

RE: Proposed Rulemaking: Handling and Use of Explosives

3/24/16

1. **Recommendation:** Specify which document has preeminence when dealing with other agencies, MSHA, Fire Marshal or OSHA.

Justification: Often times we find that there are conflicts between State, and Federal rules or variations between state agencies. The incorporation of some verbiage like is found in 31 Pa.B. 3751 to help clarify which rule to follow would be a help to the blasting community.

“Currently, separate blasting regulations exist for anthracite surface coal mining, bituminous surface coal mining and non-coal surface mining. To the extent that these separate regulations contain requirements that are comparable to, but less stringent than, provisions in Chapter 211, they will be superseded by the more stringent provisions in Chapter 211. In addition to complying with Chapters 210 and 211, persons using explosives shall comply with other applicable provisions of the Commonwealth law or implementing regulations. For example, persons planning to use explosives in the waters of this Commonwealth for engineering purposes shall obtain a permit from the Fish and Boat Commission. See 30 Pa.C.S. § 2906 (relating to permits for use of explosives).

The Federal government regulates some aspects of explosives. The Federal Bureau of Alcohol, Tobacco and Firearms (ATF) regulate the storage and interstate sale and purchase of explosives. The Office of Surface Mining has the authority to regulate the use of explosives at surface coal mines. The Department has received general primacy authority to regulate surface coal mining in this Commonwealth, including the use of explosives. Finally, the Federal Highway Administration regulates the transportation of explosives on public roads.”

2. **Recommendation:** Add a statement clarifying if any “adopted by reference” laws come into play.

Justification: Various State agencies often adopt by reference documents like NFPA 1 or 495. Clarify when they do and do not apply in a single document.

3. **Recommendation:** 210.11 consider using existing federal definitions, MSHA, NFPA 495 (International Fire Code) or ATF so we can standardize training and improve understanding.

Justification: Many companies have multi state operations and deal with multiple government agencies. Each agency often defines the same words differently which causes confusion for our employees. By standardizing as much as possible we can eliminate some of that confusion and improve safety. As an example:

ATF Definition: Employee Possessor: An employee possessor is an individual who has actual or constructive possession of explosive materials during the course of his employment. Actual possession exists when a person is in immediate possession or control of explosive materials (e.g., an employee who physically handles explosive materials as part of the production process; or an employee, such as a blaster, who actually uses explosive materials). Constructive possession exists when an employee lacks direct physical

control over explosive materials, but exercises dominion and control over the explosive materials, either directly or indirectly through others (e.g., an employee at a construction site who keeps keys for magazines in which explosive materials are stored, or who directs the use of explosive materials by other employees; or an employee transporting explosive materials from a licensee to a purchaser).

ATF Definition: Explosive materials. Explosives, blasting agents, water gels and detonators. Explosive materials include, but are not limited to, all items in the “List of Explosive Materials” provided for in 555.23.

ATF Definition: Responsible person. An individual who has the power to direct the management and policies of the applicant pertaining to explosive materials. Generally, the term includes partners, sole proprietors, site managers, corporate officers and directors, and majority shareholders.

4. **Recommendation: 210.11 Improve mine opening blasting definition after obtaining clearance from MSHA.**

Justification: The state of PA has a mine opening license and underground industrial mineral license. Define where one starts and the other stops and get MSHA to agree.

Current definition states *Mine opening blasting*—Blasting conducted for the purpose of constructing a shaft, slope, drift or tunnel mine opening for an underground mine, either operating or under development from the surface down to the point where the mine opening connects with the mineral strata to be or being extracted.

Change to: *Mine opening blasting*—Blasting conducted for the purpose of constructing a shaft, slope, drift or tunnel mine opening for an underground mine, either operating or under development from the surface down to the point where the mine opening connects with the mineral strata to be or being extracted, but in no cases beyond 50 feet from the mine opening unless in possession of an underground industrial mineral license.

5. **Recommendation:** Reword 210.17(a). Issuance and renewal of licenses as currently worded is confusing.

As written:

- (a) A blaster’s license is issued for a specific classification of blasting activities. The classifications will be determined by the Department and may include general blasting (which includes all classifications except demolition, mine opening blasting and underground noncoal mining), trenching and construction, **[seismic and pole line work, well perforation,] law enforcement**, surface mining, underground non-coal mining, mine opening blasting, industrial, limited and demolition.

Recommended change:

- (a) A blaster’s license is issued for a specific classification of blasting activity. The classifications will be determined by the Department and may include general blasting, trenching and construction, seismic and pole line work, well perforation, law enforcement, surface mining, underground non-coal mining, mine opening, industrial, limited and demolition. A general blasting license includes all classifications of blasting except demolition, mine opening and underground non-coal.

6. **Recommendation: 211.101** In all applications consider using existing federal definitions.

Justification: Many companies have multi state operations and deal with multiple government agencies. Each agency often defines the same words differently which causes confusion. By standardizing as much as possible we can eliminate some of that confusion and improve safety. These are a few examples:

PA 211.101 Blast area: The area around the blast site that [should] must be cleared and secured to prevent the potential for injury to persons and damage to property.

CHANGE TO MSHA 56.2 Blast area: means the area in which concussion (shock wave), flying material, or gases from an explosion may cause injury to persons. In determining the blast area, the following factors shall be considered:

1. Geology or material to be blasted.
2. Blast pattern.
3. Burden, depth, diameter, and angle of the holes.
4. Blasting experience of the mine.
5. Delay system, powder factor, and pounds per delay.
6. Type and amount of explosive material.
7. Type and amount of stemming.

PA 211.101 Blast site: The specific location where the explosives charges are loaded into the blast holes.

CHANGE TO MSHA 56.2 Blast site: The area where explosive material is handled during loading, including the perimeter formed by the loaded blast holes and 50 feet (15.2 meters) in all directions from loaded holes. A minimum distance of 30 feet (9.1 meters) may replace the 50-foot (15.2-meter) requirement if the perimeter of loaded holes is demarcated with a barrier. The 50-foot (15.2-meter) and alternative 30-foot (9.1-meter) requirements also apply in all directions along the full depth of the hole.

PA 211.101 Employee possessor—An individual who is in possession of or has control of explosives materials.

CHANGE TO ATF Definition: Employee Possessor: An employee possessor is an individual who has actual or constructive possession of explosive materials during the course of his employment. Actual possession exists when a person is in immediate possession or control of explosive materials (e.g., an employee who physically handles explosive materials as part of the production process; or an employee, such as a blaster, who actually uses explosive materials). Constructive possession exists when an employee lacks direct physical control over explosive materials, but exercises dominion and control over the explosive materials, either directly or indirectly through others (e.g., an employee at a construction site who keeps keys for magazines in which explosive materials are stored, or who directs the use of explosive materials by other employees; or an employee transporting explosive materials from a licensee to a purchaser).

PA 211.101 [Explosive]—A chemical compound, mixture or device that contains oxidizing and combustible materials or other ingredients in such proportions or quantities that an ignition by fire, friction, concussion, percussion or detonation may result in an explosion.

(i) The term includes safety fuse, squibs, detonating cord and igniters.

(ii) The term does not include the following:

(A) Commercially manufactured black powder, percussion caps, safety and pyrotechnic fuses, matches and friction primers, intended to be used solely for sporting, recreational or cultural purposes in antique firearms or antique devices, as defined in 18 U.S.C.A. § 921 (relating to definitions).

(B) Smokeless powder, primers used for reloading rifle or pistol cartridges, shot shells, percussion caps and smokeless propellants intended for personal use.]

CHANGE TO ATF Definition: Explosives. Any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite and other high explosives, black powder, pellet powder, initiating explosives, detonators, safety fuses, squibs, detonating cord, igniter cord, and igniters.

PA 211.101 Nuisance—A condition which causes a hazard to public health or safety.

DELETE IN TOTAL: This is way too broad because almost anything could be argued in court as a condition which causes a hazard to public health or safety. Examples could be driving a car, exhaust fumes from a car, smoking a cigarette, any explosive use.

PA 211.101 Responsible person--An individual who has the authority to direct the management and policies of the ATF licensee or permittee pertaining to explosive materials. Generally, the term includes partners, sole proprietors, site managers, corporate officers and directors, and majority shareholders.

CHANGE TO ATF Definition: Responsible person. An individual who has the power to direct the management and policies of the applicant pertaining to explosive materials. Generally, the term includes partners, sole proprietors, site managers, corporate officers and directors, and majority shareholders.

7. **Recommendation:** Delete all of 211.115. Standards for classifying and storing explosives and constructing, maintaining and siting magazines except:
- The provisions of 27 CFR Part 555, Subpart K (relating to storage), are incorporated herein by reference.
 - For purposes of incorporation by reference of 27 CFR Part 555, Subpart K, the term “Department” is substituted for the term “director” and the term “representatives of the Department” is substituted for the term “ATF Official.”
 - “No Trespassing” signs shall be placed around the outer perimeter of the site. Warning signs shall be placed at all access points. Signs shall be well maintained.
 - “No Trespassing” signs shall be spaced so that, except for corners, adjacent signs are visible.
 - Signs shall be placed so that a bullet passing directly through the sign will not impact a magazine.
 - Warning signs at all access points shall provide notice of private property and no trespassing, in addition to providing a notice substantially conforming to the following: “Danger, never fight explosives fires, explosives are stored on this site” to warn first responders and the public of the hazards contained within.
 - Warning signs at all access points shall provide an emergency contact phone number.
 - Signs may not be obscured by vegetation or other obstructions.

- Signs shall be constructed of a durable, weather-resistant material. Letters and numbers shall be of a minimum height of 2 inches that can be easily seen and read.
- A person who stores explosive materials shall notify both the local police having jurisdiction in the area where the explosives are being stored and the Pennsylvania State Police of the storage. This notification must be made in the manner of and in addition to the notification requirements in 27 CFR 555.201(f) (relating to general).
- A person who stores explosive materials shall immediately notify the Department, the Pennsylvania State Police and the local police jurisdiction, if any, when any of the following occur:
 - Evidence is discovered of a break-in or theft at the magazine, or an attempted theft or break-in has occurred.
 - Unauthorized persons exhibiting suspicious behavior are observed in the vicinity of the magazine.
 - Inventory records indicate that explosive material is missing and unaccounted for.
 - The notifications to State and local agencies required in paragraphs (12) and (13) are in addition to any notification required by agencies of the United States.

Justification: The ATF, DOT, OSHA, MSHA and Homeland security issue requirements on a national level for the protection and security of explosive materials and those measures have proven adequate.

Explosives Thefts, for 2013 thru 2014 as Reported to the U.S. Bomb Data Center indicate:

- 2013 Fourteen states experienced thefts of which five were fireworks.
- 2014 Nine states experienced thefts seven were fireworks of which two happened in PA.
- No thefts happened in the same time frame in the majority of states.
- **United States Senate Committee on Foreign Relations Subcommittee on Near Eastern and South and Central Asian**

Affairs Fertilizer-based explosives still remain our greatest challenge in Afghanistan. Today, more than 85 percent of IEDs employed against coalition forces are homemade explosives (HME), and of those, about 70 percent are made with ammonium nitrate derived from calcium ammonium nitrate (CAN) — **a common agricultural fertilizer** produced in, and/or transited through, Pakistan. CAN is produced by two factories in Pakistan, with a total production capacity of 870,000 metric tons annually, but did not reach production capacity in 2011. An estimated 200 tons of CAN was used to make IEDs in Afghanistan this year. Despite a countrywide ban on the importation of ammonium nitrate-based fertilizers by the Government of Afghanistan, this HME precursor continues to be the main charge in the majority of IEDs in that country.

While ammonium nitrate continues to be the most prominent main charge in HME-based IEDs in Afghanistan, the use of potassium chlorate by insurgents has increased for 12 straight months. **Potassium chlorate** is now the main charge in 23 percent of exploited IEDs, up from 13 percent a year ago. Insurgents perceive potassium chlorate as being a more effective explosive. Potassium chlorate, which is also banned for importation by the government of Afghanistan, is legally imported by Pakistan for legitimate use in the textile and matchstick industries. It is illegally sold to or stolen by insurgents for use as HME material.

8. Recommendation: Change 211.131

PA 211.131 (Reserved). [Sales records. The seller shall keep an accurate record of every sale of explosives for 3 years. The record shall identify the purchaser's name and address, the Department purchase permit number, the date of the sale and the amount and types of explosives.]

CHANGE to read "Maintain accurate sales records in accordance with 27 CFR 555 – Commerce In Explosives

Justification: The ATF has established procedures for tracking explosives there is no reason to add items like department purchase permit numbers.

9. Recommendation: Change 211.132

PA 211.132. (Reserved). [Purchase records. The purchaser shall keep a record of all purchases of explosives for 3 years. The record shall identify the date, types and amounts of explosives purchased and the name and address of the seller.]

CHANGE to read "Maintain accurate sales records in accordance with 27 CFR 555 – Commerce In Explosives

Justification: The ATF has established procedures for tracking explosives there is no reason to add items like department purchase permit numbers.

10. Recommendation: 211.133. Blast reports items [(10)] (13) and 12.

Justification: These references allow no tolerance, yet we all know a 6.5 inch diameter hole is not going to measure exactly 6.5 inches for the length of the hole. That there are variations and anomalies in the rock that will affect the amount of explosives loaded in each borehole. I understand there must be a standard but nobody is fined for going 55.1 mph in a 55 mph speed zone simply because there are tire or speedometer anomalies.

PA 211.133 [(10)] (13) The types of explosives used and arrangement in blast holes.

Change to read [(10)] (13) Comply with Federal and Industry guidelines for loading

PA 211.133 (12) The amount of explosives loaded in each borehole.

Item 12: Change to read: Comply with Federal and Industry guidelines for loading

11. 211.133. (7) the printed name, signature and license number of the blaster-in-charge.

Change to read: (7) the printed name, signature and license number of the blaster-in-charge, the signature may be digital.

Justification: As technology changes we need to keep up. If I can buy a boat online why can't I sign a shot report.

12. 211.133. (26) A drill log showing the condition of all of the blast holes prior to loading and any other bore holes in the blast site related to the blasting activity.

Change to read: (26) A DEP approved drill log will be used to show the condition of all of the blast holes prior to loading and any other bore holes in the blast site related to the blasting activity.

Justification: Failing to designate what information must be presented will make the rule meaningless.

13. 211.133. Blast reports (13) The types of explosives used and arrangement in blast holes.

Recommendation: Delete requirement

Justification: This accomplishes nothing while creating a large burden to draw or record where explosives were in the column.

14. 211.141. General requirements. The blasting activity [, purchase or sale] permittee shall: ** (13) Only load explosives into on-road vehicles that have passed the State safety inspection or certification.**

Change to read: **** (13) Only load explosives into on-road vehicles that have met FMCSA inspection requirements.

Justification: Multi state operators operate trucks not inspected under the State safety inspection program.

15. 211.151. Prevention of damage or injury

Recommendation: Delete (b) Blasting shall be conducted in a manner that does not cause a nuisance.

Justification: In this document nuisance is defined as "A condition which causes a hazard to public health or safety". **That definition is simply too broad and poorly defined.**

- What amount of carbon monoxide, oxides of nitrogen or dust will affect the health of any individual?
- What amount of carbon monoxide, oxides of nitrogen or dust is allowed outside of the blast area?
- How does the state want us to monitor these items?
- The State has not defined what is toxic or what levels are toxic in open air.
- What other gases are toxic and at what levels that could be interpreted as a hazard to public health or safety when no limits are established?

16. 211.152. Control of noxious gases, including Carbon Monoxide (CO) and Oxides of Nitrogen (NOx).

Recommendation: Remove 211.152

Justification: In this document it states “A blast shall be conducted so that the toxic gases generated by the blast including carbon monoxide and oxides of nitrogen do not affect the health [and] or safety of individuals”. **That is simply too broad.**

- Who determines what level of carbon monoxide or oxides of nitrogen will affect the health of any individual?
- What amount of carbon monoxide or oxides of nitrogen is allowed outside of the blast area?
- How does the state want us to monitor the carbon monoxide or oxides of nitrogen outside of the blast area?
- What other gases are toxic and at what levels?

17. **211.154** You use the term blaster-in-charge in the reference below but do not define it in the definitions section. Is there a difference in PA between a blaster and a blaster in charge?

Recommendation: If you are going to use the term define it and differentiate between a blaster and blaster-in-charge.

- Blaster. A person qualified to assist in the loading and firing of a blast.
- Blaster-in-Charge. A person qualified to be in charge of and responsible for the loading and firing of a blast.

18. **211.155. Pre-blast measures (3) ensure that the blast area is cleared and safeguarded.**

Change to read: The blaster-in-charge shall define the limits of the blasting area. The permittee shall be responsible for controlling access to the blasting area to prevent the presence of unauthorized persons until the blaster-in-charge has determined that no unusual hazards, such as imminent slides or undetonated charges, exist, and access to and travel within the blasting area can safely resume.

Justification: The blast crew is by regulation has limited people and the blaster knows where they are. But the blaster has no way of knowing how many people the mine has at any given time, or where they are at all times. Depending on the shot or size of mine it is physically impossible for one man to see all areas.

Because of that this should be a permittee function.

19. **211.171. General provisions for monitoring (e) Blasting seismographs shall be deployed in the field according to the guidelines established by the International Society of Explosives Engineer’s Standards Committee**

Change to read: (e) Blasting seismographs shall be deployed in the field according to the guidelines established by the International Society of Explosives Engineer’s Standards Committee and the manufacturer’s instructions. Where a conflict exists comply with manufacturer instructions.

Justification: They built it they probably know how they want it installed.

20. **211.171. General provisions for monitoring (e) Blasting seismographs shall be deployed in the field according to the guidelines established by the International Society of Explosives Engineer's Standards Committee**

Recommendation: Provide the Blaster with alternate instructions for sensor placement i.e. the ISEE Field Practice Guidelines for Blasting Seismographs, Part II, Sensor Coupling states:

B. Sensor coupling: If the acceleration exceeds 1.96 m/s² (0.2 g) decoupling of the sensor may occur. Depending on the anticipated acceleration levels spiking, burial, or sandbagging of the geophone to the ground may be appropriate.

1. If the acceleration is expected to be:

- a. Less than 1.96 m/s² (0.2 g) no burial or attachment is necessary
- b. Between 1.96 m/s² (0.2 g), and 9.81 m/s² (1.0 g), burial or attachment is preferred. Spiking may be acceptable.
- c. Greater than 9.81 m/s² (1.0 g) burial or firm attachment is required (RI 8506).

Give the Blaster clear guidance by changing to:

1. If the acceleration is expected to be:

- a. less than 1.96 m/s² (0.2 g), no burial or attachment is necessary, **sandbag or spike.**
- b. between 1.96 m/s² (0.2 g), and 9.81 m/s² (1.0 g), burial or attachment is preferred. **Sandbag or spiking is acceptable.**
- c. greater than 9.81 m/s² (1.0 g) , burial or firm attachment is required.

Marvin Lee
Safety Director
Wampum Hardware Co