

PART III - C

BLASTING PLAN

III-C BLASTING PLAN

1. Ground vibration and airblast control.

(a) Check which of the following procedures will be used to limit ground vibrations.

Maximum Peak Particle Velocity (By Seismograph)

<u>Distance from Shot to Site</u>	<u>Maximum Peak Velocity</u>
0 - 300 feet	1.25 inches/sec
301 - 5000 feet	1.00 inches/sec
5001 - beyond	0.75 inches/sec

Scaled Distance Factor

<u>Distance from Shot to Site *</u>	<u>SD Factor</u>
0 - 300 feet	50
301 - 5000 feet	55
5001 - beyond	65

Modified Scaled Distance Factor

(approval from the Commission is required before this method can be used.)

Blasting-Level Chart

(approval from the Commission is required before this method can be used. See attached sheet.)

* Identify the structure used for measuring the scale distance. See "Scaled Distance Factor" above.

Whenever blasting is being conducted within 500 feet of an occupied dwelling or if more than three (3) decks of explosives per hole, seismograph will be used, otherwise scale distance will be used in all other instances.

(b) Check which of the following maximum levels and corresponding microphone lower frequency limitations will be used.

- 105 dB peak - c-weighted - slow response *
- 129 dB peak - 6Hz or lower
- 133 dB peak - 2Hz or lower
- 134 dB peak - 0.1 Hz or lower *

2. Describe what variations will be made in the blasting operations to control and correct adverse effects due to blasting.

- (1) All designs will vary to obtain proper breakage and remain within the legal limits.
- (2) Delays will be varied to allow for longer delays between the rows than holes to promote forward rather than upward burden movement.
- (3) The drill pattern will be altered as needed. Varying the detonation pattern to adjust the frequency of the vibrations of the blast in the direction of any structures.
- (4) The delay sequence will be adjusted as needed to control ground vibrations.
- (5) Stemming material (in this case) will be varied to consist of sized crushed stone ranging in diameter from 1/4" to 3/4".
- (6) Prior to the charging of a blast pattern, the drill operator will be consulted to determine if any lithologic changes, voids, or zones of weakness in the rock were noted during the drilling. If so, the charging sequence will be varied to accommodate these areas, by placing little or no explosives in the lithologic changes, voids, or zones of weakness to prevent blowouts.
- (7) The delay sequence will be adjusted as needed to control flyrock.
- (8) Increase stemming depth.
- (9) Varying burden and spacing distances.

3. BLAST MONITORING

- (a) Describe the blast monitoring equipment to be used (make and model).
Will it monitor ground vibrations, airblasts, or both?

NOMIS 5200 - 2 Hz - Both or Equal Equipment
NOMIS 5300 - 2 Hz - Both or Equal Equipment
SSU1000D - 2 Hz - Both or Equal Equipment

- (b) How will monitoring equipment be installed and activated?

Equipment will be installed on a temporary basis for one individual shot or on a semi-permanent basis for 24-hour monitoring. The equipment will be activated by the ground vibrations or airblasts. Transducers will be buried.

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- (c) Show the location of blast monitoring stations on the Permit Map or on a separate map with a scale of 1:24000 or smaller.

4. Is blasting proposed to be conducted within 500 feet of an active underground mine?

() YES (XX) NO

If yes, concurrence from MSHA is required.

5. Will blasting be conducted within 500 feet of an abandoned underground mine or within 1000 feet of an occupied dwelling, church, school, community or institutional building?

() YES (XX) NO

If yes, provide the following information, either as a part of the permit application or at a later date, but before reaching the distance given above.

- (a) A sketch showing the drill patterns to be used.
- (b) Critical dimensions, i.e., burden, spacing, stemming, drill hole diameter, etc.
- (c) Delay periods.
- (d) Amount of decking.
- (e) Type and amount of explosives to be used, including the loading weight (lbs. per foot of drill hole)
- (f) Location and general description of the structures to be protected.
- (g) Discuss the measures to be used in the blasting operations to protect the public from adverse effects of blasting.
- (h) The plans are to be prepared and signed by a Certified Blaster.
See Attached Sheets.

6. At what times will blasting be conducted?

Monday through Saturday - Sunrise to Sunset

7. Blasting signs, Warnings and Access Control

Access will be controlled by using signs specifying "Blasting Area" on all roads to the blasting site. When charged holes are awaiting firing, the immediate area will be guarded or flagged against unauthorized entry. The Applicant's personnel will block all access roads to blasting area ten (10) minutes prior to detonation until an all clear is determined by an authorized representative of the company. Prior to detonation of blasts, the blast area, and all public roads within the proximity of the blast area that may be affected by flyrock will be blocked off by employees a minimum of one thousand (1,000') feet measured horizontally from actual blast holes to prevent entry. Audible warning signals will be given by horn located at or near the blasting site. Three (3) people will coordinate the blasting the blaster, signalman and superintendent of the mine. The superintendent will clear the area and communicate with the blaster and signal man. Once a head count is taken the superintendent and the blaster will communicate to ensure the area is still clear. After verification the area is still clear the go ahead to blast will be given. After the blast the blaster will make sure the blast was successful and that no problems exist. He will then communicate with the signalman to sound an all clear and workers can return to their work area.

Warning signals will be as follows: Three (3) long soundings with a pause between for a warning, a five (5) minute wait, then two (2) long soundings with a pause between, then shoot, one (1) long sounding for an "all clear" signal after detonation.

8. Will blasting operation be conducted within 300 feet of an occupied dwelling, church, school, community or institutional building?

() YES (XX) NO

BLASTING PLANS FOR ALABAMA POWER TRANSMISSION LINES

These plans will apply for any blasting within 700 feet of any APCO Transmission Lines containing metal structures.

1. The maximum ground vibration limit will be 2.0 inches per second (PPV).
2. Seismographs will be used on any blast within seven hundred (700) feet of the transmission line to insure that the ground vibration limits are met.
3. Blasting will not be conducted any closer than three hundred (300) feet to any pivot tower of the transmission line as measured from the base of the tower. A pivot tower is where the transmission line makes a turn at the tower. These distances shall be clearly marked on the surface such that the mine operator can tell immediately.
4. Blasting will not be conducted any closer than two hundred (200) feet to any in line tower of the transmission line, as measured from the base of the tower. These distances shall be clearly marked on the surface such that the mine operator can tell immediately.
5. Blasting shall not be conducted any closer than one hundred (100) feet of any guy anchors for towers. These distances shall be clearly marked on the surface such that the mine operator can tell immediately.
6. In order to control flyrock when blasting within the critical area of the Alabama Power Company transmission lines, the Ash Formula of 0.7 to 1.3 times the burden will be used to determine the length of stemming. Crushed stone ½” to ¾” will be used for stemming on all holes in this critical area.
7. Where requested by APCO personnel, footing elevations shall be measured on all existing towers within the mining permit area. These footing elevations shall be taken as soon as possible to allow for a pre-blasting record of existing conditions.