



**Loudoun County, Virginia
Department of Fire and Rescue
Fire Marshal's Office**



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Explosives and Blasting Permit Requirements

NOTE: This list is not all inclusive. All persons who handle, use or store explosives shall be familiar with and comply with the Loudoun County Fire Prevention Code, NFPA, Federal, State and Local laws ordinances, codes, standards and rules. In addition, blasting or explosive use within the Limestone Overlay District (LOD) as defined by the Loudoun County Department of Building and Development, shall comply with the Loudoun County Facility Standard Manual.

GENERAL

- A document of financial responsibility shall be provided, current and on file with this office.
- Insurance for blasting: The minimum amount of a certificate of insurance shall not be less than \$5,000,000 (five million dollars). This certificate of insurance shall further indemnify the County of Loudoun, named as an additional insured, its agents and employees from any and all actions which may result from the permitted blasting.
- Blasting site permits will be issued for a maximum of six months from the date of issuance.
- The permit application shall include a map showing the exact location of the blasting site(s).
 - Preferably, Global Positioning System (GPS) coordinates should be used.
 - If GPS coordinates are not available, Alexandria Drafting Maps (ADC) may be used to pinpoint specific locations.
 - Some large sites may be divided into zones and designated as such for daily reporting requirements.
- Applications for blasting will be processed within ten (10) working days. Applications for vehicles, storage, LOD and/or firm license shall be scheduled and may take fifteen (15) days or longer.
- The permit application shall have a business and emergency contact number for the permit requestor.
- The Fire Marshal's Office reserves the right to request and have provided a "Blasting Plan" before any permit may be issued, this shall be in addition to the permit application and map.
- The Fire Marshal's Office will conduct a site inspection of all new blasting locations, an attempt will be made to conduct a site inspection for all renewals.
- The blaster in charge shall be certified and have credentials on his/her person, issued by the Dept. of Housing and Community Development (DHCD) at all times. Blasters operating at mines shall be certified by Department of Mines, Minerals and Energy.
- All persons handling or coming in contact with explosives shall have the proper background clearances and their employing firm shall maintain a certified record of the background clearance.
- The Loudoun County Emergency Communications Center (ECC) shall be contacted each day before blasting operations begin and the blaster in charge or blasting firm manager shall provide the exact location of the blasting site including GPS Coordinates and/or ADC map grid, and the permit number for the site. The contact number for ECC is (703) 777-0637.

Teamwork * Integrity * Professionalism * Service

- Blasting shall only be conducted during daylight hours, on normal business days. Any blasting that needs to occur on County Holidays or weekends must be approved in advance. A schedule or notification that Saturday blasting or Holiday will occur should be submitted with the permit application. County holidays can be found at <http://www.loudoun.gov/index.aspx?nid=1137>
- All problems, misfires, fly rock incidents, and/or complaints shall immediately be reported to the Fire Marshal's Office and the ECC.
- Copies of shot records and seismograph reports shall be provided to the Fire Marshal's Office if requested.
- These requirements will apply within all the incorporated Towns of Loudoun County, the Town of Leesburg has additional requirements. Please contact the Town of Leesburg for proper forms and procedures.
- **All blasting within the Limestone Overlay District (LOD) as defined by the Loudoun County Department of Building and Development shall comply with requirements set forth in the Loudoun County Facility Standard Manual (FSM). Fire Marshal permits for blasting within the LOD will not be processed until all requirements of the FSM are met and a document is provided from the Loudoun County Department of Building and Development (see attached "Blasting Advisory Notice")**
- Any variance from these requirements will require a request in writing to: Chief Fire Marshal, at the above address. An additional 7 – 14 days will be required for approval of any variance.
- Fire Marshal staff will spot check all blasting sites.

SITE OPERATIONS

- When within the 200 feet of any utility, 24 hours notice shall be given to the utility company, (some utility firms require more than 24 hour notice).
- The blast area and blast site shall be secure.
- The blast site shall be barricaded and posted, warning signs shall be in place.
- All structures within 150 feet of the blast site shall have offered a pre-blast survey conducted by the blasting firm or their designee. This applies to all areas outside of the LOD, 500 feet for structures within the LOD.
- All blasting within 250 feet of any structure shall comply with the following:
 1. A minimum of 8 feet of cover should exist from the top of the loaded borehole to the ground surface, which may be accomplished by depth of drilling from existing grade of the placement of additional material over the blast area where a minimum of 8 feet of cover can be accomplished. Mats will be used.
 2. Stemming gravel shall be used, drill cuttings are not allowed.
 3. Blast mats shall be used between structures when conducting foundation shots.
- All residents/occupants shall be notified within 500 feet of each blasting operation, at least 2 days prior to blasting.
- At least one seismograph shall be set up and operational at the nearest structure to the blast site. The Fire Marshal's Office may require additional monitoring for special hazards or concerns.
- All vibrations and air blast shall be minimized to prevent damage, vibrations limits set forth by NFPA 495 as referenced in the State Fire Prevention Code shall be followed.
 - Any blaster who exceeds vibration limits shall be issued a notice of violation for a first offense.

- A second offense within a one year period shall result in a notice of violation and/or a summons. A meeting will be held the blaster and his/her supervisor.
- A third offense within a one year period will result in a summons and suspension of blasting privileges within the County of Loudoun.
- Any and all fly rock is unacceptable and grounds for immediate permit revocation and/or a Virginia Uniform Summons issued to the blaster in charge.
- There shall be no on site delivery of explosives without prior approval.
 - A valid Loudoun County Hazardous Use Permit, for the use of blasting agents or explosives, must be in possession of the applicant. Not all permitted sites will be approved for onsite deliveries of explosives, any site considered to be a congested blasting area will not be approved.
 - The request for approval must be made at the time of the use permit application and approval will be given on a case by case basis.
 - On site delivery shall be only for the explosives to be used at that permitted site.
 - The Fire Marshal's Office will conduct an onsite inspection, stipulate the transfer of explosives and only that location may be used.
 - The area must be properly marked and posted.
 - A security/safety watch shall be established and no unauthorized persons shall enter the area, transfer shall cease if unauthorized persons enter the area and all explosives shall be immediately secured.
 - Explosives must be transferred from and into appropriate approved magazines.
- There shall be no open flame devices, matches, lighters etc.. Within 50 feet of the blast site, transport vehicle or area containing explosives or explosive residues.
- There shall be no smoking materials within 50 feet of the blast site.
- Detonators shall be kept in the appropriate magazine until needed.
- Detonators shall not be placed into primers until the borehole is to be loaded and this shall be done at least 50' from any magazine or transport vehicle.
- There shall be no unauthorized personnel at the site.
- Pre and Post blast warning signals shall be sounded.
- Special Concerns may require blasting to take place at specific times and under certain conditions. The blaster shall contact person(s) in charge of these occupancies and determine safe times and conditions.
Special concerns may include: (Any high occupancy area)

1. Schools	7. Roadways/Bike Trails
2. Day Cares	8. Utilities
3. Hospitals/Nursing homes	9. Fuel stations
4. Hotel/Motel	10. Bulk fuel storage
5. Special Infrastructure	11. Special Industry
6. Technology Centers/Hubs	
- Blasting firms shall provide sufficient personnel to safely perform operations.
- All traffic on roadways and/or bike/walking paths or trails shall be stopped prior to any blasting within 300 ft.
- Blasting within 1000 ft. of any school shall be done only after school hours unless the school principal or his /her designees agree to blasting during school hours. In all cases the Fire Marshal's Office shall be notified.
- The overnight storage of explosives at blasting sites will not be permitted.
- The burning of waste/packaging materials is prohibited on any blasting site.

- Special Precautions must be taken for blasting within proximity to wells and Historic structures. (see appropriate sections of this document)

WATER SUPPLY WELLS

- There shall be no blasting within 100 feet of any potable water supply well.
- Wells can be identified by utilizing Loudoun County’s mapping system “weblogis” under the environmental health tab. <http://logis.loudoun.gov/weblogis/>
- All wells within 500 feet of any blasting shall be located and identified on site drawings.
- Water quality testing shall be performed on all wells within 500 feet of any blasting, unless the property owner denies access. Testing should be in accordance with Loudoun County Code Chapter 1040 and include test for microorganisms, total coliform bacteria, nitrates, nitrites, total dissolved solids, heavy metals and PH.
http://www.loudoun.gov/documents/4337/5119/8234/8239/Chapter+1040+Water+Wells_201203190858519101.pdf
- It is suggested that water quantity testing be performed, where possible, on all wells that are not properly drilled, cased and grouted within 300 feet of blasting.
- All wells that are not properly drilled, cased and grouted within 500 feet of any blasting shall be monitored with seismograph equipment for all blasting within the scope of the permit.
- A geosciences/geophysical consulting firm shall develop a blasting plan and calculate a safe ground vibration limit for all wells that are not properly drilled, cased and grouted within 500 feet of any blasting. This safe limit, measured by inches per second peak particle velocity, shall not be exceeded during any blasting within the scope of this permit.
- Property owners whom have hired or contracted to perform blasting on their land may opt out of the requirements in this section “Water Supply Wells”, this must be done in writing and submitted with the permit application for blasting.
- Information can be found at:
<https://www.vdh.virginia.gov/EnvironmentalHealth/Onsite/technicalresources/>
<http://www.loudoun.gov/index.aspx?NID=1286>

HISTORIC DISTRICTS AND STRUCTURES

- Historic Districts and/or Structures shall be identified when within 500 feet of any blasting.
- All Districts and structures registered with the Virginia Landmarks Registry and/or the National Registry of Historic Places shall be included.

The following websites may be of assistance:

<http://www.nationalregisterofhistoricplaces.com/va/Loudoun/state.html>,

http://www.dhr.virginia.gov/registers/Counties/register_Loudoun.htm

<http://www.dhr.virginia.gov/registers/RegisterMasterList.pdf>

- Peak Particle Velocities shall not exceed .50 inches per second for any Historic Structure within 500 feet of blasting. The only exception to exceed .50 inches per second shall be if a geosciences/geophysical consulting firm develops a blasting plan and establishes safe ground vibration and air blast limits. These safe limits are subject to the approval of the Fire Marshal and shall not be exceeded during any blasting within the scope of any permitted site.
- The primary reason for this is to prevent damage to older structures that may contain fragile components, such as aged plaster or glass.

- The nearest Historic Structures within 500 feet of any blasting shall be monitored with appropriate seismology equipment which may include monitors and/or coupling devices on exterior and interior components of the structure.
- Please note that Historic Districts will require an extensive search of the structures, monuments and cemeteries listed within the district.

TRANSPORTATION

- All transport vehicles shall be properly placarded, in accordance with US DOT.
- All transport vehicles shall have at 2 operable fire extinguishers of proper size and rating.
- The blast site and vehicle must be attended at all times.
- All explosive transport vehicles require a permit from the Fire Marshal's Office, a copy of the permit shall be carried on the vehicle.
- All United States Department of Transportation laws shall be complied with.
- All transport vehicles operating within the county shall have a written route plan and driver operators shall not deviate from the route plan, except in the case of an emergency and the Fire Marshal's Office shall be notified immediately.
- All "bulk" explosive transport vehicles shall have in working order, a metering device to accurately measure the amount of explosives or blasting agents being expelled from the vehicle.
- All explosives transport vehicles shall have a means of communication to a supervisor or dispatch center that is manned at all times or a direct means of communication to a 911 centers, when the vehicle is carrying explosives.
- When an explosive transport vehicle becomes inoperable due to a breakdown or if an explosive transport vehicle is involved in accident, the Fire Marshal's Office must be notified immediately.
- Portable "Skid Magazines" are permissible for sites that require their use, a Fire Marshal Transportation permit must be obtained and the unit must be inspected prior to be placed in service.

MISFIRES

- A misfire is when some or all of an explosive charge does not detonate when initiated by typical means. A misfire could involve an entire shot with several blast columns, a row of blast columns, or portions of a column of explosives/blasting agents.
- Blasters should take every precaution to ensure that misfires do not occur. Detection of misfires is critical during the post-blast inspection by the blaster in charge.
- Compliance with IME Publication #17 is required.
- The blaster in charge and/or the blasting supervisor is required to immediately notify the Loudoun County Fire Marshal's Office when a misfire is discovered.
- The blaster in charge must immediately secure the blast area and prevent any unauthorized entry until the explosive threat is removed. Mitigation efforts shall be performed during daylight hours. The blaster in charge shall follow his adopted safety plan, Virginia Statewide Fire Prevention Code 3307.15, NFPA 495 – 10.5, and IME Publication #17.
- The blaster in charge shall not allow anyone in the blast area that is not trained and familiar with the blasting operation and properties of explosive materials.
- The blaster in charge shall develop a plan to uncover and trace the initiation circuit and the columns of explosives/blasting agents that have not fired or detonated.
- The blaster in charge shall develop a written mitigation plan to either re-fire the column(s) of explosives/blasting agents and/or remove the explosives/blasting agent or a combination of both. This shall be done with all typical safety precautions taken. All shot records shall record the actions taken and the results.
- If the misfire cannot be resolved during daylight hours, they must stop all work at sunset and provide adequate on scene security until the next day.
- The Fire Marshal's Office shall be notified when the misfire is resolved and either the shot is fired or the explosives have been removed.