

House Bill 1501

By: Representative Fludd of the 66th

A BILL TO BE ENTITLED
AN ACT

1 To amend Chapter 8 of Title 25 of the Official Code of Georgia Annotated, relating to
2 regulation of blasting operations generally, so as to change certain provisions relating to
3 requirements governing use of explosives in blasting generally; to change certain provisions
4 relating to blasting standards, formulas, and tables; to change certain provisions relating to
5 use of seismograph measurements; to repeal conflicting laws; and for other purposes.

6 BE IT ENACTED BY THE GENERAL ASSEMBLY OF GEORGIA:

7 **SECTION 1.**

8 Chapter 8 of Title 25 of the Official Code of Georgia Annotated, relating to regulation of
9 blasting operations generally, is amended by revising Code Sections 25-8-3, relating to
10 requirements governing use of explosives in blasting generally; 25-8-4, relating to blasting
11 standards, formulas, and tables; and 25-8-5, relating to use of seismograph measurements,
12 as follows:

13 "25-8-3.

14 (a) The use of explosives for the purpose of blasting in the neighborhood of any public
15 highway, railroad, airport, dwelling house, public building, school, church, commercial or
16 institutional building, or pipeline shall be done in accordance with this chapter and the rules
17 and regulations promulgated by the Commissioner.

18 (b) ~~In all blasting operations, except as otherwise provided in this chapter, the maximum~~
19 ~~particle velocity of any component of ground motion recorded on a three-component~~
20 ~~seismograph (where the components — transverse, vertical, and longitudinal — are~~
21 ~~arranged mutually perpendicular) shall not exceed two inches per second at the location of~~
22 ~~any dwelling house, public building, school, church, or commercial or institutional building~~
23 ~~normally occupied. Reserved.~~

24 (c) Blasting operations without instrumentation will be considered as being within the
25 limits set forth in this Code section if such blasting operations are conducted in accordance
26 with ~~subsection (d) of this Code section~~ Code Section 25-8-4.

27 ~~(d) Any blasting operation may be conducted without reference to any maximum amount~~
28 ~~or period provided by this Code section if the person in charge of the blasting operation~~
29 ~~demonstrates by instrumentation that maximum particle velocity of any component of the~~
30 ~~ground motion does not exceed the limits provided in subsection (b) of this Code section.~~

31 Reserved.

32 (e) Instrumentation for determining particle velocity of ground motion, as set forth in this
33 chapter, shall be limited to devices that ~~conform with design criteria for portable~~
34 ~~seismographs as found in the United States Bureau of Mines, RI-6487 and United States~~
35 ~~Bureau of Mines Bulletin 656. The instrument should have calibration traceable to the~~
36 ~~United States Bureau of Standards.~~ have been expressly approved by the Commissioner.
37 The Commissioner or his or her duly authorized agent may enter upon premises for the
38 purpose of observing any necessary instrumentation provided by this chapter.

39 (f) When blasting operations, other than those conducted at a fixed site as a part of any
40 industry or business operated at the site, are to be conducted within close proximity to a
41 known pipeline, the blaster or person in charge of the blasting operations shall take
42 reasonable precautionary measures for the protection of the line and shall notify the owner
43 of the line or his or her agent that the blastings are intended.

44 (g) Blasting operations shall not be conducted within close proximity to any public
45 highway unless reasonable precautionary measures are taken to safeguard the public.

46 (h) When blasting operations are conducted at the immediate location of any dwelling
47 house, public building, school, church, or commercial or institutional building which would
48 result in ground vibrations having a particle velocity exceeding the limits provided by this
49 chapter, such blasting operations may proceed after the receipt of written consent from the
50 property owner or owners affected.

51 (i) When blasting is done in congested areas or in proximity to a structure, railway, or
52 highway, or any other installation that may be damaged, the blaster shall take special
53 precautions in the loading, delaying, initiation, and confinement of each blast with mats or
54 other methods so as to control the throw of fragments and thus prevent bodily injury or
55 property damage.

56 (j) When a blast is about to be fired, ample warning shall be given to allow all persons to
57 retreat to a safe place, and care shall be taken to ascertain that all persons are in the clear.
58 Each blaster shall follow a definite plan of warning signals that can be clearly seen or heard
59 by anyone in the blasting area. The blaster shall inform all persons in the proximity of the
60 blast about the plan and shall take additional precautions when entry into the area is not
61 easily denied.

62 (k) Where the standard table of distance is exceeded, that is, a scaled distance that is less
63 than 50, the blaster shall provide notice to all structures in that area.

64 25-8-4.

65 (a) ~~In all blasting operations, except as otherwise provided in this chapter, the maximum~~
66 ~~peak particle velocity of any component of ground motion recorded on a three-component~~
67 ~~seismograph (where the components — transverse, vertical, and longitudinal — are~~
68 ~~arranged mutually perpendicular) shall not exceed two inches per second at the location of~~
69 ~~any dwelling house, public building, school, church, or commercial or institutional building~~
70 ~~normally occupied.~~

71 (b) ~~For blast-to-structure distance greater than 300 feet, the standard table for maximum~~
72 ~~charge per delay shall be generated by the formula:~~

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$$W = \left(\frac{D}{50} \right)^2$$

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75

76

77 where ~~W is the weight of explosive in pounds and D is the distance in feet to the nearest~~
78 ~~dwelling house, public building, school, church, or commercial or institutional building~~
79 ~~normally occupied.~~

80 (c) ~~The following table may be used for determining the weight of explosives to be used~~
81 ~~with a single delay period:~~

82 STANDARD TABLE OF DISTANCE

83	Distance	Weight	Distance	Weight
84	in Feet	in Pounds	in Feet	in Pounds
85	0-10	1/8	350	49
86	11-15	1/4	400	64
87	16-20	1/2	500	100
88	21-25	3/4	600	144
89	26-30	1.00	700	196
90	40	2.25	800	256
91	50	3.50	900	324
92	60	4.75	1000	400
93	70	6.00	1100	484
94	80	7.25	1200	576
95	90	8.50	1300	676

96	100	9.75	1400	784
97	110	11.0	1500	900
98	130	13.5	1600	1024
99	150	16.0	1700	1156
100	170	18.5	1800	1296
101	190	21.0	1900	1444
102	210	23.5	2000	1600
103	230	26.0	2500	2500
104	250	28.5	3000	3600
105	270	31.0	3500	4900
106	290	33.5	4000	6400
107	300	34.75	4500	8100

108 ~~(d) For nontabulated distances of over 300 feet, the following formula shall be used:~~

$$109 \quad \text{Weight} = \left(\frac{\text{Distance}}{50} \right)^2$$

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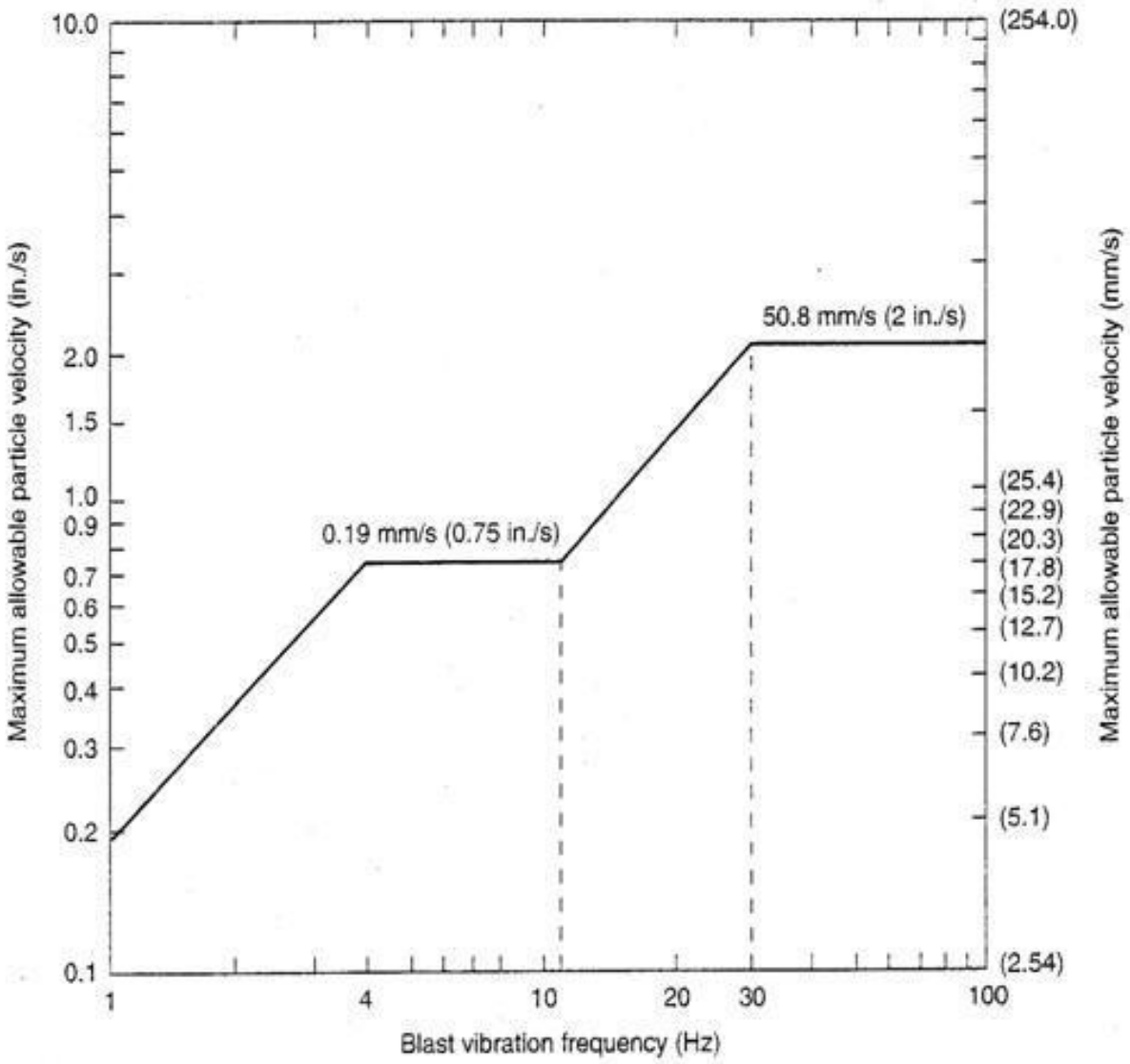
113 (a) In all blasting operations, except as otherwise provided in this chapter, the maximum
 114 ground vibration at any dwelling, public building, school, church, or commercial or
 115 institutional building normally occupied adjacent to the blasting site shall not exceed the
 116 limitations specified in the following table:

117 PEAK PARTICLE VELOCITY LIMITS

118	<u>Distance from blasting site</u>	<u>Maximum allowable peak particle</u>
119		<u>velocity</u>
120	<u>0 to 300 ft (91.4 m)</u>	<u>1.25 in/sec (31.75 mm/sec)</u>
121	<u>301 to 5000 ft (91.5 m to 1524 m)</u>	<u>1.00 in/sec (25.4 mm/sec)</u>
122	<u>5001 ft (1525 m) and beyond</u>	<u>0.75 in/sec (19 mm/sec)</u>

123 Peak particle velocity must be measured in three mutually perpendicular directions, and the
 124 maximum allowable limits shall apply to each of these measurements.

125 (b) In lieu of the table provided by subsection (a) of this Code section, a blaster has the
 126 option to use the following graph to limit peak particle velocity based upon the frequency
 127 of the blast vibration:



Maximum allowable particle velocity vs. blast vibration frequency graph.

128

129 (c)(1) Unless a blaster uses a seismograph to monitor a blast to ensure compliance
 130 with either subsection (a) or (b) of this Code section, the operation shall comply with
 131 the scaled distance equations shown in the following table:

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132 SCALED DISTANCE EQUATIONS

133 <u>Distance from Blasting</u>	<u>Scaled Distance Equation</u>
134 <u>Site</u>	
135 <u>0 to 300 ft (91.4 m)</u>	<u>Standard Table of Distance in paragraph</u> <u>(2) of this subsection</u>
136 <u>301 to 5000 ft (92 m to 1524 m)</u>	<u>W (lbs) = (d (ft)/55)²; or</u> <u>W (kg) = (d (m)/24.9)²</u>
137 <u>5001 ft (1524 m) and beyond</u>	<u>W (lbs) = (d (ft)/65)² or</u> <u>W (kg) = (d (m)/29.4)²</u>

138 Where the W is the maximum weight of explosives in pounds (or kilograms) that can be
 139 detonated per delay interval of 8 milliseconds or greater and d is the distance in feet (or
 140 meters) from the blast site to the nearest dwelling, public building, school, church, or
 141 commercial or institutional building normally occupied that is not owned, leased, or
 142 contracted by the blasting operation or is on property where the owner has not given a
 143 written waiver to the blasting operation.

144 (2) STANDARD TABLE OF DISTANCE (0 to 300 feet (91.4 m))

145 <u>Distance in Feet</u>	<u>Weight in Pounds</u>
146 <u>0-10</u>	<u>1/8</u>
147 <u>11-15</u>	<u>1/4</u>
148 <u>16-20</u>	<u>1/2</u>
149 <u>21-25</u>	<u>3/4</u>
150 <u>26-30</u>	<u>1.00</u>
151 <u>40</u>	<u>2.25</u>
152 <u>50</u>	<u>3.50</u>
153 <u>60</u>	<u>4.75</u>
154 <u>70</u>	<u>6.00</u>
155 <u>80</u>	<u>7.25</u>
156 <u>90</u>	<u>8.50</u>
157 <u>100</u>	<u>9.75</u>
158 <u>110</u>	<u>11.00</u>
159 <u>130</u>	<u>13.50</u>
160 <u>150</u>	<u>16.00</u>
161 <u>170</u>	<u>18.50</u>
162 <u>190</u>	<u>21.00</u>

163	<u>210</u>	<u>23.50</u>
164	<u>230</u>	<u>26.00</u>
165	<u>250</u>	<u>28.50</u>
166	<u>270</u>	<u>31.00</u>
167	<u>290</u>	<u>33.50</u>
168	<u>300</u>	<u>34.75</u>

169 To convert English Units of scaled distances (ft/lb²) to metric units (m/kg²) divide by a
 170 factor of 2.21.

171 (d) Airblast resulting from blasting activities shall not exceed 140 decibels at the
 172 location of any dwelling, public building, school, church, or commercial or institutional
 173 building that is not owned or leased by the person engaged in the blasting operation or
 174 is on property for which the owner has not provided a written waiver to the person
 175 engaged in the blasting operation.

176 (e) In estimating the peak particle velocity at a particular position, the following
 177 formula shall be used:

$$178 \quad V = V_o \left(\frac{D_o}{D} \right)^{1.5}$$

182 where V_o is the maximum ground particle velocity at the seismograph, D_o is the
 183 distance of the seismograph from the blasting, and D is the distance from the blast to the
 184 position in question and in the same general direction. The distance D_o may not be
 185 greater than D , and D cannot be more than five times D_o .

186 (f) Blasting operations at permanent sites shall be considered as being within the limits
 187 set forth in this Code section if at specified locations, on at least five blasts,
 188 instrumentation has shown the peak particle velocity and frequency to be within the
 189 limits of subsection (b) of this Code section. Periodic seismic monitoring shall be
 190 employed to ensure compliance with applicable law.

191 25-8-5.

192 ~~(a) Seismograph measurements may be used to increase the charge weight per delay~~
 193 ~~period, provided that the velocity limit of two inches per second of any of the three~~
 194 ~~mutually perpendicular components of ground motion is not exceeded.~~

195 ~~(b) Seismograph measurements must be used in each individual blasting operation in~~
 196 ~~which the standard table of distance is not being complied with. Notwithstanding the~~
 197 ~~foregoing, a modified table for blasting operations may be established for use at a~~
 198 ~~particular site, provided that the velocity limit of two inches per second of any of the~~
 199 ~~three mutually perpendicular components of ground motion is not exceeded. Blasting~~
 200 ~~operations without instrumentation will be considered as being within the limits set~~
 201 ~~forth in this subsection if, at a specified location on at least five blasts, instrumentation~~
 202 ~~has shown that the maximum peak particle velocity of any of the three mutually~~
 203 ~~perpendicular components of ground motion at the specified location is 50 percent or~~
 204 ~~less than the limit set forth in this subsection, provided that on all future blasts the~~
 205 ~~scaled distance is equal to or greater than the scaled distance for the instrumented blast.~~
 206 ~~(c) In estimating the maximum peak particle velocity at a particular position, the~~
 207 ~~following formula shall be used:~~

$$V = V_{\sigma} \left(\frac{D_{\sigma}}{D} \right)^{1.5}$$

208 where V_{σ} is the maximum ground particle velocity at the seismograph, D_{σ} is the
 213 distance of the seismograph from the blasting, and D is the distance from the blasting to
 214 the position in question and in the same general direction. The distance D_{σ} may not be
 215 greater than D , and D cannot be more than five times D_{σ} . This determined velocity at
 216 the site of any dwelling house, public building, school, church, or commercial or
 217 institutional building normally occupied shall not exceed the two inches per second
 218 limit.

219 At any dwelling house, public building, school, church, or commercial or institutional
 220 building normally occupied within 300 feet of any blast hole, the responsible blasting
 221 firm shall offer the owner or occupant a preblast survey at no charge. This requirement
 222 shall apply only in cases where the standard table of distance is exceeded. The offer
 223 shall be made in writing by the blasting firm at least 72 hours prior to commencement
 224 of the blasting operation. All surveys requested during the offer period shall be
 225 completed prior to the commencement of the blasting operation. Complete
 226 documentation of surveys, including all photographs, may be requested from the
 227 blasting firm by each owner or occupant in writing. Documentation shall be provided
 228 by the blasting firm in a timely manner. Each survey shall document all structural and
 229 cosmetic flaws noted at that time. Nothing contained in this Code section shall apply to
 230 permanent blasting operations."

231

SECTION 2.

232 All laws and parts of laws in conflict with this Act are repealed.