

 <p><b>CRFD</b></p>	Castle Rock Fire and Rescue Department
	<b><i>LIFE SAFETY DIVISION GUIDELINE</i></b>
	Subject: Explosive Blasting Guideline Date initiated: 04-21-2015 Date revised:
Approved:  Brian Dimock, Division Chief of Life Safety Division	

**APPLICABLE CODES AND STANDARDS:**

- National Fire Protection Association.
- International Fire Code (IFC).

**INTENT:**

The intent of this document is to establish the basic guidelines pertaining to the proper method of completing applications for blasting operations and the requirements associated with blasting to include inspections.

**SCOPE:**

The scope of this document is to provide the necessary steps to ensure that all blasting operations are conducted in Code compliant and safe method.

**DEFINITIONS:**

CRFD: Castle Rock Fire and Rescue Department

**PROCESS REQUIRED:**

**CODE USED IN REVIEW:**

The submitted plans have been reviewed for compliance to the 2018 edition of the International Fire Code (IFC) and applicable NFPA Standards.

**REVIEW COMMENTS:**

The Fire Department needs the following information in order to process the required Blasting Permit:

**APPLICANT INFORMATION:**

Full information on the blasting company and contact information to include copies of the BATF credentials, transportation, etc.

- a) Site map depicting the location, address, etc where the blasting will occur.
- b) The fire department will review a 500' and 1000' perimeter and determine if the following will be required:

IF REQUIRED, prior to any blasting, the blasting company shall have a third party company perform pre-blast surveys on all structures within 500 feet of the blast site upon approval of the property owner. Should the owner, operator, occupant or other person responsible for the property refuse the survey, the blasting company shall provide written documentation of the refusal to the blasting company, owner, occupant or other person responsible for the property and the Town of Castle Rock Fire and Rescue Department.

IF REQUIRED, prior to any blasting or pre-blast surveys the blasting company shall notify all occupied structures within 1000 feet of the property lines of the site upon which any blasting operations are to occur by certified mail or direct delivery, that blasting will be occurring and that a third party company will be conducting pre-blast surveys within 500 feet of the blast site, as required by Chapter 56 - Pre-Blast Survey.

The blasting company shall provide a copy of the written documentation and documentation of which owner, operator, occupant or other person responsible for the property were notified. The Town of Castle Rock reserves the right to require notifications beyond 1000 feet, depending on the site conditions and proximity to existing residential and / or commercial areas.

**NOTE:** The notification shall include the SPECIFIC DAYS OF THE WEEK AND TIMES that the blasting will occur in the notification letter to the required areas.

**NOTE:** The fire department will require submittal of a copy of the letters provided to the 500 and 1,000 foot notifications, as well as proof of distribution by listing of address, date and approximate time of delivery.

- c) The required type and amount of explosives required for the blasting operation. This summary should include the specifics on the entire explosives train and firing system.
- d) A copy of the blasting company site safety / emergency plan must be available at the site for inspection by the fire department at the time of the pre-blast inspection.
- e) The applicant shall schedule the INITIAL blasting inspection of the site as noted below.

-Due to previous concerns with blasting, the Fire Department must be scheduled to meet on-site with the Blaster(s), PRIOR to the initial blasting as noted below at least 3 days in advance of the operation to ensure that we can be present PRIOR to the operations.

-If blasting will be completed on a routine schedule please provide in written form the schedule and times to the fire department as noted in the letters to property owners identified in the pre-blasting survey.

-Due to previous blasting concerns, and complaints from nearby neighbors about potential effects from blasting, the Fire Department MAY require additional seismic monitoring to document the ground pressures at pre-determined locations.

-These locations will depend upon the initial blasting schedule / location and the location of remote seismic monitoring (minimum of two beyond the blast area) can be determined at the time of the first blast operation. Due to the remote locations these monitors may require additional staffing from your agency.

-All seismic monitors MUST have a current calibration presented at the pre-blast meeting or stamped on the monitor for the inspector to verify.

#### BLASTING OPERATIONAL REQUIREMENT:

Castle Rock Fire requires Seismic results from EACH blasting operation be submitted to the Fire Department within 3-Days of the blasting operation, and any subsequent blasting will NOT be allowed without adequate time to review seismic results from previous blasting.

-Castle Rock Fire requires Seismic PPV/in/sec to be BELOW a 1.0 threshold, any reading greater than the 1.0, the blaster must provide a solution to reduce the consequences of a blasting operation to maintain levels below the CRFD adopted threshold.

#### Schedule inspections as noted below:

- Email **FPO@crgov.com** to schedule an inspection at the location;
  - SEND **ONLY ONE REQUEST PER INSPECTION**;
    - Leave the Project Name, Address and Permit Number, Contact Person and Phone Number, and AM or PM inspection and the date requested. Please allow at least a **MINIMUM** of at least **TWO** (2) business days for **ALL** inspection requests;
- NOTE:** An inspector will **CONFIRM** the inspection.

#### REQUIRED INSPECTIONS:

1. **INITIAL INSPECTION** - Prior to addition of explosives, a fire inspection shall take place to approve Fire Department Conditions. The blaster is responsible to ensure the following requirements:

- The Fire Department permit is on site.
- The Fire Department is required to witness ALL BLASTING to ensure no unusual hazards or conditions are present during or after the blast.

2. **NOTIFICATIONS:** - The blaster is responsible to make the following notifications:

- Verify notification of neighboring residents and/or occupants has been done and that blasting is occurring on the day of the week and time block contained in the notification letters sent.
- Verification that Douglas County Dispatch has been notified of the pending blast NOT LESS than 30 minutes prior to the blasting at 303-660-7500
- Castle Rock Police Department NOT LESS than 30 minutes prior to the blasting at 303-663-6100

**PRE-BLAST:**

3. **EXPLOSIVE SPECIFICS** - Verify the depth and diameter of hole(s) and drill specifications as per plans. The type of explosive(s). The type of initiating device(s). The quantity of explosive for each load and the aggregate quantity of explosives on the job site. The detonation specifications relative to series and lapses.
4. **RESPONSIBLE PERSON** - Verify the person in charge of the handling and use of explosive materials as listed in the permit is on site and has the proper credentials.
5. **SITE PROTECTION** - Verify blasting being performed near the dwelling that could be damaged by material being thrown into the air, the blast is covered with an adequate blasting mat. Stop all work activity in the blast safety zone to ensure safety.
  - Blaster shall be capable of providing assurance that a "BLOW-OUT" causing fly rock will not occur, and what precautions they have taken to prevent;
  - Blaster shall be capable of providing assurance of how they addressed "STEMMING", SHOT TIMING, and BURDEN for the shot.
6. **PRECAUTIONS** - Verify the following: blasting will not be taking place during storm events, posting of signs prohibiting the use of mobile radio transmitters and cellular phones on roads within one-thousand (1,000) feet of blasting operations where electric detonators are being used, periodic checks of the site perimeters shall be conducted to ensure that no equipment or people have been introduced into the blast area.

The TRAFFIC CONTROL plan must be provided to the inspector.
7. **BLAST WARNING** - Verify with the person in charge that surplus explosive materials are in a safe place, that persons and vehicles are at a safe distance or under sufficient cover, and that a loud warning signal has or will be sounded prior to the first blast.
8. **PROCEDURES** - Verify with the person in charge that a copy of the pre-blast procedures and is on site and have received a copy of the procedures and safety guidelines.
9. **SAFEGUARDS** - Verify all methods of safeguarding the site are in place (ex. Warning devices, barricades, guards, etc). Methods for measuring seismic movement. Pre-blast procedures and Post Blast Procedures on site to be followed. Verify that the firing system has appropriate safety features to prevent accidental initiation.

## **BLAST INITIATION:**

10. Verify cap and fuse will not be used to initiate blasts in congested areas or adjacent to highways open to traffic.

11. Verify, where a safety fuse is used, the burning rate has been determined by the permit holder or blaster and the fuse lengths are less than one-hundred-twenty (120) seconds. The detonator shall be attached securely to the fuse with a standard ring-type cap crimper.

12. Verify, where electric detonators are used, stray current tests are made as frequently as necessary. Maximum stray current shall not exceed 0.05 amperes through a 1-ohm resistor, measured at the blast site. Non-electric initiating systems shall be used unless corrective action is taken to reduce the stray current below the limits indicated in this paragraph. (NFPA 495 10.3.3.2)

13. Verify that electric detonators of different brands are not being used in the same firing circuit. Original containers and/or wrappers shall be available on site for Fire Department inspection. (NFPA 495 10.3.4)

14. Verify all electric blasting circuits and other initiating systems whose continuity can be tested (such as gas detonator initiating systems) have been tested with a blasting galvanometer or other blast continuity test instrument, as appropriate, that has been designed and approved for the purpose. All electrically initiated blasts shall be made by using blasting machines suitable for the circuitry being fired. (NFPA 495 10.3.5)

15. Verify that no detonator are to be inserted in explosive materials that do not have a cap well without first making a hole in the cartridge with a proper size non-sparking tool or the appropriate pointed handle of an approved cap crimper. (NFPA 495 10.3.7)

16. Verify primers are not to be assembled closer than fifty (50) feet from any magazine or other means of explosives storage. Primers shall be assembled only when and as necessary for immediate needs. (NFPA 495 10.3.7.1)

17. Where using non-electric initiation systems (NFPA 495 10.3.7.6):

Verify the blaster in charge is selecting the initiation systems and designing the blast;

Verify the initiation system is being used in accordance with the manufacturers instructions;

Verify the blaster in charge conducts a visual check after blast hookup;

Verify the blast layout will be tested for continuity as recommended by the manufacturer where using a system that can be tested for continuity.

18. Verify that only the person making the lead line connections or the blaster in charge will fire the blast. All connections shall be made progressively from the borehole back to the initiation point. Blasting lead lines shall remain shunted (shorted) and shall not be connected to the blasting machine or other source of current until the blast is to be fired. (NFPA 495 10.3.8)

19. Verify that the blaster in charge has made certain that all surplus explosive materials are in a safe place, all persons and equipment are at a safe distance or under sufficient cover, and an adequate warning signal has been given prior to the first blast. (NFPA 495 10.3.9)

20. **PROCEDURES** - Verify with the person in charge that a copy of the post-blast procedures are on site and will be complied with.

**POST BLAST:**

- 21. **POST BLAST INSPECTION** - Post blast, a Fire Department Inspection shall take place to verify post-blast procedures and compliance with detonation and demobilization protocol.
- 22. **PROCEDURES** - Verify with the person in charge that a copy of the post-blast procedures are on site and have been complied with.
- 23. **SWEEP** - Verify the blaster inspected the entire blast site for misfires. (NFPA 495 10.5.1 - 10.5.8)
- 24. **MISFIRES** - Verify if misfires were noted. Where a misfire is found, the blaster shall provide the proper safeguards for excluding all personnel from the blast area. Verify compliance with misfire handling procedures. (NFPA 495 10.5.1 - 495 10.5.8).
- 25. **SEISMIC READING** - Seismic readings shall be submitted to the Fire Department within 3-Days of the blasting operation for review.  
-NO ADDITIONAL blasting can occur until the Fire Department has completed a review of the report and reading validated at or below the 1.0 PPV/in/sec threshold as noted above.. (NFPA 495 10.5.1 - 495 10.5.8).

**ACTION TAKEN BY THE FIRE DEPARTMENT:**

The submitted plans will be **REVIEWED for PERMIT**. The issuance of a permit for this project will be based on the plans submitted. Conditions found, or other data collected or submitted, shall not prevent the fire official from requiring correction of errors found.

**INSPECTIONS:**

Required Inspections: On-site fire department inspections are required at various stages of this project. The Fire Department Permit / Inspection Card will identify a list of required inspections. It is the responsibility of the contractor to call for all inspections.

All work shall be in compliance with approved plans. However, as a result of an inspection, conditions may be found that were not apparent on the plans at the time of review. If such conditions are found, corrections shall be made to bring the project into compliance with the applicable code.

Approval as the result of an inspection shall not be construed to be approval of a violation of any provisions of any code or of any other ordinance of the jurisdiction in which the work is being performed. Inspections presuming to give authority to violate or cancel the provisions of the fire code or of any other ordinance of the jurisdiction, in which the work is being performed shall not be valid.

Should you have any questions please feel free to contact me.

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