

#### **405 KAR 30:250. Use of explosives.**

RELATES TO: KRS 350.600

STATUTORY AUTHORITY: KRS 224.033, 350.028, 350.050, 350.600

CERTIFICATION STATEMENT:

NECESSITY, FUNCTION, AND CONFORMITY: KRS 350.600 requires the Environmental and Public Protection Cabinet to develop administrative regulations for oil shale operations to minimize and prevent their adverse effects on the citizens and the environment of the Commonwealth. This administrative regulation sets forth the requirements relating to the use of explosives.

##### **Section 1. General.**

- (1) The permittee shall comply with all applicable local, state and federal laws and regulations and the requirements of this administrative regulation in the storage, handling, preparation, and use of explosives.
- (2) Blasting operations that use more than the equivalent of five (5) pounds of TNT shall be conducted according to a time schedule approved by the cabinet.
- (3) All blasting operations shall be conducted by experienced, trained, and competent persons who understand the hazards involved. Persons working with explosive materials shall:
  - (a) Have demonstrated a knowledge of, and a willingness to comply with, safety and security requirements;
  - (b) Be capable of using mature judgment in all situations;
  - (c) Be in good physical condition and not addicted to intoxicants, narcotics, or other similar types of drugs;
  - (d) Possess current knowledge of the local, state, and federal laws and regulations applicable to the work; and
  - (e) Have obtained a certificate of completion of training and qualifications as required by KRS 351.315.

Section 2. Blasting Plan. A blasting plan shall be submitted with the permit application for approval by the cabinet. The blasting plan shall contain the following in addition to any other blasting procedures which may be peculiar to the proposed operation or which may be required by a preblasting survey:

- (1) The blasting schedule stipulating the hours during which blasting will be conducted;
- (2) Types of audible warning and all-clear signals which will be used before and after blasting;
- (3) Whether the permittee intends to use seismograph measurements for every blast or whether the formula in Section 7 of this administrative regulation will be followed;
- (4) Location of where record of each blast will be retained and will be available for inspection by the cabinet and the public;
- (5) Name and address of newspapers in which the blasting schedule will be published;
- (6) Names and addresses of local governments and public utilities to which blasting schedules will be mailed; and
- (7) A description of how emergency situations as defined in Section 6(2) of this administrative regulation will be handled when it may be necessary to blast at times other than those described in the schedule.

Section 3. Preblasting Survey. The cabinet may require that a preblasting survey be made and may determine the area to be included in the survey.

- (1) On the request to the cabinet of a resident or owner of a manmade dwelling or structure that is located within one-half (1/2) mile of any part of the permit area, the

permittee shall promptly conduct a preblasting survey of the dwelling or structure and submit a report of the survey to the cabinet.

(2) Personnel approved by the cabinet shall conduct the survey to determine the condition of the dwelling or structure and to document any preblasting damage and other physical factors that could reasonably be affected by the blasting. Assessments of structures such as pipes, cables, transmission lines, and wells and other water systems shall be limited to surface condition and other readily available data. Special attention shall be given to the preblasting condition of wells and other water systems used for human, animal, or agricultural purposes and to the quantity and quality of the water.

(3) A written report of the survey shall be prepared and signed by the person or persons who conducted the survey and prepared the written report. The report shall include recommendations for any special considerations or proposed adjustments to the blasting procedures outlined in Sections 6 through 9 of this administrative regulation which should be incorporated into the blasting plan to prevent damage. Copies of the report shall be provided to the person requesting the survey and to the cabinet.

**Section 4. Public Notice of Blasting Schedule.** At least ten (10) days, but not more than twenty (20) days before beginning a blasting program in which explosives that use more than the equivalent of five (5) pounds of TNT are detonated, the permittee shall publish a blasting schedule in a newspaper of general circulation in the locality of the proposed site. Copies of the schedule shall be distributed by mail to local governments and public utilities and to each residence within one-half (1/2) mile of the blasting sites described in the schedule. Copies sent to residences shall be accompanied by information advising the owner or resident how to request a preblasting survey. The permittee shall republish and redistribute the schedule by mail at least every three (3) months. Blasting schedules shall not be so general as to cover all working hours, but shall identify as accurately as possible the location of the blasting sites and the time periods when blasting will occur. The blasting schedule shall contain at a minimum:

(1) Identification of the specific areas in which blasting will take place. The specific blasting areas described shall not be larger than 300 acres with a generally contiguous border;

(2) Dates and time when explosives are to be detonated expressed in increments of not more than four (4) hours;

(3) Methods to be used to control access to the blasting area;

(4) Types of audible warnings and all-clear signals to be used before and after blasting; and

(5) A description of possible emergency situations as defined in Section 6(2) of this administrative regulation when it may be necessary to blast at times other than those described in the schedule.

**Section 5. Public Notice of Changes to Blasting Schedules.** Before blasting in areas not covered by a previous schedule or whenever the proposed frequency of individual detonations are materially changed, the permittee shall prepare a revised blasting schedule in accordance with the procedures in Section 4 of this administrative regulation. If the change involves only a temporary adjustment of the frequency of blasts, the permittee may use alternate methods to notify the governmental bodies and individuals to whom the original schedule was sent.

**Section 6. Blasting Procedures.**

(1) All blasting shall be conducted only during daytime hours, defined as sunrise to sunset. Based on public requests or other considerations, including the proximity to residential areas, the cabinet may specify more restrictive time periods.

(2) Blasting may not be conducted at times different from those announced in the blasting schedule except in emergency situations where rain, lightning, other atmospheric conditions, or the safety of the operator or public requires unscheduled detonation.

(3) Warning and all-clear signals shall be given which are of different character and are audible within a range of one-half (1/2) mile from the point of the blast. All persons within the permit area shall be notified of the meaning of the signals through appropriate instructions and signs posted as required by 405 KAR 30:210 relating to signs and markers.

(4) Access to the blasting area shall be regulated to protect the public and livestock from the effects of blasting. Access to the blasting area shall be controlled to prevent unauthorized entry beginning at least ten (10) minutes before each blast and lasting until the permittee's authorized representative had determined that no unusual circumstances such as imminent slides or undetonated charges exist and that access to and travel in or through the area can safely resume.

(5) Areas in which charged holes are awaiting firing shall be guarded, barricaded and posted, or flagged against unauthorized entry.

(6) Airblast shall be controlled such that it does not exceed the values specified in Appendix A of this administrative regulation at any dwelling, public building, school, church, or commercial or institutional structure, unless such structure is owned by the permittee and is not leased to any other person. If a building owned by the permittee is leased to another person, the lessee may sign a waiver relieving the permittee from meeting the airblast limitations of this subsection.

(a) In cases except the C-weighted, slow-response, the measuring systems used shall have a flat frequency response of at least 200 Hz at the upper end. The C-weighted shall be measured with a Type 1 sound level meter that meets the standard American National Standards Institute (ANSI) S1.4-1971 specifications.

(b) The permittee may satisfy the provisions of this subsection by meeting any of the four (4) specifications in the chart in Appendix A of this administrative regulation.

(c) The cabinet may require an airblast measurement of any or all blasts, and may specify the location of such measurements.

(7) Except where lesser distances are approved by the cabinet, based upon a preblasting survey, seismic investigations, or other appropriate investigations, and based upon the provisions of 405 KAR 30:130, blasting shall not be conducted within:

(a) 1,000 feet of any building used as a dwelling, school, church, hospital, or nursing facility;

(b) 500 feet of facilities including, but not limited to, disposal wells, petroleum or gas-storage facilities, fluid-transmission pipelines, municipal water-storage facilities, gas or oil-collection lines, or water and sewage lines; or

(c) 500 feet of an underground mine not totally abandoned, except with the concurrence of the Mine Safety and Health Administration of the United States Department of Labor.

#### Section 7. Blasting Standards.

(1) Blasting shall be conducted to prevent injury to persons, damage to public or private property outside the permit area, adverse impacts on any underground mine, or change in the course, channel, or availability of ground or surface waters outside the permit area.

(2) In all blasting operations, except as otherwise stated, the maximum peak particle velocity of the ground motion in any direction shall not exceed one (1) inch per second at the immediate location of any dwelling, public building, school, church, or commercial or institutional building. The cabinet may reduce the maximum peak particle velocity allowed, if it determines that a lower standard is required because of density of

population or land use, age or type of structure, geology or hydrology of the area, frequency of blasts, or other factors.

(3) Provided that blasting is conducted in such manner as to prevent adverse impacts on any underground mine and changes in the course, channel, or availability of ground or surface water outside the permit area, then the maximum peak particle velocity limitation of this section shall not apply at the following locations:

(a) At structures owned by the permittee or the person conducting the blasting operation, and not leased to another party; and

(b) At structures owned by the permittee or the person conducting the blasting operation, and leased to another party, if a written waiver by the lessee is submitted to the cabinet prior to blasting.

(4) The maximum weight of explosives to be detonated within any eight (8) millisecond period shall be determined by the formula  $W = (D/60)^2$ , where  $W$  = the maximum weight of explosives, in pounds, that can be detonated in any eight (8) millisecond period, and  $D$  = the distance, in feet, to the nearest dwelling, school, church, or commercial or institutional building. If the blasting is conducted in accordance with this equation, the cabinet will consider the vibrations to be within the one (1) inch-per-second limit.

#### Section 8. Seismograph Measurements.

(1) Where a seismograph is used to monitor the velocity of ground motion and the peak particle velocity limit of one (1) inch per second is not exceeded, the equation in Section 7(4) of this administrative regulation need not be used. However, if the equation is not being used, a seismograph record shall be obtained for every shot. The seismograph record shall include:

(a) The seismograph reading, including the exact location of the seismograph and its distance from the blast;

(b) The name of the person taking the seismograph reading; and

(c) The name of the person and firm analyzing the seismograph record.

(2) The use of a modified equation to determine maximum weight of explosives for blasting operations at a particular site may be approved by the cabinet on receipt of a petition accompanied by reports including seismograph records of test blasting on the site. However, in no case shall the cabinet approve the use of a modified equation where the peak particle velocity limit of one (1) inch per second required in Section 7(2) of this administrative regulation would be exceeded.

(3) The cabinet may require a seismograph recording of any or all blasts.

Section 9. Record of Blasting Operations. A record of each blast, including seismograph records, shall be retained for at least three (3) years and shall be available for inspection by the cabinet and the public on request. The record shall contain the following data:

(1) Name of person conducting the blast;

(2) Location, date, and time of blast;

(3) Name, signature, and license number of blaster-in-charge;

(4) Direction and distance, in feet, to nearest dwelling, school, church, or commercial or institutional building neither owned nor leased by the permittee;

(5) Weather conditions, including temperature, wind direction, and approximate velocity;

(6) Type of material blasted;

(7) Number of holes, burden, and spacing;

(8) Diameter and depth of holes;

(9) Types of explosives used;

(10) Total weight of explosives used;

(11) Maximum weight of explosives detonated within any eight (8) millisecond period;

(12) Maximum number of holes detonated within any eight (8) millisecond period;

- (13) Initiation system;
- (14) Type and length of stemming;
- (15) If mats or other protections were used;
- (16) Type of delay detonator used, and delay periods used;
- (17) Sketch of the delay pattern;
- (18) Number of persons in the blasting crew; and
- (19) Seismograph records, if required pursuant to Section 8 of this administrative regulation.

Appendix A of 405 KAR 30:250

Airblast Limitations

Lower frequency limit of measuring system, Hz(+3dB)	Maximum level in dB
0.1 Hz or lower-flat response	135 peak
2 Hz or lower-flat response	132 peak
6 Hz or lower-flat response	130 peak
C-weighted, slow response	109 C.

(405 KAR 030:260. 8 Ky.R. 115; eff. 3-1-1982; 9 Ky.R. 957; 10 Ky.R. 288; eff. 10-5-1983; TAm eff. 8-9-2007; Crt eff. 7-3-2018; Crt eff. 6-30-2025.)