Scott ordinance provisions, the explosives use permit may be suspended or revoked for cause for substantial noncompliance with this chapter after the proper Town of Scott hearing noted below, unless in an emergency condition determined by the Town Board of the Town of Scott wherein the license, registration or permit can be suspended temporarily for a set time period. Prior to any action for suspension or revocation, the Town Board of the Town of Scott must, by the Town Clerk of the Town of Scott, receive a verified complaint concerning the licensee, registrant or permittee. The following persons may file verified complaints with the Town Board of the Town of Scott:
 - (a) The Town Chairperson.
 - (b) The Town Clerk.
 - (c) The Town Supervisors.
 - (d) The Town Zoning Administrator/Building Inspector.
 - (e) The Town Constable.
 - (f) Any Town of Scott resident.
 - (g) A landowner within 1,000 feet of the blasting site.
- (2) The Town Board will make a determination as to whether the allegations of the complaint are of sufficient magnitude, importance, or otherwise of such a nature as to require a formal evidentiary hearing.
- (3) The person subject to charges for violation of any Town of Scott ordinance or any violation of a condition of the explosives use permit shall be provided a copy of the verified complaint and notice of hearing before the Town Board of the Town of Scott. The hearing shall be required to be not less than 10 days nor more than 30 days after receipt of notice, unless stipulated in writing by the Town Board of the Town of Scott and the person subject to charges.
- (4) The person subject to charges for violation of any Town of Scott ordinance or any violation of a condition of the explosives use permit shall be entitled to the following:
 - (a) Representation by legal counsel.
 - (b) Right to present and cross examine witnesses.
 - (c) Right to subpoena witnesses by the Town Chairperson of the Town of Scott issuing subpoenas to compel attendance of witnesses.
- (5) The Town Board of the Town of Scott may, after the hearing for any person previously issued an explosives use permit by the Town Board of the Town of Scott, act as follows:
 - (a) Revoke the permit as a final decision.
 - (b) Suspend the permit for a date certain as a final decision.

- (c) Request additional information as an interim decision prior to taking future action.
- (d) Take no action on the permit as a final decision.
- (6) The final decision of the Town Board of the Town of Scott to revoke or suspend the explosives use permit shall be subject to appeal to the Circuit Court.

C. Penalty.

- (1) In addition to the denial, suspension or revocation of a permit issued under this chapter, any person who shall violate any provision of this chapter or who shall fail to obtain a permit as required hereunder shall, upon conviction of such violation, be subject to a penalty of a civil forfeiture of not less than \$500 nor more than \$5,000, together with the costs of prosecution. Any default of such forfeiture determined by a court of competent jurisdiction shall be subject to any penalties as provided by §§ 66.0109, 66.0113, 66.0114 and 66.0115, Wis. Stats., as may be amended.⁵
- (2) Each violation and each day a violation continues or occurs shall constitute a separate offense.
- (3) Nothing in this chapter shall preclude the Town from maintaining any appropriate action to prevent or remove a violation of any provision of this chapter.

5. Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. II).