

RULES CERTIFICATE

Department of Commerce

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

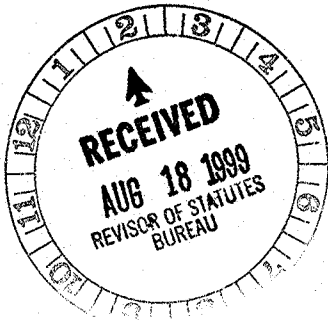
I, Brenda J. Blanchard, Secretary of the Department of Commerce,

and custodian of the official records of said department, do hereby certify that the annexed rule(s) relating to explosive materials

(Subject)

were duly approved and adopted by this department.

I further certify that said copy has been compared by me with the original on file in the department and that the same is a true copy thereof, and of the whole of such original.



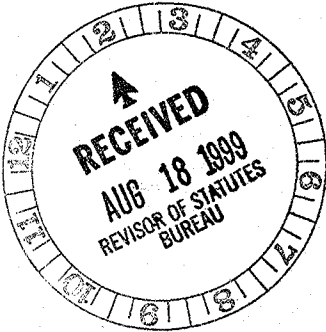
IN TESTIMONY WHEREOF, I have hereunto set
my hand at 201 West Washington Avenue
in the city of Madison, this 17th
day of August A.D. 1999

Brenda J. Blanchard
Secretary



State of Wisconsin \ Department of Commerce

RULES in FINAL DRAFT FORM



Rule No.: Chapter Comm 7

Relating to: Explosive Materials

Clearinghouse Rule No.: 99-029

The Department of Commerce proposes an order to repeal Comm 7.04 (6), Comm 7.20 (2), Comm 7.31 (3), Comm 7.36 (2)(b), Comm 7.42 (3), Comm 7.45 (2) to (5), Comm 7.55 to 7.57, and Comm 7 Appendices B to F; to renumber Comm 7.43 (1) and (2), and Comm 7.64 (2) and (3); to renumber and amend Comm 7.04 (9), and Comm 7.58; to amend Comm 7.01, Comm 7.04 (2), Comm 7.04 (10m)(intro.), Comm 7.04 (12), (14) and (16), Comm 7.04 (26), Comm 7.20 (1), Comm 7.218 (1)(a) and (1)(b)Note 1, Comm 7.30 (1)(c), (1)(f)Note, (2)(e), (3) and (6)(b), Comm 7.31 (2), Comm 7.33 (1), (2)(c), (3)(a), (3)(c), (3)(g) and (5), Comm Tables 7.33-1 and 7.33-2, Comm Table 7.33-4, Comm 7.34 (2)(d) and (3)(a), Comm 7.35 (1) and (3), Comm 7.36 (1), Comm 7.36 (2)(c) and (d), Comm 7.41 (2) and (5), Comm 7.45 (1), Comm 7.64 (2)(b), and Comm 7.64 (5); to repeal and recreate Comm 7.04 (27) and (29), Comm 7.09, Comm 7.25, Comm 7.30 (8), Comm 7.32, Comm Table 7.33-3, Comm 7.34 (1), Comm 7.37 (3), Comm 7.40 Note, Comm 7.44 (4), Comm 7.61, Comm 7.64 (3), Comm 7.64 (4), and Comm 7 Appendix A; and to create Comm 7.04 (2k), (2p) and (3m), Comm 7.04 (11m), Comm 7.04 (19m), Comm 7.04 (26h), Comm Table 7.33-7, Comm 7.42 (1)Note, and Comm 7.43 (1) and (4), relating to explosive materials.

Analysis of Proposed Rules

Statutory Authority: Section 101.15 (2)(e), Stats.

Statutes Interpreted: Section 101.15 (2)(e), Stats.

The Division of Safety and Buildings within the Department of Commerce is responsible for adopting and enforcing rules to effect the safety of mines, explosives, quarries and related activities. Chapter Comm 7 contains safety and health standards for the manufacture, storage, handling and use of explosive materials, including the regulation of blasting resultants, in public buildings and at places of employment.

The proposed rules consist of a complete update of chapter Comm 7 in order to bring the chapter into conformance with current technology, federal standards, and nationally recognized practices published by the Institute of Makers of Explosives. The following is a summary of the major changes being proposed in chapter Comm 7.

1. Clarifying that chapter Comm 7 applies in public buildings and at places of employment. [Comm 7.01]
2. Updating the definitions for consistency with nationally recognized terminology. [Comm 7.04]
3. Requiring notification within 24 hours to local authorities of the initial storage of explosive materials and of any subsequent changes in the location of that storage. [Comm 7.20 (1)]
4. Eliminating the requirement for obtaining a storage permit from the Department of Commerce for storing explosive materials in a community. [Comm 7.20 (2)]
5. Revising the transportation requirements and clarifying that the requirements apply only to on-site transportation of explosive materials. [Comm 7.25]

6. Updating the rules for blasting with non-electric systems by revising the requirements for blasting with cap and fuse, and adding new requirements for blasting with detonating cord and shock tube. [Comm 7.32]

7. Updating the rules for blasting with electric systems by revising the wording and separation distances to be consistent with nationally recognized terminology and practices. [Comm 7.33 and Tables 7.33-1 to 7.33-7]

8. Clarifying the requirements relating to surface blasting warnings and guarding of access roads to the blast area. [Comm 7.34 (1)]

9. Updating the minimum information required to be contained in each blasting log. [Comm 7.37 (3)]

10. Removal of the rules relating to smokeless propellants. [Comm 7.55 and 7.56]

11. Revising the rules for preblasting surveys and decreasing the required distance to determine the affected dwellings that would be offered a preblasting survey. [Comm 7.61]

12. Removing the rules for the maximum peak particle velocity limits and the scaled-distance equation as options for establishing the maximum ground vibration, and requiring the maximum ground vibration to be established in accordance with the currently optional blasting-level chart. [Comm 7.64 (4)]

13. Requiring a seismographic record to be made for all blasts. [Comm 7.64 (4)]

SECTION 1. Comm 7.01 is amended to read:

Comm 7.01 Purpose. ~~The~~ Pursuant to s. 101.15 (2)(e), Stats., the purpose of this chapter is to establish minimum safeguards to life, health and property by the adoption of reasonable and effective standards relating to explosive materials in public buildings and at places of employment.

Note: See s. 101.01, Stats., for definitions of “public building” and “place of employment.”

SECTION 2. Comm 7.04 (2) is amended to read:

Comm 7.04 (2) “Barricade” means natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures can not be seen when the trees are bare of leaves, or an artificial mound or revetted wall of earth, wood, concrete or other suitable materials ~~a minimum thickness of 3 feet at the top.~~

SECTION 3. Comm 7.04 (2g), (2k), (2p) and (3m) are created to read:

Comm 7.04 (2g) “Barrier” means a material object that separates, keeps apart, or demarcates in a conspicuous manner such as cones, a warning sign, or tape.

(2k) “Blast area” means the area of a blast within the influence of flying rock missiles, gases, and concussion as determined by the blaster in charge.

(2p) “Blast site” means the area where explosive material is handled during loading of blastholes, including 50 feet in all directions from the perimeter formed by the loaded holes. A minimum of 30 feet may replace the 50 feet requirement if the perimeter of loaded holes is marked and separated from non-blast site areas by a barrier. The 50 feet or 30 feet distance requirements, as applicable, apply in all directions along the full depth of the blasthole. In underground mines, at least 15 feet of a solid rib, pillar, or broken rock may be substituted for the 50 foot distance.

(3m) “Blaster in charge” means that qualified person in charge of, and responsible for, the loading and firing of a blast.

SECTION 4. Comm 7.04 (6) is repealed.

SECTION 5. Comm 7.04 (9) is renumbered 7.04 (14m) and amended to read:

Comm 7.04 (14m) “~~Cap-sensitive~~ Detonator-sensitive explosive material” means any explosive material that can be detonated by means of a No. 8 test detonator when unconfined.

SECTION 6. Comm 7.04 (10m)(intro.) is amended to read:

Comm 7.04 (10m)(intro.) "Controlled blasting site area" means the area that surrounds a ~~blasting~~ blast site and:

SECTION 7. Comm 7.04 (11m) is created to read:

Comm 7.04 (11m) "Deck" means an explosive charge that is separated from other charges in the blast hole by stemming or an air cushion.

SECTION 8. Comm 7.04 (12), (14) and (16) are amended to read:

Comm 7.04 (12) "Delay electric ~~blasting cap~~ detonator" means an electric ~~blasting cap~~ detonator with a timing element interposed between the ignition head and the detonating compound.

(14) "Detonator" means 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~~ detonators of instantaneous and delay types, ~~blasting fuse~~ caps for use with safety fuses, detonating cord delay connectors, and non-electric instantaneous and delay ~~blasting caps~~ detonators.

(16) "Electric ~~blasting cap~~ detonator" means a ~~blasting cap~~ detonator designed for, and capable of, initiation by means of an electric current.

SECTION 9. Comm 7.04 (19m) is created to read:

Comm 7.04 (19m) "Fuse cap" means a detonator that is initiated by a safety fuse.

SECTION 10. Comm 7.04 (26) is amended to read:

Comm 7.04 (26) "Non-electric delay ~~blasting cap~~ detonator" means a non-electric detonator with an integral delay element used in conjunction with, and capable of being initiated by, a detonating impulse.

SECTION 11. Comm 7.04 (26h) is created to read:

Comm 7.04 (26h) "Non-electric detonator" means a detonator that does not require the use of electric energy to function.

SECTION 12. Comm 7.04 (27) and (29) are repealed and recreated to read:

Comm 7.04 (27) "Operator" means the person who is responsible for the operation at a mine, pit, quarry, or construction site where blasting activity occurs.

(29) "Primer" means a unit, package or cartridge of explosives used to initiate other explosives or blasting agents, and which contains a detonator or a detonating cord to which is attached a detonator designed to initiate the detonating cord.

SECTION 12M. Comm 7.09 is repealed and recreated to read:

Comm 7.09 Petition for variance. The department shall consider and may grant a variance to a provision of this chapter in accordance with ch. Comm 3. The petition for variance shall include, where applicable, a position statement from the fire department having jurisdiction.

Note: Chapter Comm 3 requires the submittal of a petition for variance form (SBD-9890) and a fee, and that an equivalency is established in the petition for variance that meets the intent of the rule being petitioned. Chapter Comm 3 also requires the department to process regular petitions within 30 business days and priority petitions within 10 business days.

SECTION 13. Comm 7.20 (1) is amended to read:

Comm 7.20 (1) NOTIFICATION. Any person storing explosive materials shall notify the local fire department and local law enforcement agency within 24 hours of the initial place, extent and manner of the storage, and of any subsequent changes in the location of that storage. Notification shall be made on forms provided by the department.

Note: Copies of the notice of storage of explosive materials (form SBD-6772) are available at no charge from the Safety and Buildings Division, P.O. Box 7302, Madison, WI 53707, telephone 608/266-8577. A list of state fire departments is available at a cost from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701, telephone 608/267-4405.

Note: The state Division of Emergency Management requires reporting of hazardous chemicals under chs. WEM 1 to 6.

SECTION 14. Comm 7.20 (2) is repealed.

SECTION 15. Comm 7.218 (1)(a) and (1)(b) Note 1 are amended to read:

Comm 7.218 (1)(a) The magazine with the greater quantity of explosives shall govern the separating distance, except that the quantity of explosives contained in ~~cap~~ detonator magazines shall govern in regard to the spacing of the ~~cap~~ detonator magazine from magazines containing other explosives.

(1)(b) Note 1: All types of ~~blasting caps~~ detonators in strengths through No. 8 ~~cap~~ detonator should be rated at 1-1/2 pounds of explosives per 1,000 ~~caps~~ detonators. For strengths higher than No. 8 ~~cap~~ detonator, the manufacturer should be consulted.

SECTION 16. Comm 7.25 is repealed and recreated to read:

Comm 7.25 General transportation requirements. (1) APPLICATION. The requirements of this section apply to the on-site transportation of explosive materials on roadways not open to the public.

Note: The transportation of explosive materials on public highways is regulated by the Wisconsin Department of Transportation under chs. Trans 325 to 328.

(2) GENERAL REQUIREMENTS. (a) Explosive materials shall not be carried in the same compartment with flammable or corrosive materials. Explosive materials, other than blasting agents, shall not be carried in the same compartment with spark-producing metal tools.

(b) Explosive materials shall be transported or conveyed in original outside boxes. A "full cover" type paper carton shall be considered equivalent to the original box when the cover is replaced and taped. Damaged cases shall be placed in boxes as specified in s. Comm 7.208 (3) or in a daily supply box.

(c) Detonators may be transported in the same vehicle with high explosives provided the detonators are packed in containers meeting one of the following construction requirements.

1. The top, lid or door, sides and bottom surfaces of each container or compartment shall be a laminate construction of A/C grade or better exterior plywood, sheetrock, and low-carbon steel. In order of arrangement, from inside to outside, the laminate materials shall each be a minimum of ½-inch plywood, ½-inch sheetrock and 1/8-inch low-carbon steel. A ¼-inch lamination of A/C plywood is required on the exterior portion of a container or compartment that may contact other explosives carried on the same vehicle.

2. The top, lid or door, sides and bottom surfaces of each container or compartment shall be a laminate construction of A/C grade or better exterior plywood, solid hardwood, asbestos board or sheetrock, and sheet metal. In order of arrangement, from inside to outside, the laminate materials shall each be a minimum of ¼-inch plywood, 1-inch solid hardboard, ½-inch plywood, ½-inch sheetrock or ¼-inch asbestos board, and 22-gauge sheet metal.

(d) Cases of explosive materials shall not be dropped, slid, or otherwise roughly handled.

(3) TRANSPORTATION VEHICLES. (a) The vehicle transporting explosive materials shall have a tight floor. If there is any exposed metal on the inside of the body, it shall be covered or protected with nonsparking material so that the explosive materials containers will not come in contact with the exposed sparking metal.

(b) The vehicle transporting explosive materials shall be clean and free from surplus oil and grease, and shall have wiring completely insulated and fuel and exhaust lines free from leaks. All necessary precautions shall be taken to prevent the vehicle from catching fire.

(c) In an open vehicle transporting explosive materials, the sides of the body shall be high enough to prevent cases from falling off. If a tarpaulin is used to cover the explosive materials, the tarpaulin shall be flame-retardant and moisture-proof.

(4) FIRE EXTINGUISHERS. (a) The vehicle transporting explosive materials shall be equipped with at least 2 fire extinguishers with a minimum rating of 2-A:10-B:C or one fire extinguisher and an approved automatic fire suppression system.

(b) Fire extinguishers shall be an Underwriter's Laboratories listed type and shall be located on the power unit and properly maintained.

Note: These extinguishers are effective against ordinary truck fires but are not effective against fires involving explosive materials. Fires involving explosive materials should not be fought and the area should be evacuated as rapidly as possible.

(5) OPERATION OF TRANSPORTATION VEHICLES. (a) The vehicle transporting explosive materials shall be handled in a safe and careful manner.

(b) The vehicle transporting explosive materials shall be driven by a competent driver at least 21 years of age. Drivers shall be familiar with all applicable federal, state and local regulations.

(c) No person may ride upon, drive, load or unload a vehicle transporting explosive materials while smoking or under the influence of intoxicants or drugs.

SECTION 17. Comm 7.30 (1) (c), (1) (f) Note, (2) (e), (3) and (6) (b) are amended to read:

Comm 7.30 (1) (c) When any blasting is done in congested areas or in close proximity to a structure, railroad, public roadway or highway or any other installation that may be damaged, precautions in the loading, delaying, initiation and confinement of each blast shall be exercised to prevent bodily injury and property damage and to minimize ground vibrations, air blasts and thrown fragments.

(1) (f) Note: Although blasting agents are generally less sensitive to accidental initiation than other explosives, they are still an explosive and should be handled with the care and respect due these products. It should be remembered that in use they are virtually always combined with a ~~cap-sensitive~~ detonator-sensitive explosive and the entire charge should be accorded the respect due the most sensitive element.

(2) (e) After explosive materials are laid out on the blast pattern, the ~~area~~ blast site shall be guarded against approach of vehicles and unauthorized persons until the shot is fired.

(3) FUME CLASS. Explosive materials used in underground blasting shall be fume class 1; however, fume class 2 and fume class 3 may be used if adequate ventilation has been provided as determined by the blaster in charge.

(6) (b) The hose or tube used in the pneumatic loading system to convey the blasting agent from the hopper into the borehole shall be of the semi-conductive type. The resistance of the hose or tube shall be not less than ~~5,000~~ 1,000 ohms per foot nor more than 2 million ohms for the entire length

SECTION 18. Comm 7.30 (8) is repealed and recreated to read:

Comm 7.30 (8) HOUSEKEEPING. Empty explosive materials packaging shall be properly disposed of immediately following the blast.

Note: Local fire department authorities and the state Department of Natural Resources should be consulted regarding outdoor burning regulations.

SECTION 19. Comm 7.31 (2) is amended to read:

Comm 7.31 (2) PREPARATION LOCATION. ~~Except as provided in sub. (3), primers~~ Primers shall be made at the site just prior to loading in the borehole.

SECTION 20. Comm 7.31 (3) is repealed.

SECTION 21. Comm 7.32 is repealed and recreated to read:

Comm 7.32 Firing blasts with non-electric systems. (1) GENERAL. Blasting operations shall be suspended and all persons shall be removed from the blast area during the approach and progress of an electric storm.

(2) FIRING BLASTS WITH CAP AND FUSE. (a) Only an approved crimper shall be used for attaching detonators to safety fuse. Capped fuses shall be made up only as required, and safety fuses shall not be capped in any magazine.

(b) The burning rate of each spool of safety fuse to be used shall be measured and recorded.

(c) Before capping safety fuse, a short length shall be cut from the end of the supply reel so as to assure a fresh cut end in each detonator.

(d) The minimum safety fuse length for all blasts shall be 48 inches and sufficient to provide a minimum fuse burning time of 2 minutes.

(e) At least 2 persons shall be present at each location where cap and fuse blasting is done.

(f) The safety fuse shall not be lit before placing the primer in position.

(g) Cap and fuse shall not be used for firing mud cap charges unless the charges are separated sufficiently to prevent one charge from dislodging other shots in the vicinity.

(h) Cap and fuse shall not be used for blast initiation in communities, or on highways or adjacent to highways open to traffic.

(3) FIRING BLASTS WITH DETONATING CORD. (a) Detonating cord shall be matched to the blasting methods and type of explosive materials being used.

(b) Detonating cord shall be handled as carefully as other explosive materials.

(c) Detonating cord shall be cut from the spool before loading the main explosive charge. When explosive cartridges are attached to detonating cord for special applications, the cord shall be cut from the spool once the charge is loaded. The cord shall be cut with a sharp knife, razor blade or other instrument designed for cutting detonating cord. Detonating cord shall not be cut with devices such as scissors, cap crimpers, plier type cutters or similar instruments.

(d) Detonating cord to cord connections shall be made tight in accordance with manufacturer's instructions.

(e) Detonators shall be attached to detonating cord with tape or by a method recommended by the manufacturer. The detonators shall point toward the direction of detonation. The cord-initiating detonator shall be attached at least 6 inches from the cut end of the detonating cord.

(f) A properly sized primer shall be used to initiate wet detonating cord.

(g) Detonating cord shall not be handled in such a manner to allow loops, kinks or sharp angles that might direct the cord back toward the oncoming line of detonation.

(h) Damaged detonating cord shall not be used.

(i) Detonators for initiating the blast shall not be attached to detonating cord until the blast area has been cleared and secured for the blast.

(j) A miniaturized detonating cord system shall use explosives that are insensitive to initiation by the miniaturized detonating cord.

(k) Sections of miniaturized detonating cord shall not be joined together.

(L) Detonating cord shall not be initiated with a surface delay connector designed for the initiation of shock tube only. When used with detonating cord, surface delay connectors shall be designed for use with the cord.

(4) FIRING BLASTS WITH SHOCK TUBE. (a) Shock tube connections to detonating cord shall be at right angles to prevent angle cut-offs.

(b) Situations shall be avoided where initiation system components can become entangled in machines, equipment, vehicles or moving parts thereof.

(c) Vehicles or equipment shall not be driven over shock tube.

(d) A shock tube shall not be pulled, stretched, kinked or put under tension such that the tube could be caused to break or otherwise malfunction.

(e) Shock tube shall be kept in an orderly manner to allow for visual inspection.

(f) The manufacturer's recommendations shall be followed when cutting and splicing lead-in trunkline shock tube. No other cutting or splicing of shock tube is allowed.

(g) Shock tubes shall not be tied together.

Note: An initiation signal will not pass through a knotted connection.

(h) Surface delay connectors shall not be hooked up until the blast is ready to fire.

(i) Surface delay connectors shall be protected from unintended energy sources such as impact from falling rock, impact from track vehicles or other mobile equipment, drilling equipment, flame, friction, electrical discharge from power lines, static electricity and lightning.

(j) A surface delay connector shall not be hooked up to its own shock tube.

(k) Any unused detonating device in a shot shall be kept as far away as possible from any shock tube.

(L) The detonator shall not be removed from a surface delay connector block.

(m) Non-electric leads shall not be held during firing.

(n) Surface delay connectors shall be unhooked prior to handling a misfire.

SECTION 22. Comm 7.33 (1), (2) (c), (3) (a), (3) (c), (3) (g) and (5) are amended to read:

Comm 7.33 (1) INDUCED CURRENTS. Precautions shall be taken to prevent accidental discharge of electric ~~blasting caps~~ detonators from current induced by radar, ~~radio transmitters~~ wireless communication equipment, lightning, adjacent power lines, dust and snow storms, or other sources of induced current. The precautions shall include:

(a) The suspension of all blasting operations and removal of persons from the ~~blasting~~ blast area during the approach and progress of an electric storm;

(b) The posting of signs warning against the use of mobile ~~radio transmitters~~ wireless communication equipment on all roads within ~~350~~ 1000 feet of the blasting operations; and

(c) Compliance with the requirements with regard to blasting in the vicinity of ~~radio transmitters~~ wireless communication equipment or power lines as specified in sub. (5).

Note: ~~See Appendix C for further explanatory information.~~

(2) (c) Before introducing electric ~~blasting caps~~ detonators to a blast, all portable or temporary electric circuits within 50 feet of the blast site shall be de-energized.

(3) (a) Before stemming holes, electric ~~blasting caps~~ detonators shall be tested for circuit continuity with a blasting galvanometer or other approved instrument. In case a ~~cap~~ detonator wire is

broken, a new primer shall be inserted or an alternate method of initiation shall be employed. Except for circuit testing, the leg wires shall be kept short-circuited until they are connected into the blast circuit.

(c) All electric ~~blasting caps~~ detonators fired in a single blast shall be made by the same manufacturer.

(g) Power sources shall be suitable for the number of electric ~~blasting caps~~ detonators to be fired and for the type of circuits used.

(5) RADIO FREQUENCY HAZARDS. (a) Electric ~~blasting caps~~ detonators shall not be stored or transported in the vicinity of ~~an operating radio transmitter~~ wireless communication equipment unless they are in their original package or coiled as specified by the manufacturer. If not in their original package, they shall be kept in a closed metal container.

(b) When electric ~~blasting caps~~ detonators are used or handled in the vicinity of a known operating ~~radio transmitter~~ wireless communication equipment, the requirements as specified in Tables 7.33-1 to ~~7.33-6~~ 7.33-7 shall be followed.

Note: These tables were taken from the Institute of Makers of Explosives safety library publication no. 20, "Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Blasting Caps Detonators", and were derived from analytical "worst-case" calculations. They are based on an assumed 40-milliwatt no-fire level of commercial ~~blasting caps~~ detonators. See Appendix C for further explanatory information.

(c) When it is not possible to determine if the requirements of Tables 7.33-1 to ~~7.33-6~~ 7.33-7 can be met, the following test or other approved test shall be conducted to determine if a radio frequency hazard exists. A #48 or #49 radio pilot lamp shall be inserted into a blasting test circuit in place of the electric detonator. If any glow is observed in the lamp, electrical firing shall not be used.

SECTION 23. Comm Tables 7.33-1 and 7.33-2 are amended to read:

Table 7.33-1

Recommended Distances for Commercial AM Broadcast Transmitters 0.535 to 1.605 MHz

Transmitter Power (1) (Watts)	Minimum Distance (Feet)
Up to 4,000	750 800
4,001 to 5,000	850 900
5,001 to 10,000	1,200 1,300
10,001 to 25,000	2,000
25,001 to 50,000(2)	2,800 2,900
50,001 to 100,000	3,900 4,100
100,001 to 500,000	8,800 9,100

(1) Power delivered to antenna

(2) 50,000 watts is the maximum power of U.S. broadcast transmitters in this frequency range.

Table 7.33-2
Recommended Distances for Transmitters up to 50 MHz (Excluding AM Broadcast)
Calculated for a Specific Loop Pickup Configuration (1) (2)

Transmitter Power (3) (Watts)	Minimum Distance (Feet)
Up to 100	750 800
101 to 500	1,700
501 to 1,000	2,400 2,500
1,001 to 5,000	5,500
5,001 to 50,000	17,000
50,001 to 500,000(4)	55,000

(1) Based on the configuration where the loop is placed in the plane of the transmitting antenna, using 20.8 MHz, which is the most sensitive frequency.

(2) This table should be applied to International Broadcast Transmitters in the 10-25 MHz range.

(3) Power delivered to antenna.

(4) Maximum for International Broadcast.

SECTION 24. Comm Table 7.33-3 is repealed and recreated to read:

Table 7.33-3
Recommended Distances of Mobile Transmitters Including Amateur and Citizens' Band
Minimum Distance (Feet)

Transmitter Power (1) (Watts)	MF	HF	VHF	VHF	UHF
	1.6 to 3.4 MHz Industrial	28 to 29.7 MHz Amateur	35 to 36 MHz Public Use 42 to 44 MHz Public Use 50 to 54 MHz Amateur	144 to 148 MHz Amateur 150.8 to 161.1 MHz Public Use	450 to 470 MHz Public Use Cellular Automobile Telephones Above 800 MHz
Up to 5	30	70	60	20	10
6 to 10	40	100	80	30	20
11 to 50	90	230	180	70	40
51 to 100	120	320	260	100	60
101 to 180(2)	170	430	350	130	80
181 to 250	200	500	410	160	90
251 to 500(3)	280	710	580	220	120
501 to 600(4)	300	780	640	240	140
601 to 1,000(5)	400	1,010	820	310	180
1,001 to 10,000(6)	1,240	3,200	2,600	990	560

Citizens Band, Class D Transmitters, 26.96-27.41 MHz

Type	Recommended Minimum Distance	
	Hand-Held	Vehicle-Mounted
Double Sideband—4 watts maximum transmitter power	5 ft.	65 ft.
Single Sideband—12 watts peak envelope power	20 ft.	110 ft.

(1) Power delivered to antenna.

(2) Maximum power for two-way mobile units in VHF (150.8 or 161.6 MHz range) and for two-way mobile and fixed station units in UHF (450 to 460 MHz range).

(3) Maximum power for major VHF two-way mobile and fixed station units in 35 to 44 MHz range.

(4) Maximum power for two-way fixed station units in VHF (150.8 to 161.6 MHz range).

(5) Maximum power for amateur radio mobile units.

(6) Maximum power for some base stations in 42 to 44 MHz band and 1.6 to 1.8 MHz band.

SECTION 25. Comm Table 7.33-4 is amended to read:

Table 7.33-4
Recommended Distances for VHF TV and FM Broadcasting Transmitters

Effective Radiated Power (Watts)	Minimum Distance (Feet)		
	Channels 2 to 6 and FM	FM Radio	Channels 7 to 13
Up to 1,000	1,000	800	750 600
1,001 to 10,000	1,800	1,400	1,300 1,000
10,001 to 100,000(1)	3,200	2,600	2,300 1,900
100,001 to 316,000(2)	4,300	3,400	3,000 2,500
316,001 to 1,000,000	5,800	4,600	4,000 3,300
1,000,001 to 10,000,000	10,200	8,100	7,400 5,900

(1) Maximum power channels 2 to 6 and FM—100,000 watts.

(2) Maximum power channels 7 to 13—316,000 watts.

SECTION 26. Comm Table 7.33-7 is created to read:

Table 7.33-7
Recommended Distances from Radio Navigation Beacons

Type of Beacon	Power (Watts)	Frequency (MHz)	Minimum Distance (Feet)
Omega	10,000	0.01	45
Loran-C	1,000,000	0.1	650
VOR	100	110	110
Localizer	100	110	110
Guide Slope	15	315	25

SECTION 27. Comm 7.34 (1) is repealed and recreated to read:

Comm 7.34 (1) SURFACE BLASTING WARNINGS. (a) Before any surface blast is fired, 3 distinctive warning signals shall be sounded. One all-clear signal shall be sounded after the blast area has been inspected by the blaster in charge. Air horns, klaxon horns or sirens shall be used as warning signals.

(b) Before any surface blast is fired, all persons shall retire to a safe sheltered area away from the blast site. If shelters are not available, persons shall retire to a safe distance outside the blast area as determined by the blaster in charge.

(c) Warning signs, indicating a blast area, shall be maintained at all access roads to the blast area. The warning sign lettering shall be not less than 4 inches in height on a contrasting background.

(d) Upon final hookup, all access roads to the blast area not open to the public shall be guarded or barricaded to prevent the passage of persons or vehicles. Flag persons shall be safely stationed on public roadways and highways that pass through the blast area so as to stop traffic during blasting operations.

SECTION 28. Comm 7.34 (2) (d) and (3) (a) are amended to read:

Comm 7.34 (2) (d) Whenever blasting is being done in a tunnel at points likely to break through to where other persons are at work, the ~~foreman~~ blaster in charge shall, before any holes are loaded, give warning of danger to all persons who may be working where the blasts may break through, and shall not allow any holes to be charged until a warning is acknowledged and persons are removed.

Note: Underground blasting regulations are also issued by the federal Occupational Safety and Health Administration and the federal Mine Safety and Health Administration.

(3) (a) When chambering blast holes, persons shall retire to not less than 75 feet from the collar of the hole. The use of explosives to de-water blast holes is prohibited.

SECTION 29. Comm 7.35 (1) and (3) are amended to read:

Comm 7.35 (1) **BLASTER REQUIREMENTS.** When blasting operations are conducted in communities, the shots shall be designed and initiated by a properly licensed Class ~~4 or~~ 5, 6 or 7 blaster.

Note: See ch. Comm 5 for blaster license requirements and classifications.

(3) **NOTIFICATIONS.** Any person conducting blasting operations in a community shall notify the department, the local fire department and the local law enforcement agency of the ~~time~~ date and location of the ~~blast~~ blasting operation. Notification to the department shall be made on forms provided by the department.

Note: See appendix F for a sample copy of a notification form. Copies of the notice of blasting in a community (form SBD-7336) are available at no charge from the Safety and Buildings Division, P.O. Box 7302, Madison, WI 53707, telephone 608/266-8577.

SECTION 30. Comm 7.36 (1) is amended to read:

Comm 7.36 (1) **FUMES.** ~~Blasting~~ Blast areas shall not be re-entered after firing until concentrations of smoke, dust and fumes have been reduced to safe limits as determined by the blaster in charge.

SECTION 31. Comm 7.36 (2) (b) is repealed.

SECTION 32. Comm 7.36 (2) (c) and (d) are amended to read:

Comm 7.36 (2) (c) When using ~~miniaturized~~ electric detonators, shock tube or detonating cord systems or gas initiated systems and a misfire is known or suspected, no person other than the blaster in charge may enter the area for at least ~~30~~ 15 minutes.

(d) Before resuming operations, the blaster in charge shall examine the area for misfired shots and unexploded or burning explosive materials. In case burning explosive materials are observed, no attempt may be made to extinguish them and persons shall retire to a safe place and remain there at least one hour.

SECTION 33. Comm 7.37 (3) is repealed and recreated to read:

Comm 7.37 (3) INFORMATION. Each blasting log shall contain at least all of the following information:

- (a) Name, signature and license number of the blaster in charge of the blast.
- (b) Specific blast location, including address, bench and station number if applicable.
- (c) Type of blasting operation.
- (d) Date and time of the blast.
- (e) Weather conditions at the time of the blast.
- (f) Diagram of the blast layout and the delay pattern.
- (g) Number of holes.
- (h) Hole depth and diameter.
- (i) Spacing.
- (j) Burden.
- (k) Maximum holes per delay.
- (L) Maximum pounds of explosives per delay.
- (m) Depth of top stemming used.
- (n) Number, type and length of stemming used between decks.
- (o) Total pounds and type of explosives used.
- (p) Distance to nearest inhabited building not owned by the operator.
- (q) Type of initiation used.
- (r) Seismographic and airblast records, which shall include all of the following:
 - 1. Type of instrument and last laboratory calibration date.

2. Exact location of instrument and the date, time, and distance from the blast.
3. Name of the person and firm taking the reading.
4. Trigger levels for ground and air vibrations.
5. The vibration and airblast levels recorded.

SECTION 34. Comm 7.40 Note is repealed and recreated to read:

Comm 7.40 Note: High explosives manufacturing is regulated by the federal Bureau of Alcohol, Tobacco and Firearms under Title 27 CFR Part 55.

SECTION 35. Comm 7.41 (2) and (5) are amended to read:

Comm 7.41 (2) FUEL STORAGE. All fuel storage facilities shall be separated from the mixing plant and ~~located so that the fuel will drain away from the mixing plant should rupture of the tank occur, or~~ diked in a manner to contain the tank contents in case of rupture.

(5) MIXING PLANT HEAT. Heat for the mixing plant shall be provided from a source outside the building, ~~except that space heaters which do not depend on a combustion process within the heating unit may be used if they are properly installed and maintained and are located no closer than 30 inches from raw materials and finished product.~~

SECTION 36. Comm 7.42 (1) Note is created to read:

Comm 7.42 (1) Note: The use of mobile mixing vehicles on public highways is also regulated by the Wisconsin Department of Transportation under chs. Trans 325 to 328.

SECTION 37. Comm 7.42 (3) is repealed.

SECTION 38. Comm 7.43 (1) and (2) are renumbered Comm 7.43 (2) and (3).

SECTION 39. Comm 7.43 (1) and (4) are created to read:

Comm 7.43 (1) APPLICATION. The requirements of this section apply to both fixed and mobile mixing equipment.

(4) MAINTENANCE. All mixing equipment and pumps shall be maintained in accordance with manufacturer's recommendations.

SECTION 40. Comm 7.44 (4) is repealed and recreated to read:

Comm 7.44 (4) PERSONNEL LIMITATIONS. Only persons essential to the mixing and packaging operation shall be allowed in the mixing and packaging area at any one time.

SECTION 41. Comm 7.45 (1) is amended to read:

Comm 7.45 (1) LIQUID FUELS. (a) ~~Unless otherwise approved by the department, no~~ No liquid fuel with a flash point lower than 125 degrees Fahrenheit may be used in the blasting agent mix.

Note: More volatile fuels such as gasoline offer no significant advantages in blasting and tend to increase the possibility of a vapor explosion and fire.

(b) ~~Crude~~ Unless otherwise approved by the department, crude oil and crankcase drainings shall not be used in the blasting agent mix. The department will approve the use of crankcase drainings if the use has been approved by the federal Mine Safety and Health Administration and the use complies with ch. NR 590.

Note: Crude oil and crankcase drainings may contain low flash point constituents or gritty particles which could increase the sensitivity of the blasting agent.

SECTION 42. Comm 7.45 (2) to (5) are repealed.

SECTION 43. Comm 7.55 to 7.57 are repealed.

SECTION 44. Comm 7.58 is renumbered Comm 7.24 and Comm 7.24 (2) is amended to read:

Comm 7.24 (2) RESIDENTIAL STORAGE. Black powder intended for personal use in quantities not exceeding 5 a total of 20 pounds may be stored in residences and associated buildings if kept in the manufacturer's original shipping containers and stored in a wooden box or cabinet having walls of at least one-inch nominal thickness.

SECTION 45. Comm 7.61 is repealed and recreated to read:

Comm 7.61 Preblasting notification. (1) PREBLASTING SURVEY. At least 24 hours prior to initial blasting at a blast site, the blaster in charge shall make a reasonable effort to notify in writing or verbally all residents or owners of affected dwellings or other structures, as determined under sub. (2), that a blasting operation is to begin. The blaster in charge shall offer to perform a preblasting survey for the residents or owners. If a resident or owner requests a copy of the preblasting survey, the blaster in charge shall provide a copy for not more than the actual cost of the copy within 48 hours of the request.

Note: A preblasting survey provides a baseline record of the pre-existing condition of a structure against which the effects of blasting can be assessed, and it should include the interior and exterior of the dwelling. While striving to minimize airblast, flyrock and ground vibrations, the blaster should inform local residents of the need for and the importance of blasting. A preblasting survey increases communications between the public and the blaster, helps the blaster to maintain good community relations, and is in the best interest of the owner and the blaster.

(2) AFFECTED BUILDINGS. Affected dwellings or other structures shall be determined based on the scaled-distance equation, $W = (D/D_s)^2$. Using a scaled-distance factor D_s of 55, affected dwellings or other structures shall be those located within the distance D of the controlled blasting site area for the weight per delay W of explosives to be used.

Note: An example calculation to determine D is as follows: For 4 pounds of explosives, $D = D_s(W)^{1/2} = 55(4)^{1/2} = 110$ feet.

SECTION 46. Comm 7.64 (2) and (3) are renumbered (3) and (2).

SECTION 47. Comm 7.64 (2) (b), as renumbered, is amended to read:

Comm 7.64 (2) (b) Shall not be cast from the controlled blasting site area more than one-half the distance to the nearest inhabited building within or outside of the controlled blasting site area.

SECTION 48. Comm 7.64 (3), as renumbered, is repealed and recreated to read:

Comm 7.64 (3) AIRBLAST. (a) Airblast shall not exceed a maximum limit of 133 peak dB at the location of any dwelling, public building or place of employment outside the controlled blasting site area.

(b) The blaster shall conduct monitoring of every blast to ensure compliance with the airblast limit. The measuring system used shall have a lower-end flat frequency response of not more than 2 Hz and an upper-end flat frequency response of at least 200 Hz.

SECTION 49. Comm 7.64 (4) is repealed and recreated to read:

Comm 7.64 (4) GROUND VIBRATION. (a) 1. The maximum ground vibration at the location of any dwelling, public building or place of employment outside the controlled blasting site area shall be established in accordance with either the blasting-level chart of par. (b) or by the department under sub. (5).

2. All structures in the vicinity of the controlled blasting site area, not listed in subd. 1., such as water towers, pipelines and other utilities, tunnels, dams, impoundments and underground mines, shall be protected from damage by establishment by the blaster of a maximum allowable limit on the ground vibration. The blaster shall establish the limit after consulting with the owner of the structure.

(b) The blaster shall use the ground vibration limits specified in Figure 7.64 to determine the maximum allowable ground vibration. Ground vibration shall be measured as the particle velocity. Particle velocity shall be recorded in 3 mutually perpendicular directions.

(c) The blaster shall make and keep a seismograph record including both particle velocity and vibration frequency levels for each blast. The method of analysis shall be subject to discretionary review by the department.

(d) For quarry operations, the blaster shall report any ground vibration levels to the department that are above 0.75 inch per second with frequencies less than 40 Hz.

SECTION 50. Comm 7.64 (5) is amended to read:

Comm 7.64 (5) EXCEPTIONS. (a) ~~Exempt area.~~ The maximum ground vibration and airblast standards of subs. ~~(2)~~ (3) and (4) shall not apply within the controlled blasting site area.

(b) ~~More restrictive limits.~~ If necessary to ensure that blasting resultants at a particular ~~blasting site~~ blast area do not cause injury, damage or unreasonable annoyance to persons or property outside any controlled blasting site area, more restrictive limits shall be established by the department.

SECTION 51. Chapter Comm 7 Appendix A is repealed and recreated to read:

APPENDIX PREVENTION OF ACCIDENTS IN THE USE OF EXPLOSIVE MATERIALS

The prevention of accidents in the use of explosive materials is a result of careful planning and observing the best known practices. The user must remember that a powerful force is being dealt with and that various devices and methods have been developed to assist in directing this force. The user must realize that this force, if misused, may either kill or injure both oneself and one's fellow workers.

It is obviously impossible to include warnings or approved methods for every conceivable situation. Information pertaining to explosive materials is available from the Institute of Makers of Explosives in the Safety Library Publications (SLP) listed below. Copies of these publications may be obtained from the Institute of Makers of Explosives, 1120 Nineteenth Street, NW, Suite 310, Washington, D.C. 20036-3605, telephone 202/429-9280.

- Construction Guide for Storage Magazines (SLP No. 1)
- The American Table of Distances (SLP No. 2)
- Suggested Code of Regulations for the Manufacture, Transportation, Storage, Sale, Possession and Use of Explosive Materials (SLP No. 3)
- Warnings and Instructions for Consumers in Transporting, Storing, Handling and Using Explosive Materials (SLP No. 4)
- Glossary of Commercial Explosives Industry Terms (SLP No. 12)
- Handbook for the Transportation and Distribution of Explosive Materials (SLP No. 14)
- Safety in the Transportation, Storage, Handling and Use of Explosive Materials (SLP No. 17)

- Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps) (SLP No. 20)
- Recommendations for the Safe Transportation of Detonators in a Vehicle With Certain Other Explosive Materials (SLP No. 22)

SECTION 52. Chapter Comm 7 Appendices B to F are repealed.

(END)

EFFECTIVE DATE

Pursuant to s. 227.22 (2)(intro.), Stats., these rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register.

August 17, 1999

Gary Poulson
Assistant Revisor of Statutes
Suite 800
131 West Wilson Street
Madison, Wisconsin 53703-3233

Douglas LaFollette
Secretary of State
10th Floor
30 West Mifflin Street
Madison, Wisconsin 53703

Dear Messrs. Poulson and LaFollette:

TRANSMITTAL OF RULE ADOPTION

CLEARINGHOUSE RULE NO.: 99-029

RULE NO.: Chapter Comm 7

RELATING TO: Explosive Materials

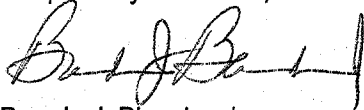
Pursuant to section 227.20, Stats., agencies are required to file a certified copy of every rule adopted by the agency with the offices of the Secretary of State and the Revisor of Statutes.

At this time, the following material is being submitted to you:

1. Order of Adoption.
2. Rules Certificate Form.
3. Rules in Final Draft Form.

Pursuant to section 227.114, Stats., a summary of the final regulatory flexibility analysis is also included.

Respectfully submitted,



Brenda J. Blanchard
Secretary

