



BLASTING AND EXPLOSIVES

GENERAL REQUIREMENTS

All explosives work MUST be done under the direct supervision of a COMPETENT, QUALIFIED Blaster. Blasting operations will comply with all federal, state and local laws. If there is a conflict then the most stringent law will apply.

BLASTER REQUIREMENTS

A person will only be qualified as a blaster or a blaster in charge if:

- a) Is at least 21 years old
- b) Has not been previously adjudged to be mentally ill or insane or to be incompetent due to any mental disability or disease
- c) Be a US citizen
- d) Has not been convicted of a felony or misdemeanor involving the use of explosives
- e) Is not addicted to narcotics or intemperate use of alcohol
- f) Does not have a suspended or revoked license
- g) Successfully have completed an approved 16 hour training program with subsequent training every two (2) years

LICENSING REQUIREMENTS

Federal

As of May 24, 2003, all persons receiving or using explosive materials are required to have a Federal Explosives License or Permit. PAR is required to identify that individual as a "responsible party" and all "possessors of explosives".

It will be the responsibility of the Responsible Party to also comply with the regulations and provisions of the individual state that they are using explosives in.

Transportation of Explosives

- Transportation of explosives shall meet the provisions of Department of Transportation (DOT) regulations.
- Motor vehicles or conveyances transporting explosives shall only be driven by and be in the charge of a licensed driver who is qualified to handle and transport explosive materials. The driver must be familiar with the local, state, and federal regulations governing the transportation of explosives.
- No person may smoke or carry matches or any other flame-producing device, nor shall firearms or loaded cartridges be carried while in or near a motor vehicle or conveyance that is transporting explosives.
- Explosives, blasting agents, and blasting supplies must not be transported with other materials or cargoes. Blasting caps (including electric) must not be transported in the same vehicle with other explosives.
- Vehicles used for transporting explosives must be strong enough to carry the load without difficulty and must be in good mechanical condition.
- When explosives are transported by a vehicle with an open body, a Class II magazine or original manufacturer's container must be securely mounted on the bed to contain the cargo.
- All vehicles used for the transportation of explosives must have tight floors. Any exposed spark-producing metal on the inside of the body must be covered with wood or other non-sparking material to prevent contact with containers of explosives.
- Every motor vehicle or conveyance used for transporting explosives must be marked or placarded on both sides and on the front and rear with the work "explosives" in red letters. The placard must be at least 4 inches (10.16cm) in height with a white background. In addition, the motor vehicle or conveyance may display a red flag measuring 18 inches (45.72 cm) by 30 inches (76.20 cm) with the work "Explosives" painted, stamped, or sewed on it. The letters must be white and at least 6 inches (15.24 cm) in height, and the flag must be visible from all directions.
- Each vehicle used to transport explosives must be equipped with a fully charged fire extinguisher that is in good condition. An Underwriters Laboratory-approved extinguisher of not less than 10-ABC rating meets the minimum requirement. The driver must be trained in the use of the extinguisher on the vehicle.
- Motor vehicles or conveyances carrying explosives, blasting agents, or blasting supplies shall not be taken inside a garage or shop for repairs or servicing.

Blasting Operations / Procedures

- All blasting operations shall be in accordance with OSHA requirements.
- A blaster must be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and using explosives and must have a working knowledge of the state and local laws and regulations that pertain to explosives
- Blasters are required to furnish satisfactory evidence of competency in handling explosives and performing in a safe manner the type of blasting that will be required.
- The blaster must be knowledgeable and competent in the use of each type of blasting methods used.
- Procedures that permit safe and efficient loading must be established before loading is started.
- All drill holes must be large enough to enable the cartridges of explosive to be inserted.

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- Tamping shall be done only with wood rods or plastic tamping poles without exposed metal parts, but non-sparking metal connectors may be used for jointed poles. Violent tamping must be avoided. The primer must never be tamped.
- No holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives and detonators must be immediately returned to an authorized magazine.
- Drilling shall not be started until all remaining butts of old holes are examined for unexploded charges. Any charges that are found must be re-fired before work proceeds.
- No person shall be allowed to deepen drill holes that have contained explosives or blasting agents.
- No explosives or blasting agents shall be left unattended at the blast site.
- Machines and tools not used for loading explosives into bore holes must be removed from the immediate location of holes before explosives are delivered. Equipment must not be operated within 50 ft (15.24 m) of loaded holes.
- Do not use two-way radios and cell phones – a static charge from these devices might ignite the explosives.
- No activity other than loading holes with explosives is permitted in a blast area.
- Power lines and portable, electric cables for equipment being used must be kept a safe distance from explosives and blasting agents being loaded into drill holes.
- Holes must be checked before loading to determine depth and conditions. There shall be no drilling within 50 ft (15.24 m) of a hole that has been loaded with explosives if the explosives have failed to detonate.
- When more than one loading crew is loading a long line of holes, the crews must be separated by practical distance and have proper supervision.
- No explosive shall be loaded or used underground in the presence of combustible gases or combustible dusts.
- Warning signs indicating a blast area must be maintained at all approaches to the blast area.
- Drill holes that are not water-filled must be allowed to cool before explosives are loaded.
- No loaded holes shall be left unattended or unprotected.
- The blaster must keep an accurate, current record of explosives, blasting agents, and blasting supplies used in a blast and must keep an accurate running inventory of all explosives and blasting agents stored on the operation.

Safety Rules

1. Never handle or allow anyone to handle explosives while under the influence of drugs or alcohol.
2. Use only authorized blasting procedures.
3. Notify local police 24 hours in advance that blasting will be taking place.
4. Warn nearby residences well in advance that blasting will be taking place.
5. Wear all appropriate PPE including hard hat, safety glasses (prescription safety glasses if required) with side shields and hearing protection.
6. Have the required conforming warning signs, guard and flaggers to protect the area, workers and the traveling public.
7. Minimum signing in advance of a blasting zone will be:
 - UTILITY WORK AHEAD
 - BLASTING ZONE
 - TURN OFF TWO WAY RADIO
 - FLAGGER SIGN
8. Prohibit smoking, matches, open flames, firearms, or any heat producing object or device within 50' of the explosives magazine or while explosives are being handled, transported or used.
9. Evacuate to the required distance, post signs and or flaggers to prevent access.
10. Pedestrians and traffic will be maintained at a minimum of 1,000' from the blast area.
11. NEVER assume the area is clear.
12. Always make personal visual inspections before blast.
13. Insure that unauthorized visitors do not enter the blast area.
14. Conduct blasting operation between sunup and sunset and during times of clear visibility.
15. If aerial lights are needed, use only APPROVED non-sparking battery operated lights.
16. Always face the blast area and watch for flying rocks.
17. Never allow horseplay during blast operations.
18. Never store primers or detonators in packets or in the same container with explosives.
19. Never abandon an explosive or detonator.
20. Maintain accurate inventory of magazines keep them locked.

HANDLING, STORAGE AND USE OF EXPLOSIVES

GENERAL PROVISIONS

1. Only authorized and qualified employees shall be permitted to handle explosives.
2. Smoking, firearms, matches, open flame lamps, and other open flame or heat producing devices and sparks shall be prohibited in or near explosive magazines of while explosives are being handled, or transported, or used.
3. No person should be allowed to handle or use explosives while under the use of intoxicating liquors, narcotics, or other dangerous drugs.

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4. All explosives shall be accounted for at all times. Explosives not being used shall be kept in a locked magazine, unavailable to persons not authorized to handle them. Only designated and licensed employees shall maintain an inventory and use record of all explosives. Appropriate authorities shall be notified of any loss, theft, or unauthorized entry into a magazine.
5. No explosives or blasting agents shall be abandoned.
6. No fire shall be fought where the fire is in eminent danger of contact with explosives. All employees shall be removed to a safe area and the fire area guarded against intruders.
7. Original containers, or Class II magazines, shall be used for taking detonators and other explosives from storage magazines to the blasting area.
8. When blasting is done in congested areas or in proximity to a structure, railway, or highway, or any other installation that may be damaged, the blaster shall take special precautions in the loading, delaying, initiation, and confinement of each blast with mats or other methods so as to control the throw of fragments, and thus prevent bodily injury to any person.
9. Employees authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution including, but not limited to, visual and audible warning signals, flags, or barricades, to ensure the safety of others.
10. Insofar as possible, blasting operations above ground shall be conducted between sunup and sundown.
11. Due precautions shall be taken to prevent accidental discharge of electric blasting caps from current induced by radar, radio transmitters, lightning, adjacent power lines, dust storms, or other sources of extraneous electricity. These precautions shall include:
 - a) Detonators shall be short-circuited in which holes have been primed and
 - b) Shunted until wired into the blasting circuit.
12. The suspension of all blasting operations and removal of persons from the blasting area during the approach and progress of an electric storm.
13. The prominent display of adequate signs, warning against the use of mobile radio transmitters, on all roads within 1000 feet of all blasting operations. Whenever adherence to the 1000-foot distance would create an operational handicap, a competent person shall be consulted to evaluate the particular situation, and alternative provisions may be made which are adequately designed to prevent any premature firing of electric blasting caps. A description of any such alternatives shall be reduced to writing and shall be certified as meeting the purpose of this subdivision by the competent person consulted. The description shall be maintained at the construction site during the duration of the work, and shall be available for inspection by representatives of the Secretary of Labor.
14. Ensuring that mobile transmitters, which are less than 100 feet away from electric blasting caps, in other than in original containers, shall be de-energized and effectively locked.
15. Compliance with the recommendations of the Institute of the Makers of explosives with regards to blasting in the vicinity of radio transmitters as stipulated in Radio Frequency-A Potential Hazard in the Use of Electric Blasting Caps, No. 20, 1971.
16. The blaster shall be knowledgeable and competent in the use of each type of blasting method used.

SURFACE TRANSPORTATION OF EXPLOSIVES

1. Transportation of explosives shall meet the provisions of the Department of Transportation regulations contained in 46 CFR parts 146-149, Water Carriers; 49 CFR parts 171-179, Highways and Railways; 49 CFR part 195, Pipelines; and 49 CFR parts 390-397, Motor Carriers.
2. Motor vehicles or conveyances transporting explosives shall only be driven by, and be in charge of, a licensed driver who is physically fit. He shall be familiar with the local State and Federal regulation governing the transportation of explosives.
3. No person shall smoke, or carry matches or any other flame-producing device, nor shall firearms or loaded cartridges be carried while in or near a motor vehicle or conveyance transporting explosives.
4. Explosives, blasting agents, and blasting supplies shall not be transported with other materials or cargoes. Blasting caps (including electric) shall not be transported in the same vehicle with other explosives.
5. Vehicles used for transporting explosives shall be strong enough to carry the load without difficulty, and shall be in good mechanical condition.
6. When explosives are transported by a vehicle with an open body, a Class II magazine or original manufacturer's container shall be securely mounted on the bed to contain the cargo.
7. All vehicles used for the transportation of explosives shall have tight floors and any exposed spark-producing metal on the inside of the body shall be covered with wood or other non-sparking material, to prevent contact with containers of explosives.

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8. Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word "EXPLOSIVES" in red letters, not less than 4 inches in height, on white background. In addition to such marking or place-carding, the motor vehicle or conveyance may display. Must in such manner that it will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word "EXPLOSIVES" painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.
9. Every vehicle used for transportation of explosives shall be equipped with a fully charged fire extinguisher, in good condition. An Underwriters Laboratory approved extinguisher of not less than 10-ABC rating will meet the minimum requirement. The driver shall be trained in the use of the extinguisher on his vehicle.
10. Motor vehicles or conveyances carrying explosives, blasting agents, or blasting supplies, shall not be taken inside a garage or shop for repairs or servicing.
11. No motor vehicle transporting explosives shall be left unattended.

STORAGE OF EXPLOSIVES AND BLASTING AGENTS

1. Explosives and related materials shall be stored in approved facilities required under the applicable provisions of the Bureau of Alcohol, Tobacco, and Firearms regulations contained in 27 CFR parts 55, Commerce in Explosives.
2. Blasting caps, electric blasting caps, detonating primers, and primed cartridges shall not be stored in the magazine with other explosives or blasting caps.
3. Smoking and open flames shall not be permitted within 50 feet of explosives and detonator storage magazine.
4. No explosives or blasting agents shall be permanently stored in any underground operation until the operation has been developed to the point where at least two modes of exit have been provided.
5. Permanent underground storage magazines shall be at least 300 feet from any shaft, or active underground working area.
6. Permanent underground magazines containing detonators shall not be located closer than 50 feet to any magazine containing other explosives or blasting agents.

LOADING OF EXPLOSIVES OR BLASTING AGENTS

1. Procedures that permit safe and efficient loading shall be established before loading is started.
2. All drill holes shall be sufficiently large to admit freely the insertion of the cartridges of explosives.
3. Tamping shall be done only with wood rods or plastic tamping poles without exposed metal parts, but non-sparking metal connectors may be used for jointed poles. Violent tamping shall be avoided. The primer shall never be tamped.
4. No holes shall be loaded except those to be fired in the next round of blasting. After loading, all remaining explosives and detonators shall be immediately returned to an authorized magazine.
5. Drilling shall not be started until all remaining butts of old holes are examined for unexploded charges, and if any are found, they shall be re-fired before work proceeds.
6. No person shall be allowed to deepen drill holes, which have contained explosives, or blasting agents.
7. No explosives or blasting agents shall be left unattended at the blast site.
8. Machines and all tools not used for loading explosives into bore-holes shall be removed from the immediate location of holes before explosives are delivered. Equipment shall not be operated within 50 feet of loaded holes.
9. No activity of any nature other than that which is required for loading holes with explosives shall be permitted in the blast area.
10. Power lines and portable electric cables for equipment being used shall be kept a safe distance from explosives or blasting agents being loaded into holes. Cables in the proximity of the blast area shall be de-energized and locked out by the blaster.
11. Holes shall be checked prior to loading to determine depth and conditions. Where a hole has been loaded with explosives but the explosives have failed to detonate (explode), there shall be no drilling within 50 feet of the hole.
12. When loading a long line of holes with more than one crew, the crews shall be separated by practical distance consistent with efficient operation and supervision of crews.
13. No explosive shall be used or loaded underground in the presence of combustible gasses or combustible dust.
14. No explosives other than those in Flume Class 1, as set forth by the institute of Makers of Explosives, shall be used; however, explosives complying with the requirements of Fume Class 2 and Fume Class 3 may be used if adequate ventilation has been provided.